DOWNLOAD PDF PRINCIPLES METHODS OF SCHEDULING RESERVATIONS

Chapter 1 : About operations scheduling | Microsoft Docs

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Operating systems may feature up to three distinct scheduler types: The names suggest the relative frequency with which their functions are performed. Process scheduler[edit] The process scheduler is a part of the operating system that decides which process runs at a certain point in time. It usually has the ability to pause a running process, move it to the back of the running queue and start a new process; such a scheduler is known as preemptive scheduler, otherwise it is a cooperative scheduler. The long-term scheduler is responsible for controlling the degree of multiprogramming. In modern operating systems, this is used to make sure that real-time processes get enough CPU time to finish their tasks. For example, in concurrent systems , coscheduling of interacting processes is often required to prevent them from blocking due to waiting on each other. In these cases, special-purpose job scheduler software is typically used to assist these functions, in addition to any underlying admission scheduling support in the operating system. Medium-term scheduling[edit] The medium-term scheduler temporarily removes processes from main memory and places them in secondary memory such as a hard disk drive or vice versa, which is commonly referred to as "swapping out" or "swapping in" also incorrectly as " paging out" or "paging in". The medium-term scheduler may decide to swap out a process which has not been active for some time, or a process which has a low priority, or a process which is page faulting frequently, or a process which is taking up a large amount of memory in order to free up main memory for other processes, swapping the process back in later when more memory is available, or when the process has been unblocked and is no longer waiting for a resource. In this way, when a segment of the binary is required it can be swapped in on demand, or "lazy loaded". This scheduler can be preemptive , implying that it is capable of forcibly removing processes from a CPU when it decides to allocate that CPU to another process, or non-preemptive also known as "voluntary" or "co-operative" , in which case the scheduler is unable to "force" processes off the CPU. A preemptive scheduler relies upon a programmable interval timer which invokes an interrupt handler that runs in kernel mode and implements the scheduling function. Dispatcher[edit] Another component that is involved in the CPU-scheduling function is the dispatcher, which is the module that gives control of the CPU to the process selected by the short-term scheduler. It receives control in kernel mode as the result of an interrupt or system call. The functions of a dispatcher involve the following: Context switches , in which the dispatcher saves the state also known as context of the process or thread that was previously running; the dispatcher then loads the initial or previously saved state of the new process. Switching to user mode. Jumping to the proper location in the user program to restart that program indicated by its new state. The dispatcher should be as fast as possible, since it is invoked during every process switch. During the context switches, the processor is virtually idle for a fraction of time, thus unnecessary context switches should be avoided. The time it takes for the dispatcher to stop one process and start another is known as the dispatch latency. The main purposes of scheduling algorithms are to minimize resource starvation and to ensure fairness amongst the parties utilizing the resources. Scheduling deals with the problem of deciding which of the outstanding requests is to be allocated resources. There are many different scheduling algorithms. In this section, we introduce several of them. In packet-switched computer networks and other statistical multiplexing , the notion of a scheduling algorithm is used as an alternative to first-come first-served queuing of data packets. The simplest best-effort scheduling algorithms are round-robin , fair queuing a max-min fair scheduling algorithm , proportionally fair scheduling and maximum throughput. If differentiated or guaranteed quality of service is offered, as opposed to best-effort communication, weighted fair queuing may be utilized. If the channel conditions are favourable, the throughput and system spectral efficiency may be increased. In even more advanced systems such as LTE , the scheduling is combined by channel-dependent packet-by-packet dynamic channel allocation , or by assigning OFDMA multi-carriers or other frequency-domain equalization components to the users that best can utilize them. FIFO simply queues processes in the order that they arrive in the ready queue. This is commonly used for a task queue, for example as illustrated in this section. Since context switches only occur upon process termination, and no reorganization of the process queue is required, scheduling overhead is minimal. Throughput can be low, because long processes can be holding CPU, waiting the short processes for a long time known as convoy effect. No starvation, because each process gets chance to be executed after a definite time. Turnaround time , waiting time and response time depends on the order of their arrival and can be high for the same reasons above. No prioritization occurs, thus this system has trouble meeting process deadlines. The lack of prioritization means that as long as every process eventually completes, there is no starvation. In an environment where some processes might not complete, there can be starvation. It is based on queuing. Earliest deadline first[edit] See also: Deadline-monotonic scheduling Earliest deadline first EDF or least time to go is a dynamic scheduling algorithm used in real-time operating systems to place processes in a priority queue. Whenever a scheduling event occurs a task finishes, new task is released, etc. Shortest remaining time first[edit] Main article: Shortest remaining time Similar to shortest job first SJF. With this strategy the scheduler arranges processes with the least estimated processing time remaining to be next in the queue. This requires advanced knowledge or estimations about the time required for a process to complete. This creates excess overhead through additional context switching. The scheduler must also place each incoming process into a specific place in the queue, creating additional overhead. This algorithm is designed for maximum throughput in most scenarios. Since turnaround time is based on waiting time plus processing time, longer processes are significantly affected by this. Overall waiting time is smaller than FIFO, however since no process has to wait for the termination of the longest process. No particular attention is given to deadlines, the programmer can only attempt to make processes with deadlines as short as possible. Starvation is possible, especially in a busy system with many small processes being run. To use this policy we should have at least two processes of different priority Fixed priority pre-emptive scheduling[edit] The operating system assigns a fixed priority rank to every process, and the scheduler arranges the processes in the ready queue in order of their priority. Lower-priority processes get interrupted by incoming higher-priority processes. Overhead is not minimal, nor is it significant. If the number of rankings is limited, it can be characterized as a collection of FIFO queues, one for each priority ranking. Processes in lower-priority queues are selected only when all of the higher-priority queues are empty. Waiting time and response time depend on the priority of the process. Higher-priority processes have smaller waiting and response times. Deadlines can be met by giving processes with deadlines a higher priority. Starvation of lower-priority processes is possible with large numbers of high-priority processes queuing for CPU time. Round-robin scheduling The scheduler assigns a fixed time unit per process, and cycles through them. If process completes within that time-slice it gets terminated otherwise it is rescheduled after giving a chance to all other processes. RR scheduling involves extensive overhead, especially with a small time unit. Good average response time, waiting time is dependent on number of processes, and not average process length. Because of high waiting times, deadlines are rarely met in a pure RR system. Starvation can never occur, since no priority is given. Order of time unit allocation is based upon process arrival time, similar to FIFO. Multilevel queue scheduling[edit] Main article: Multilevel queue This is used for situations in which processes are easily divided into different groups. For example, a common division is made between foreground interactive processes and background batch processes. These two types of processes have different response-time requirements and so may have different scheduling needs. It is very useful for shared memory problems. Work-conserving scheduler A work-conserving scheduler is a scheduler that always tries to keep the scheduled resources busy, if there are submitted jobs ready to be scheduled. In contrast, a non-work conserving scheduler is a scheduler that, in some cases, may leave the scheduled resources idle despite the presence of jobs ready to be scheduled. Scheduling optimization problems[edit] There are several scheduling problems in which the goal is to decide which job goes to which station at what time, such that the total makespan is minimized: Each job should be executed on a single machine. This is usually regarded as an online problem. Each job should spend some time at each station, in a free order. Each job should spend some time at each station, in a pre-determined order. Manual scheduling[edit] A very common method in embedded systems is to schedule jobs manually. This can for example be done in a time-multiplexed fashion. Sometimes the kernel is divided in three or more parts: Manual scheduling, preemptive and interrupt level. Exact methods for scheduling jobs are often proprietary. No resource starvation problems Very high predictability; allows implementation of hard real-time systems Almost no overhead May not be optimal for all applications Effectiveness is completely dependent on the implementation Choosing a scheduling algorithm[edit] When designing an operating system, a programmer must consider which scheduling algorithm will perform best for the use the system is going to see. In this system, threads can dynamically increase or decrease in priority depending on if it has been serviced already, or if it has been waiting extensively. Every priority level is represented by its own queue, with round-robin scheduling among the high-priority threads and FIFO among the lower-priority ones. In this sense, response time is short for most threads, and short but critical system threads get completed very quickly. Since threads can only use one time unit of the round-robin in the highest-priority queue, starvation can be a problem for longer high-priority threads. More advanced algorithms take into account process priority, or the importance of the process. This allows some processes to use more time than other processes. The kernel always uses whatever resources it needs to ensure proper functioning of the system, and so can be said to have infinite priority. In SMP symmetric multiprocessing systems, processor affinity is considered to increase overall system performance, even if it may cause a process itself to run more slowly. This generally improves performance by reducing cache thrashing. The differences were such that the variants were often considered three different operating systems:

Chapter 2 : Scheduling Principles and Problems â€“ Society of Workforce Planning Professionals

However, lean implementations have often undesirable outcomes. Firstly, organisations either do not achieve the levels of success they initially yearned. This leads to management either deserting their lean efforts or seeking aimlessly for a new buzz word to adopt. Secondly, an enterprise may find it difficult to sustain the lean improvements, and thus rushing to conclude lean as incompatible with their industry, or unsuited for their organisational structure. These shortcomings can be easily avoided by recognising lean not only as a collection of tools but also a philosophy. The Lean philosophy needs to be applied companywide, with both management and employees onboard, to tackle business issues as they arise with a united way of thinking. In turn, this means that when opportunities or problems occur, and traditional lean tools fail short, the shared way of thinking by the organisation can be used to derive and develop new tailored solutions to address the issue directly. This paper aims to illustrate the possibilities of lean tools being applied in complex production environment, and introduce two case studies supporting the findings. In particular, we argue that the full potential of planning and scheduling in a manufacturing setting can only benefit from the utilisation of lean principles and the support of quantitative modelling. It is with that in mind that this paper intends to enlighten the merits of applying lean principles to production scheduling. The argument presented here consists of two parts; firstly, it is concerned with the adoption of Lean in an appropriate manner and not attempting to imitate other organisations or tracing their footsteps, as this has shown to be a common explanation for companies failing to realise or achieve Lean success. Secondly, Lean can venture beyond its automobile origin, known to be Toyota in Japan, to benefit other industries and market sectors. Here the concept of applying Lean to production scheduling is investigated in more detail. Lean tools that can be adapted to scheduling are explained and analysed to help highlight the agenda. This is further emphasised by presenting two case studies, where Lean tools and techniques are implemented to enhance the scheduling effectiveness. The second case study investigates the support of day-to-day operations in a Lean-centric cellular manufacturing environment. The remainder of the text is structured as follows. The next section briefly summarises the Lean philosophy, followed in Section 3 by a review of scheduling, accompanied by Lean-tools of interest to scheduling. Then, in Section 4, the two case studies are presented. The paper closes with a discussion and conclusion. This book documented the evolution of the automotive industry from Craft Production, through Mass Production to ultimately Lean Production. The book argues that the Lean paradigm follows in the footsteps of its peers, but only by combining their advantages, while trying to evade the high costs of craft producers, and the rigidity of mass producers. Lean is a philosophy that seeks to improve activities by exposing and eliminating all types of waste from the system, may it be a value stream, a manufacturing process, or even a routine job. It makes use of its tools to strive for zero inventories, zero downtimes, zero defects, and zero delays in the production process. Waste can be described as the opposite side of value on a Lean coin. Lean emphasises the need for an organisation to develop a culture of continuous improvement in quality, cost, delivery and design [5]. Lean asks an organisation to consider all activities as a series of processes that can be optimised and aligned to continuous improvement programmes. Cost reduction is primarily achieved through the use of Just-In-Time production Kanban, one-piece flow and levelling and Jidoka; operators have authorisation to stop the line to prevent defective work being transferred to the next station [8, 9, 10]. Lander and Liker [11] identified that many organisations struggle with understanding how Lean Production principles can be applied to them. When they look at Toyota, they see highly repetitive, standardised manufacturing processes and have great difficulty in seeing how they can transfer this to their organisations, which may build-to- order, involve highly engineered products or they may be service providers. Lander and Liker [11] argue that these companies are approaching Lean Production from the wrong perspective. What is required to transfer the benefits of Lean to environments where they have yet to be applied is to adopt the same principles and thought processes that Toyota used to develop TPS, rather than direct implementation of a set of tools and techniques from a toolkit. Viewed in this light TPS is not a production philosophy, but rather an example of the application of JIT and Lean philosophies to one organisation in the automotive sector. Lean offers opportunities for many organisations, to increase productivity, reduce waiting times, lower costs and improve services, if it can be successfully applied in their business sector. The literature on Lean is rich with case studies on the successful application of Lean in a variety of sectors worldwide e. Most fundamentals of Lean; Value Stream Mapping [13, 14], Kaizen [15], Kanban [10]; can be implemented without any major investment in automation. Kaizen is a Japanese term that means continuous improvement. Kaizen Blitz or Kaizen Events are a common activity on the journey towards leanness where a group of trained lean experts target and review one or more production processes in the quest to identify opportunities for improvement. Value Stream Mapping is a technique used in Lean Manufacturing that maps the flow of material and data, and associated time requirements. It begins from the initial supplier to end at the customer for a given business process. It can be used to define improvement areas and sources of waste. Kanban is a method of flagging up the need for more parts on an assembly line by using signal cards at workstations, first used at Toyota and associated with the Just-In-Time technique. However, the implementation and deployment of these tools is not in itself Lean. Womack and Jones [4] identified the five basic principles underpinning Lean Thinking as: Bhasin and Burcher [5] identified that the Lean paradigm has two important requirements; technical requirements and cultural requirements. With respect to the technical requirements, they suggest that instead of focusing on one or two tools of lean in isolation that it is important that companies practice most, if not all, of the following: In addition to these technical requirements, Bhasin and Burcher [5] identified thirteen changes that are required in corporate culture to ensure successful implementation of Lean. These include, decision making at the lowest level, clarity of vision, strategy of change with clear communication of how the goals will be achieved, clear roles and responsibilities, develop supplier relationships based on trust and mutual respect, nurture a learning environment, focus on the customer, promote lean leadership at all levels with clear lean metrics, maintain the challenge of existing processes, maximise stability by reducing schedule changes, program restructures and procurement quality changes, access the fraction of employees operating under lean conditions, observe the proportion of departments pursuing lean and long-term commitment. Womack et al [3] used the term Lean Enterprise to describe the application of Lean Thinking outside the boundaries of the organisation. It concerns the distribution of scarce resources, usually machines, to tasks over time [18]. Scheduling is defined as a decision making query that entails optimisation of one or more scheduling conditions. Due to it combinatorial nature, scheduling problems are computationally very intricate and complicated to solve. Therefore, it is not always possible to find the best possible solution in a reasonable time frame. Assortments of heuristic methods have been developed in order to find near-optimal solutions in comparatively short periods of time. However, often heuristics applied in practice are dispatching rules that have minimal computational complexity and are simple to implement [19]. Production scheduling is important to manufacturing organisations for a number of reasons. J Younger a pioneering author in the field of scheduling had the following view on the matter: It also provides the basic background for the formulation of mathematical structures and computer systems architectures that simulate and generate schedules. In most situations a production schedule will never be executed precisely. Disruptions are a certainty and modifications are inevitable to allow execution, and perhaps facilitate improvements in dealing with the situation encountered. This process of altering the original schedule to handle disruption from uncertain varying factors is generally referred to as rescheduling or reactive scheduling. Manufacturing operations can encounter a wide range of uncertainties. Therefore, the objectives of scheduling are to accommodate and anticipate these uncertainties before they occur or have a recipe to counteract them [21]. Different sources of uncertainty are inherent in real life production scenarios. The interruption that has been most often dealt with in the literature is machine breakdown. Scheduling research has so far been unable to properly address the general issue of uncertainty, making the impact of scheduling research less influential on industrial practice [21]. However, uncertainty is not the only dimension in scheduling, and research efforts need to be redirected to look at different aspects that effect scheduling. This aids to maximise the utilisation of the production facility. Levelled production aims to run a constant quantity of all the operations, hence without the levelling system, there would be great difficulty in dealing with uncertain demand fluctuations. Unless there is a surplus of labour, capacity and large quantities of inventory, the concept of a levelled schedule is required. The benefits of this constant production and levelled schedule are reduced overall waste. This can be in the form of less operators standing ideal while waiting for work, or machines and tools that require high investment sitting unused [22]. In order to gain a better understanding on how Lean effects scheduling, it is worth while exploring the main tools and concepts that may have an impact [23]. Takt time is the basic rate of production, also referred to as the drumbeat for the process of production. Takt time is usually calculated prior to generating a schedule, the rest of the operations have to be aligned with the Takt time in order to avoid delays or shortages. However, instances where a production facility is faced with uncertainties such as the arrival of urgent orders, unpredictable machine breakdown or resource shortages may have an impact on the Takt time calculated. In such cases the Takt time needs to be recalculated incorporating remedial actions in order to revamp the schedule. When scheduling in a lean environment, the pacemaker must be initially identified, as this operation will determine the pace of the rest of the value chain. The pacemaker is usually a critical operation with limited recourses or capacity. Scheduling at this one point will result in a pulling effect on work from upstream processes and flowing product through the subsequent processes to the customer. The scheduled volume and product mix at the pacemaker typically corresponds to what is known as the master schedule. Master schedules are established in synchronisation with the Takt time for all items that go through the pacemaker process. The entire system depends on an elementary lean principle of levelled production called Heijunka [2, 22, 24, 25], which involves the levelling of production by both volume and product mix. Small-scale Lean organisations use spreadsheets to schedule their production in order to create Heijunka. However, IT systems are a crucial addition for most organisations and yield significant benefits. With the addition of the Internet, this has exploded its potential [26]. Producing to customer orders only is, when possible, the best practice. However, producing a constant small inventory maybe more desirable than flexing plant resources to meet day-to-day order variations. In a lean operating plant, products are often produced to a buffer called the finished goods supermarket, rather than directly to customer orders. Another dependent factor for the size of the supermarket is the replenishment time for the finished goods. A common standard in lean manufacturing is the principle of pull, which emphasises only replenishing what is used. Pull replenishment works on the basis of segmenting the Work-In-Process WIP or finished goods supermarkets into equal units referred to as Kanbans. Once a certain predetermined quantity of Kanban units is consumed, a signal is generated to indicate the requirement to schedule production or authorise a new order for replenishment. In order to allow for a Kanban system to be productively implemented, a few prerequisites are needed: Demand for the items must be steady and continuous. Replenishment time must be relatively short in comparison to order lead time. Raw material needs to be readily available to allow immediate production to commence once a signal is generated. When demand is not steady and continuous, quantitative modelling techniques such as discrete event simulation or queuing network models can provide decision makers with the means to optimise the parameters of the system, such as the number of items in Kanban bins or the number of Kanbans to be allocated to workstations. The case studies provide insights on the benefits of using analytical models to support scheduling in an integrated push-pull environment and in a cellular manufacturing environment, respectively.

Chapter 3 : Staffing and Scheduling | Nurse Key

*Principles and Methods of Scheduling Reservations (3rd Edition) [David W. Howell] on calendrierdelascience.com *FREE* shipping on qualifying offers. Once again, experienced agency owners and expert teachers and trainers Davidoff and Davidoff provide well-organized directions for completing every form connected with the ticketing process.*

Share This Page Principles of Irrigation Scheduling Scheduling irrigation is attempting to apply water to potatoes at the appropriate amount for a specific stage in the plants development and growth. Transpiration is the movement of water through the vine, from roots to leaves, to compensate for water loss at stomates pores that are open to allow gas exchange oxygen and carbon dioxide between the plant and the atmosphere thereby supporting plant photosynthesis and respiration. The basic principles of irrigation scheduling from a soil-water view are: Sites for monitoring soil moisture should be chosen to be most representative of the field. The purpose is to limit under-watering of the heavier soils and over-watering lighter soils. For precision irrigation where watering can be controlled in smaller areas within the field, more monitors would be needed and both better and poorer soils would need to be monitored. Root zone depth is the zone where most of the root structure is found. This varies with different potato varieties but as a general rule, roots develop down to 18 inches below the seed piece. Water holding parameters Figure 1. Two measurements would be important. In general, sandy soils have the lowest FC while silt loams have the highest with clays being intermediate. This begins to induce the shutting of stomates resulting in reduction of carbohydrate synthesis photosynthesis and respiration metabolism , and leads to wilting. This has a direct relation to yield. In sandy loam soils, the AD is three-quarters to one inch water up to a depth of 12 inches or one to one and a half inch for the root zone of a full-grown determinate potato variety Curwen and Massie, ; Kranz et al. Soils that are compacted or tend to seal will lower water-holding capacity and reduce penetration of water into the soil. Effective irrigation is the amount of water that actually gets into the root zone and is available to the plant. Some of the irrigation water actual irrigation is lost as run-off, evaporation or deep percolation. Daily water usage by the potato is dependent on the growth stage of the plant and environmental conditions on that day. It is directly related to canopy development, mostly leaves which contain nearly all the stomates. Environmental conditions that affect daily water use are air temperature, relative humidity, wind, and solar radiation. An excellent guide to daily water usage is evapotranspiration ET data that is calculated from weather station data Klocke et al. Most, if not all, land-grant universities like University of Nebraska calculate ETs for stations around the state and provide them on the web and for publication in local newspapers. ET is the total daily water use from both transpiration by the plant and evaporation from the soil and can be as high as a third of an inch in a day for potato. Therefore, a potato crop that has row-closed on sandy loam at field capacity three-quarters to one inch AD can be carried for two and a half to three days under high ET conditions. From this, one can estimate a two to two and a half inches weekly irrigation requirement for potatoes during tuber bulking under high ET conditions -- high temperature, low relative humidity, intense sunlight, high winds, and long days July in the Nebraska Panhandle? Seasonal ETs differ for crops due to duration at full canopy and growing season. In summary, the key factors in managing irrigation are: Irrigation management in Wisconsin -- the Wisconsin irrigation scheduling program. Evapotranspiration ET or crop water use. Irrigation scheduling using tensiometers in sandy soil. Irrigation scheduling using crop water use data.

Chapter 4 : Benefits of Lean Construction | Turner Construction Company

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Oh, if only it were that easy! The problem is that if you have a group of agents that started at 8: And then a few will be calling in sick today. Perhaps another group is out in a training session. What has just happened to the workforce? You have to schedule enough staff so that when the workforce shrinks, there will still be enough bodies in chairs to handle the calls. Use the actual number, not the goal. Will you create schedules so that the requirement is covered every single half-hour of the day? This is a more reasonable approach from a cost and service perspective, with the key being to keeping the amount of understaffing and overstaffing minimized each half-hour. Will you have mostly 8 x 5 schedules where each person works five consecutive days? Or try some variations such as four hour days or even three hour days as one call center has surprisingly found to be a favorable combination! Think about varying the full-time definition further and try out three hour days and two 5-hour days. There are dozens of possible schedule definitions, even within the restriction of full-time schedules. Expanding the schedule mix further to include part-time schedules will have tremendous payback in terms of increased schedule flexibility. While part-time staff generally have higher turnover and are more expensive to train since we have to expend the same training effort on twice as many employees , keep in mind that sometimes the part-timers may be less expensive in terms of benefit costs, and may actually be more productive employees given their shorter exposure each day. Think of the schedule definition process as building a structure with Lego blocks. The more schedule options you have, the closer the fit of workforce to the workload half-hour by half-hour. Obviously, the absolute best fit of schedules would be if all staff worked part-time and we had lots of small blocks with which to build our model. Having all part-timers is probably not realistic for most call centers, despite its efficiency. But having just a small percentage of part-timers can help. You can see the results of a schedule that uses only traditional, 8-hour schedules.

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Chapter 5 : Principles of Irrigation Scheduling | CropWatch

Scheduling Principles and Problems. Call Center Scheduling â€" The art and science of getting the just right number of people in their seats at precisely the right times to handle the calls.

The system is implemented in a reservation computer device having computer executable code tangibly embodied on a computer readable medium. The reservation computer device is operable to prioritize a reservation schedule of a service establishment based on a route and projected arrival time of one or more subscribing users such that earlier arriving users and users that have already arrived at the service establishment are given priority in the reservation schedule regardless of prearranged reservations. One such service is location services, which provides information specific to a location including actual locations of a user. It is expected that location based services will generate additional business for the carrier, from both the mobile user and content providers. For the mobile user as well as the service provider, location-based services offer many opportunities. For example, location-based services can increase revenue of the service provider, e. Some examples of location-based services that can be provided to the mobile user include: Providing the nearest business or service, such as an ATM or restaurant; Providing alerts, such as notification of a sale on gas or warning of a traffic jam; Providing weather reports which are germane to the location where the user is using the mobile device, etc. An advantage of using location services is that the mobile user does not have to manually specify ZIP codes or other location identifiers to use location-based services. For the network carrier, location-based services provide value add[ed] by enabling services such as: Resource tracking with dynamic distribution e. In addition, location based services are convenient for sharing location data between wireless devices to wireless devices and from wireless devices to stationary devices like a home computer or stationary tracking system or content provider, etc. This would allow a third party to determine an exact location of a mobile user such as, for example, a family member, friend, employee, etc. In view of the above, location based services can be a very powerful tool for both the end user and the network carrier. However, the full extent of location based services has not yet been realized by the industry. For example, there is no currently effective way to use the services to provide certain conveniences to the end user as well as a service establishment such as, for example, a restaurant. Take for example, the many instances when a person makes an appointment or reservation, but traffic or other issues delay the individual, or other instances when a person arrives to a location early only to wait for a service. In these instances, the service establishment may not be effectively using their resources such as, for example, maximizing their dining capacity. More specifically, knowing that an individual will be late or early for an appointment can prompt the service establishment, e. However, currently the only known way to do this is by trusting the individual to keep the restaurant advised as to their expected arrival time. This, of course, is impractical as the individual will rarely, if ever, inform a restaurant, for example, that they are running either late or early. Accordingly, there exists a need in the art to overcome the deficiencies and limitations described hereinabove. SUMMARY In a first aspect of the invention, a system implemented in a reservation computer device comprising computer executable code tangibly embodied on a computer readable medium. In another aspect of the invention, a method is provided on software, hardware or a combination of software and hardware. The method includes prioritizing a reservation schedule of a service establishment based on a route and estimate time of arrival of one or more users of a subscribing system. The priority is provided to the subscribing users that are early arriving users and users that have already arrived at the subscribing service establishment regardless of prearranged reservations. In another aspect of the invention, a method is provided for deploying a location based service. The method comprises providing a computer infrastructure operable to at least adjust a reservation schedule of a service establishment using received route information which is used to estimate a time of arrival of subscribing and authenticated users during a predefined time window. The method also comprises prioritizing an order of service in the reservation schedule based on the estimated arrival time and actual arrival time of the subscribing users. For example, the system and method of the invention provides a reservation service to inform the restaurant of a cancellation, or late or early arriving patron. This will allow the restaurant the ability to rearrange its seating schedule to maximize capacity and hence revenue. In this way, the late arriving patron can be re-queued into the system, while early arriving patrons can be given priority. Also, in further implementations, the reservation system of the present invention can broadcast reservation openings to interested parties for example, potential diners in the vicinity of a restaurant to allow them to quickly query availability without the need to place a call or physically stop into the establishment. Advantageously, the present invention can be used for different services. For example, the present invention can be used for restaurants, concerts or theater halls, sporting events, and other service oriented venues. Overview of System FIG. In embodiments, a mobile device 30 and a location based service 40 subscribe to a reservation service or system In further embodiments, a service establishment 70 also subscribes to the services of the reservation system The subscription can take on many different forms such as, for example, subscription, one time usage fee, periodic fee, etc. The service establishment 70 can be any service oriented venue such as, for example, a restaurant, but is equally applicable to other service venues such as theaters, sporting venues and other establishments which cater to patrons. In yet further embodiments, the mobile device 30 may also subscribe to the location based service 40; although this is not necessary in that mobile device 30 may have a resident agent A-GPS which can provide location based information directly to the reservation system The mobile device 30 may connect to the reservation system 50 via the Internet using instant messaging like with an internet messenger or SS7 signaling protocols by way of a carrier infrastructure Once subscribed, the reservation system 30 can receive location information of an end user mobile device 30 from the location based service In this way, the service establishment 70 can more efficiently utilize its resources. That is, the service establishment can calculate a new guest reservation queue in order to more efficiently serve its patrons. This priority can be provided regardless of prearranged reservations of any of the patrons. Also, in embodiments, the reservation system 50 can proactively broadcast messages to potential patrons passing with a predefined zone of the service establishment. This can be done by determining a users location and checking, e. Once the location is determined and certain accommodations are known to be available, the broadcast message can be sent to the mobile devices within a certain radius, e. In response, the patron, e. In embodiments, the location information can be obtained by an agent sitting locally on the mobile device, at a service provider or carrier infrastructure. The agent can be used to determine location information using many different methodologies. By way of one example, a local agent residing on the mobile device can use locally cached location information obtained by GPS, A-GPS or mechanisms other than the telecommunications network in order to determine location information. In other embodiments, the agent can obtain information from control plane locating, e. Exemplary System Environment and Infrastructure As will be appreciated by one skilled in the art, the present invention may be embodied as a system, method or computer program product. Accordingly, the present invention may take the form of an entirely hardware embodiment, an entirely software embodiment including firmware, resident software, micro-code, etc. Any combination of one or more computer usable or computer readable medium s may be utilized. The computer-usable or computer-readable medium may be, for example but not limited to, an electronic, magnetic, optical, electromagnetic, infrared, or semiconductor system, apparatus, device, or propagation medium. More specific examples a non-exhaustive list of the computer-readable medium would include the following: The computer-usable or computer-readable medium could even be paper or another suitable medium upon which the program is printed, as the program can be electronically captured, via, for instance, optical scanning of the paper or other medium, then compiled, interpreted, or otherwise processed in a suitable manner, if necessary, and then stored in a computer memory. In the context of this document, a computer-usable or computer-readable medium may be any medium that can contain, store, communicate, propagate, or transport the program for use by or in connection with the instruction execution system, apparatus, or device. The computer-usable medium may include a propagated data signal with the computer-usable program code embodied therewith, either in baseband or as part of a carrier wave. The computer usable program code may be transmitted using any appropriate medium, including but not limited to wireless, wireline, optical fiber cable, RF, etc. This may include, for example, a local area network LAN or a wide area network WAN , or the connection may be made to an external computer for example, through the Internet using an Internet Service Provider. To this extent, the environment 10 includes a server or other computing system 12 that can perform the processes described herein. In particular, the server 12 includes a computing device The computing device 14 can be resident on a network infrastructure or computing device of a third party service provider any of which is generally represented in FIG. The computing device 14 includes a reservation engine module or program control 50 configured to make computing device 14 operable to perform the services described herein. In one example, both the mobile device 30 and the location based service 40 subscribe to the reservation services reservation engine In embodiments, it should be understood that the location based service can also be part of the computing device 14 and, as such, both services can be provided by, e. Once subscribed, the mobile device 30 may connect to the reservation engine 50 and more specifically to the computing device 14 via the Internet or SS7 signaling protocols. The reservation engine 50 can receive location information of the mobile device 30 from the location based service 40 and, in turn, be provided with information such as, for example, anticipated arrival time of the patron, location of the patron, any delays the patron is encountering, etc. This will allow the service establishment to prioritize or adjust its reservation queue. Also, in embodiments, the reservation engine 50 can proactively send broadcast messages to potential patrons passing with a predefined zone of the service establishment. The memory 22A can include local memory employed during actual execution of program code, bulk storage, and cache memories which provide temporary storage of at least some program code in order to reduce the number of times code must be retrieved from bulk storage during execution. The program code executes the processes of the invention. The bus 26 provides a communications link between each of the components in the computing device The computing device 14 can comprise any general purpose computing article of manufacture capable of executing computer program code installed thereon e. However, it is understood that the computing device 14 is only representative of various possible equivalent-computing devices that may perform the processes described herein. In each embodiment, the program code and hardware can be created using standard programming and engineering techniques, respectively. Similarly, the server 12 is only illustrative of various types of computer infrastructures for implementing the invention. For example, in embodiments, the server 12 comprises two or more computing devices e. Further, while performing the processes described herein, one or more computing devices on the server 12 can communicate with one or more other computing devices external to the server 12 using any type of communications link. That is, a service provider, such as a Solution Integrator or location based service LBS , could offer to perform the processes described herein. In this case, the service provider can create, maintain, deploy, support, etc. Exemplary Processes illustrate exemplary processes in accordance with the present invention. The steps of FIGS. The flow diagrams in FIGS. In this regard, each process may represent a module, segment, or portion of code, which comprises one or more executable instructions for implementing the specified logical function s. It should also be noted that, in some alternative implementations, the functions noted in the block may occur out of the order noted in the figures. For example, two blocks shown in succession may, in fact, be executed substantially concurrently, or the blocks may sometimes be executed in the reverse order, depending upon the functionality involved. Additionally, the invention can take the form of an entirely hardware embodiment, an entirely software embodiment or an embodiment containing both hardware and software elements. Software includes but is not limited to firmware, resident software, microcode, etc. Furthermore, the invention can take the form of a computer program product accessible from a computer-usable or computer-readable medium providing program code for use by or in connection with a computer or any instruction execution system. For the purposes of this description, a computer-usable or computer readable medium can be any apparatus that can contain, store, communicate, propagate, or transport the program for use by or in connection with the instruction execution system, apparatus, or device. The medium can be an electronic, magnetic, optical, electromagnetic, infrared, or semiconductor system or apparatus or device or a propagation medium. Examples of a computer-readable medium include a semiconductor or solid state memory, magnetic tape, a removable computer diskette, a random access memory RAM , a read-only memory ROM , a rigid magnetic disk and an optical disk. In embodiments, as shown in FIG. The mobile device then sends a temporary token to the reservation system that allows the reservation system to track the user.

Chapter 6 : Applying Lean Principles to Production Scheduling | John Geraghty and Mustafa Salman - cale

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Lean manufacturing places emphasis on daily execution to customer demand. It favours a system of visual signals on the factory floor to replace computer planning and paper reports. Does this mean that production scheduling is in conflict with best practices of lean and demand-driven production? Finite scheduling is very different to Master Production Scheduling. Scheduling is an essential part of integrated planning and a powerful way to model real-world constraints in a supply chain. Execution Top manufacturing companies have to master two areas of excellence: Planning processes determine what we will do, how and when we will do it; execution processes focus on getting it done. Excellence in execution is well-established and enshrined with principles of lean, demand flow, six sigma and theory of constraints. There are many variants and combinations of these principles and tools. However, they are largely based on common values: Excellence in execution is built on a foundation of proven principles that have generated tremendous results for those who have adopted them. Excellence in planning is less clear-cut. For many companies in manufacturing, the primary tool for planning is MRP. MRP carries a logic that is seriously limited when it comes to planning in a modern manufacturing. When the forecast is unreliable and the customer expects a fast response, MRP fails to perform. It is in conflict with the customer-centric concept: This is demand-driven manufacturing: So, does it mean that a lean or demand flow company does not need to do any planning and scheduling? Well as with most things, it is not that simple. Demand-driven manufacturing works to a paradigm that has all materials, work and transactions driven directly to real-time demand. In this paradigm, execution is everything. This is great for vision, but the problem is that it ignores the realities of business. If daily demand sometimes exceeds daily capacity, or if suppliers have long lead-times, then you are going to need planning. Therefore scheduling is evil, a forecast-driven sin. Not All Scheduling is Evil If scheduling means Master Production Scheduling to a forecast, then yes it is evil and something we should avoid. However, we need to be specific about what is being scheduled. If we are scheduling forecast requirements in production, then that is one thing. If we are scheduling customer order commitments, then this is entirely different. This is a bit like the old lean mantra: Do we get rid of all inventory just because some of it hides waste and inefficiency? If you have multiple things to do and you cannot do them all at once, you need to schedule. The most flexible, lean factory has to decide the sequence with which sales orders get released into shared resources. Even if you receive orders in the morning and release to production in the afternoon, you will still need to schedule production. Most manufacturers that have a fair degree of capital intensity or resource cost may have to smooth demand over more than a day. So, scheduling by itself is not an issue. The form of demand is what matters. Are you scheduling an expectation of future demand or a real customer commitment? If it is a forecast expectation then you are push-scheduling. If an order commitment then you are more likely scheduling for demand-pull. Does this mean that all make-to-stock is push-scheduling, the evil kind? No, because there is a third form of demand beyond forecasts and orders. Replenishments are a demand signal that is taken from a movement in stock. If finished goods are consumed below a preset level or to a whole Kanban quantity, a replenishment signal is sent. We can schedule a queue of Kanban quite easily. You can still comply with your visual factory principles and your demand-driven production strategy. The scheduling is there to model the process and ensure that the Kanban or min-max design has enough stock and capacity to meet with demand without shortages. Modeling, Prediction and Execution Production scheduling pursues two fundamental objectives: The most important outcome of a scheduling system is a reliable prediction of what will happen and when orders can be completed. An answer to that golden customer question: A reliable prediction model enables management to properly size resources and inventory, set policy and make customer service commitments. Production scheduling systems can also deliver execution: There is still a role for production scheduling in terms of execution. There may be a level of consistency, measurability or optimisation that a manual system cannot deliver. This way, a production scheduling system is able to co-exist nicely with a lean execution system, filling the roles of execution that it does best and deferring to the simple, visual methods for the rest. The biggest gains from production scheduling in a lean factory are going to arise from meeting order commitments. A customer-driven company makes promises and keeps them. Sometimes, the level of demand or complexity means that the outcome from an execution-led system is not clear. We need scheduling tools that will enable us to make a fast, reliable prediction about capability and control the result to meet our promise.

Chapter 7 : Principles and Methods of Scheduling Reservations (3rd Edition) - | SlugBooks

Describe basic principles of scheduling irrigation for efficient use of water resources. The hydrolic cycle of earth provides tremendous benefits. The decision of when to irrigate forages is critical to both forage yield and quality.

A dynamic set of one or more options which satisfy the category criteria and the date criteria in the query are identified in real time. Each of the identified dynamic options are entered and displayed in real time. There also are several networked calendaring systems that enable users to share calendars between users of the system. A few of these systems have limited capabilities to enable sharing beyond users of the system. One of these prior art calendaring systems and methods is disclosed in U. Barnett which is herein incorporated by reference in its entirety. Basically, Barnett discloses a multi-layered online calendaring and purchasing system and method which allows a user to specify categories of events, to view events belonging to the specified categories from outside sources, and to add selected events from the outside sources to a personal calendar. In Barnett, the user can choose which categories of selected events are to be displayed, in any combination he or she desires. Although the prior art described above is helpful for some types of calendaring, it is limited in its usefulness to static or nearly-static content that is generated for the one-to-many communication of information to a large population of users. In other words, it works well for groups of events that rarely or never change and that have relatively few total events, and that have broad relevance, such as a schedule for a sporting team or a list of trade shows. The prior art does not work well for reservations of events that involve large amounts of dynamic data, such as air travel, dinner reservations, and train travel, which can rapidly change and need to be filtered by a query to create a useful view. SUMMARY A method for scheduling and completing a reservation in accordance with embodiments of the present invention includes receiving at least one query for a dynamic event where the query comprises category criteria and date criteria. A computer readable medium in accordance with other embodiments of the present invention has stored thereon instructions for scheduling and completing a reservation comprising machine executable code which when executed by at least one processor, causes the processor to perform steps that include receiving at least one query for a dynamic event where the query comprises category criteria and date criteria. A reservation system in accordance with other embodiments of the present invention includes a communication system, a search system, a display processing system, and a transaction system. The communication system receives at least one query for a dynamic event and query comprises category criteria and date criteria. The search system identifies a dynamic set of one or more options in real time which satisfy at least the category criteria and the date criteria in the query. The display processing system enters and displays in real time each of the identified dynamic options. The present invention provides a number of advantages including providing an effective method for users of a Web-based or client-server software application to complete real-time reservations, such as ticketing, without leaving the application. The present invention also provides the user with the ability to search a large number of options in real-time to find the event that matches the user-driven criteria. Additionally, the present invention lets the user filter, sort, and display search results based on user input criteria, such as price, time, location, duration, genre, and cuisine, thus improving the relevancy of the results. Further, the present invention provides the user with a high quality reservation experience and consistent interface without ever requiring the user to leave the application or visit multiple website URLs. The present invention provides a number of advantages including providing an effective and automatic process for users of a Web-based or client-server software application to complete real-time reservations for events. Referring more specifically to FIG. The processor 20 in the application provider system 12 executes a program of stored instructions for one or more aspects of the present invention as described herein, including a method for scheduling and completing a reservation within an application in real time. The interface system 24 in application provider system 12 is used to operatively couple and communicate between the application provider system 12 and the user computing systems 14 1 n and data provider systems 16 1 n via communications system 18, although other types and numbers of connections and other configurations and other types of communication systems could be used. The application server 26 stores and creates the presentation layers for the application or applications and returns the created layer to one or more of the user computing systems 14 1 n , although the results could be transmitted to other systems. Each of the user computing systems 14 1 n enables a user to utilize the application or applications from the application provider system 12, such as the calendar application by way of example only, although one or more of the user computing systems 14 1 n could utilize other applications and could provide a wide variety of other functions for the user. The processor 20 in each of the user computing systems 14 1 n executes a program of stored instructions for one or more aspects of the present invention as described and illustrated herein, including scheduling and completing a reservation within an application in real time, although each of the processors 20 in user computing systems 14 1 n could execute other types of programmed instructions. The user input device 30 in each of the user computing systems 14 1 n is used to input selections, such as user data including appointments, meetings, and events to interact with applications, although each of the user input devices 30 could be used to input other types of data and interact with other elements. The user input device 30 in each of the user computing systems 14 1 n comprises a computer keyboard and a computer mouse, although other types and numbers of user input devices 30 can be used for each of the user computing systems 14 1 n. The display 32 in each of the user computing systems 14 1 n is used to show data and information to the user, such as a display in real time of reservation options in a calendar application with scheduling conflicts marked, although other types of data and information could be displayed and other manners of providing notification can be used, such as via email, page, SMS, and Web. The display 32 in each of the user computing systems 14 1 n comprises a computer display screen, such as a CRT or LCD screen by way of example only, although other types and numbers of displays could be used in each of the user computing systems 14 1 n. The interface system 24 in each of the user computing systems 14 1 n is used to operatively couple and communicate between each of the user computing systems 14 1 n and the application provider system 12 and the data provider systems 16 1 n via communications system 18, although other types and numbers of connections and other configurations and other types of communication systems could be used. The processor 20 in each of the data provider systems 16 1 n executes a program of stored instructions for one or more aspects of the present invention as described herein, including scheduling and completing a reservation within an application in real time. The interface system 24 in each of the data provider systems 16 1 n is used to operatively couple and communicate between the data provider systems 16 1 n and the application provider system 12 and user computing systems 14 1 n via communications system 18, although other types and numbers of connections and other configurations and other types of communication systems could be used. The database 34 stores the list of events, their categories, and the availability of reservation slots at specific dates and times for those events for the query software The query software 36 is the application code that the application server 26 in the application provider system 12 calls to query the database The query software 36 could be an API or the application server could call the database directly. Although an example of embodiments of the application provider system 12, the user computing systems 14 1 n , and the data provider systems 16 1 n are described and illustrated herein, each of the application provider system 12, the user computing systems 14 1 n , and the data provider systems 16 1 n of the present invention could be implemented on any suitable computer system or computing device. It is to be understood that the devices and systems of the exemplary embodiments are for exemplary purposes, as many variations of the specific hardware and software used to implement the exemplary embodiments are possible, as will be appreciated by those skilled in the relevant art s. Furthermore, each of the systems of the present invention may be conveniently implemented using one or more general purpose computer systems, microprocessors, digital signal processors, micro-controllers, and the like, programmed according to the teachings of the present invention as described and illustrated herein, as will be appreciated by those skilled in the computer and software arts. In addition, two or more computing systems or devices can be substituted for any one of the systems in any embodiment of the present invention.

Accordingly, principles and advantages of distributed processing, such as redundancy, replication, and the like, also can be implemented, as desired, to increase the robustness and performance of the devices and systems of the exemplary embodiments. The present invention may also be implemented on computer system or systems that extend across any network using any suitable interface mechanisms and communications technologies including, for example telecommunications in any suitable form e. The present invention may also be embodied as a computer readable medium having instructions stored thereon for scheduling and completing a reservation within an application in real time as described herein, which when executed by a processor, cause the processor to carry out the steps necessary to implement the methods of the present invention as described and illustrated herein. The operation of the system in accordance with embodiments of the present invention will now be described with reference to FIGS. In step 50, a user at one of the user computing systems 14 1 n utilizes an application or applications from the application provider system 12, such as a calendar application, although the application or applications could be obtained from other locations in other manners. In step 52, the user at the one of the user computing systems 14 1 n being utilized, activates an enabled link, although other manners for initiating the query between systems or within a system can be used, such as having the user instantiate real-time, asynchronous data exchange by interacting with the dynamic graphical user interface by way of example only. Next, the user creates a real-time query for a reservation option or options while still in the calendar application, although the query can be generated or obtained in other manners at other locations and times. The query includes category criteria, such as categories for airline, train, bus, car rental, taxi, hotel, dining, entertainment, or meeting reservations by way of example only, and date criteria, such as the departure and return dates and times or specific event date or dates, although other types and numbers of criteria could be included in the query. Once the query is created, the query is transmitted from the one of the user computing systems 14 1 n being utilized to one or more of the data provider systems 16 1 n to begin a search for reservation options based on the query. At least a portion of the reservation options being searched for based on the query comprise dynamic data, such as available airline reservation options for departing and returning flights by way of example only. In step 54, the one or more of the data provider systems 16 1 n begin a real-time search based on at least the category criteria and date criteria in the query for dynamic reservation option or options, although other system or systems could be used to identify the dynamic reservation option or options which are available. Since systems and methods for searching for dynamic reservation option or options in response to a query, such as a query for airline, train, bus, car rental, taxi, hotel, dining, entertainment, or meeting reservation option or options by way of example only, are well known to those of ordinary skill in the art, those searching systems and methods will not be described in detail here. In step 58, the application provider system receives the dynamic reservation option or options from one or more of the data provider systems 16 1 n and provides the dynamic reservation option or options to the one of the user computing systems 14 1 n being utilized via the communication system In step 60, the one of the user computing systems 14 1 n being utilized determines if the dynamic reservation option or options received in step 58 should be filtered. If the received dynamic reservation option or options do not need to be filtered, then the No branch is taken to step If the received dynamic reservation option or options need to be filtered, then the Yes branch is taken to step In step 62, the one of the user computing systems 14 1 n being utilized filters the received dynamic reservation option or options based on one or more user input criteria, although the received dynamic reservation option or options can be filtered in other manners. This filtering can be done manually or automatically based on user input criteria at the one of the user computing systems 14 1 n being utilized. By way of example only, the user input criteria for filtering the received dynamic reservation option or options can comprises at least one of geography, i. In step 64, the one of the user computing systems 14 1 n being utilized enters and displays the initial dynamic reservation option or options or the filtered initial dynamic reservation option or options in the calendar application, although other manners for displaying the dynamic reservation option or options can be used, such as in a table format. By entering each of the dynamic reservations option or options based on their associated date and time in the calendar application, the user is able to see in the display system of the one of the user computing systems 14 1 n being utilized how the different dynamic reservations option or options correspond with the schedule of the user so that appropriate plans and also any necessary changes to the schedule of the user can be made. In step 64, the one of the user computing systems 14 1 n being utilized also provides an indication with each of the dynamic reservations option or options if that dynamic reservation option or options interferes with a previously scheduled appointment in the calendar application of the user. By way of example only, the background color of any dynamic reservation option or options that interferes with a previously scheduled appointment is different from the background color of any dynamic reservation option or options that does not interfere with a previously scheduled appointment, although other types and numbers of designation or markers could be used. By way of example only, FIGS. In this example, departing and returning flight options that do not conflict with an existing appointment in the calendar application have a blue background while departing and returning flight options that pose a conflict have a pink background, although other colors or indicators could be used. If the one or more of the reservation options in the calendar application have not been selected, then after a set period of time the No branch is taken back to step 50 as described earlier, although other manners for providing an indication that none of the reservation options have been selected could be used. By way of example only, the user could enter an input into the one of the user computing systems 14 1 n being utilized that declines the reservation options. When none of the reservation options have been selected, then the one of the user computing systems 14 1 n being utilized removes the reservation options from the calendar application. If one or more of the reservation options in the calendar application have been selected, then the Yes branch is taken to step In step 68, the selected reservation option or options are entered in the calendar application and the unselected reservation option or options are removed from the calendar application in the one of the user computing systems 14 1 n being utilized. In step 68, the user at the one of the user computing systems 14 1 n being utilized can complete the purchase transaction for the selected reservation option or options without leaving the calendar application. By way of example only, screenshots of the selection and purchase of departing and return flight options and the entry of the purchased of departing and return flights in the calendar application is illustrated in FIGS. Accordingly, the present invention provides a number of advantages including providing an effective and automatic system and method for users of a Web-based or client-server software application or other application to complete real-time reservations, including ticketing, while in an application. Having thus described the basic concept of the invention, it will be rather apparent to those skilled in the art that the foregoing detailed disclosure is intended to be presented by way of example only, and is not limiting. Various alterations, improvements, and modifications will occur and are intended to those skilled in the art, though not expressly stated herein. These alterations, improvements, and modifications are intended to be suggested hereby, and are within the spirit and scope of the invention. Additionally, the recited order of processing elements or sequences, or the use of numbers, letters, or other designations therefore, is not intended to limit the claimed processes to any order except as may be specified in the claims. Accordingly, the invention is limited only by the following claims and equivalents thereto. A method for scheduling and completing a reservation, the method comprising: The method as set forth in claim 1 further comprising: The method as set forth in claim 2 wherein the entering and displaying further comprises entering and displaying in real time each of the identified dynamic options in a calendar application. The method as set forth in claim 3 further comprising removing the other displayed dynamic options from the calendar application which were not selected. The method as set forth in claim 1 further comprising filtering the identified dynamic options based on one or more user input criteria, wherein the entering further comprises entering and displaying in real time each of the identified and filtered dynamic options. The method as set forth in claim 5 wherein the user input criteria comprises at least one of geography range, genre of event, cost of event, a third-party rating system, genre of cuisine, and time range. The method as set forth in claim 1 wherein the entering and displaying further comprises entering and displaying in real time each of the identified dynamic options in a calendar application and further comprises providing an indication for each of the entered dynamic options that interfere with one or more appointments in the calendar application. The method as set forth in claim 7 wherein the indication comprises a different background color for the entered dynamic options that interferes with one or more appointments in the calendar application. The method as set forth in claim 1 wherein completing a reservation further comprises completing a purchase of the received selection of one of the displayed dynamic options. The method as set forth in claim 1 wherein the category criteria comprises at least one of an airline reservation, a train reservation, a bus reservation, a car rental reservation, a taxi reservation, and a hotel reservation and the date criteria comprises at least one of a departure date and a return date. The method as set forth in claim 1 wherein the category criteria comprises at least one of an entertainment event and a dining event and the date criteria comprises one or more selected dates. A computer readable medium having stored thereon instructions for scheduling and completing a reservation comprising machine executable code which when executed by at least one processor, causes the processor to perform steps comprising: The medium as set forth in claim 12 further comprising: The method as set forth in claim 13 wherein the entering and displaying further comprises entering and displaying in real time each of the identified dynamic options in a calendar application. The method as set forth in claim 14 further comprising removing the other displayed dynamic options from the calendar application which were not selected. The medium as set forth in claim 12 further comprising filtering the identified dynamic options based on one or more user input criteria, wherein the entering further comprises entering and displaying in real time each of the identified and filtered dynamic options in the calendar application. The medium as set forth in claim 16 wherein the user input criteria comprises at least one of geography range, genre of event, cost of event, a third-party rating system, genre of cuisine, and time range. The medium as set forth in claim 12 wherein the entering and displaying further comprises entering and displaying in real time each of the identified dynamic options in a calendar application and further comprising providing an indication for each of the entered dynamic options that interfere with one or more appointments in the calendar application. The medium as set forth in claim 18 wherein the indication comprises a different background color for the entered dynamic options that interferes with one or more appointments in the calendar application.

Chapter 8 : Scheduling (computing) - Wikipedia

The critical path method (CPM) of scheduling makes use of a single or deterministic time estimate for each activity in the network. Such time estimates can be reasonably generated from prior experience.

Contributors In this article Applies To: Scheduling at the operation level is the less detailed method, and provides a general estimate of the production process over time. Operations scheduling does not explode the operations for the production route into jobs. If you want to include more detail in the scheduling, such as information about current capacity, you can run job scheduling after operations scheduling. You can also run a job scheduling only. Job scheduling is typically used to schedule individual jobs on the shop floor for an immediate or short-term time frame. For more information see Production - Job scheduling class form. Components of operations scheduling The main components of operations scheduling are the scheduling direction, the capacity of resources, and materials optimization. By using operations scheduling, you can do the following: Control the planning method by scheduling forward or backward from a given date. Optimize the use of resources by scheduling productions based on the capacity of the resources. This also helps identify when to use alternative resources. Optimize the use of materials by scheduling productions based on the availability of the required materials. Schedule and synchronize reference productions. You must estimate the cost of a production order before you can run operations scheduling. If you have not run an estimate, it is run automatically before the operations scheduling process is initiated. An operations schedule specifies the following: The product that is planned for production The configuration of the product The quantities involved in the production The dates that the production will start and end The capacity reservations for the resources that perform the production activities The setup time, process time, and run time are set for operations in the production After you run operations scheduling, the status of the production order is Scheduled, and all operations are scheduled in the order that is specified by the production route. However, only the duration of the operation is considered. Start times and end times are not scheduled. Scheduling direction and date The scheduling direction is fundamental to the scheduling process. Production can be scheduled forward or backward from any date, depending on timing and scheduling requirements. Forward from the scheduling date â€” Schedule production to start as early as possible. It can be started today, tomorrow, or on any date in the future. The production is scheduled forward in time to the earliest possible end date. Backward from the scheduling date â€” Schedule production to start as late as possible. Backward scheduling is based on the date that the production must be completed. The schedule counts backward from that date to the latest possible date that the production can be started and still be completed on time. Resource scheduling When you run an operations schedule, each operation in the production route is scheduled for the resource that is specified for the operation. In addition, the duration of each operation is specified on the production route. If a resource group is specified for an operation, the scheduling reserves capacity on the group. However, unlike job scheduling, operations scheduling does not select the specific resources in the group. For more information, see Resource groups form. If you are working with finite capacity, the schedule depends on the availability of the resources that are required to complete production. Operations scheduling follows the sequence of operations that is specified on the production route. The scheduling reserves capacity on the resource groups based on the operation times that are defined on the production route. The sum of available capacity on the resources involved determines the capacity for the resource group. Capacity reservations that already exist for the resources are considered as unavailable capacity. If available capacity is insufficient for production, the production orders can be delayed or even stopped. You can also specify the efficiency that you expect from the resources that are involved in the production. You specify the efficiency as a percentage on the resource. The efficiency percentage adjusts the throughput of the resource. This affects the time that is reserved for the resource. The lead times for the operations that use the resource are also adjusted accordingly. For more information, see Resources form. Operations scheduling and master planning The operations schedule also drives master planning and determines material requirement calculations. Operations scheduling considers the following: Backlogged productions â€" Products that are planned, released, or started Material availability â€" Inventory, subproduction, suppliers, and vendors Capacity availability â€" Resources that are required for production Cancellations When you run operations scheduling, you can cancel certain parts of the routing. These include the queue time, setup time, process time, overlap time, and transport times. For more information, see Production - Job scheduling class form. Finite materials If you are working with finite materials, scheduling also depends on the availability of the materials that are required for production. If available components are not sufficient for the production, production can be delayed. You can base scheduling on the use of materials by specifying the materials that must be available for production. When you optimize on both resource capacity and the availability of materials, production is calculated according to these restrictions. A production order cannot be scheduled to start until capacity and materials are available at the same time and in the required quantities.

Chapter 9 : How Scheduling Can Co-Exist with Lean

STAFFING. One of the most time-consuming concerns of most nurse managers is the staffing of the unit. Staffing requires having enough staff to deliver care but also requires that the staff that are present are qualified to deliver the care.