

Software Engineering

Lab Assignment 2

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Contents

Project Drivers

Purpose of the Project

- User Business or Background of the Project Efforts

Room scheduling is a platform to make an online reservation. It is a quicker and convenient way to reserve a room online. By hosting online room scheduling service, entire flow of customers will not affect in the absence of registrar or building administrator. For example; if the registrar is out of country, then it will be easier to get a permission if there is an online room scheduling system.

- Goals of the Project

This project extends to the bigger scope of reservation for the college people or outside clients as well. This project can solve the problems made by human errors and prevent conflicting reservation.

The Client

The client of this project is a registrar of the college. Registrar has requirements like online reservation, online payment and cancelation process. Client need to reduce the paper works so that there will be no chance of errors or misunderstanding. Moreover, client will be able to reserve, to view and administrate the whole system.

Users of the Product

Various categories of users are associated in this project. Registrar works as an admin, so he/she can make a reservation or cancel it anytime. Student of the college, students of outside the college or any organization are the set of users in this project.

- User category: In this project, there is a discrete categories of the user. Registrar can work as an admin or customer. Any organization who wants to reserve a book for meeting can be an end-user. College student can be an end-user as well.
- User role: End-user can reserve a room for meeting. They can check the availability. User needs to pay online, so ultimately they can pay online. In many case, if they don't need a room then they can cancel an appointment.

- Subject matter experience: end-user doesn't need to be known about this business. There a manual on our webpage, by which user can make it simple and easy.
- Technological Experience: As it is a college room reservation system, all clients should have enough experience; because many universities are running this type of online reservation system.
- Other user characteristics: Users, who are going to use this system, will have enough experience to make a reservation and handle this online system. Client is expecting techno savvy users and probably they are having 20 to 30 years of age. Some organizations have more than this age group, but they are expected as professional people, too. Users can be both male and female, linguistic skills and physically disable. But this system will be suitable for all types of users.

Project Constraints

4. Mandated Constraints

a. Solution Constraints:

o Description:

The product will be a website which will allow college professionals and non-college affiliated guests to reserve rooms in the college where the client works. College professionals, will include college professors, faculty, administrative and non-teaching staff.

o Rationale:

1. The client, who has been selected by the college to assign available college rooms for reservation is interested in automating this process.
2. The college is interested in the proposition of allowing non-college affiliated individuals and groups to reserve rooms so as to increase revenue.

o Fit Criterion:

The development team will strive to ensure that the website meets the client's requirements. This will be achieved via implementation of quality assurance testing during each stage of the website development process.

b. Partner or collaborative applications:

- o The website will allow college professionals to log into the room reservation system using the same login details as their online academic accounts. Collaborating with college authorities, specifically the Registrar, Information and Technology (IT) department and other college representatives, as directed by the client will make this possible.

- The development team will take into account potential issues which may hamper integrating this information into the website's construction. For example, One or more college servers are experiencing downtime, a college professional loses her/his college identification card used for room access and others.

c. Schedule Constraints:

- The development team, in accordance with the client's requirement is scheduled for a website functionality demonstration in the month of April (4/16).
- The development team is schedule to deliver the final website launch in the ensuing month of May (5/16)

5. Definitions

- Client = In our case study, the client represents a professor of a mid-sized college who has the responsibility of assigning college rooms for reservation.
- User category = Name of the user group
- User role = What the user needs to do
- Subject matter experience = User experience of the business
- Technological experience = User's technological experience
- Rationale = Set of reasons
- Fit criterion = Is a test
- Schedule constraints = List of any deadlines
- Context of the work = Context diagram that shows the work needs to be researched
- Product boundary = Use case diagram that shows boundary between user and the product

6. Assumptions

- We are making assumptions on what the user's budget might be and the kinds of technology the college may use.

Functional Requirements

The Scope of the Work

a. Product Boundary

This project contains minimum two types of users; Registrar who works as an admin and customers who work as an end-user. Admin can play several roles like make a reservation and remove the reservation. While talking about an end-user, they can have limited access of this system. Users can make a reservation; they can pay online.

b. Product Use Case list

c. Individual Product Use Case

The Scope of the Product

Room scheduling system is mainly intended to reserve a classroom for college students as well as student and organization from outside of the college.

This document's main objective is to give an overview of room scheduling system and common aspects of the services. Primary goal of this project is to reduce a paper work and erroneous processes of reservation. Users can make a reservation online and they can stay away from the hectic process of paper work.

This project can manage a proper perception of scheduling the classrooms. Registrar can be free and system can work fast. By this way, this system will be able to eliminate customer's tedious and time consuming reservation processes.

Functional and Data Requirements

Functional Requirements:

Functional requirements include that how does this project function. It runs on a simple browser which supports HTML web pages. The main functionalities of this project are as following.

1. This system will provide a functionality to save and remove following data.
 - Classroom information.
 - Information of department.
 - Information of college.
 - Information of building.
 - Information of time duration.
 - Information of availability.
 - Information about building and classroom supervisor.
2. System shows the schedule of multiple classes are arranged on the same time.
3. Web pages should display the information about the classes, like capacity of students and attached peripherals, distance from the department etcetera.
4. System shall notify the users in case some technical issues arise.

5. Web pages should display detailed schedule for reserved classroom with time slot, date and confirmation as well.

Data Requirements

This section shows the requirements of data to be needed in the system. In other word, is shows the flow of data. It describes the flow of data, from where to where it does flow.

Project Issues

Open Issues

Most of the main requirements are not closed, especially the money related one's, It should be decided by the register. the team are not able to start unless they got the agreement and the detailed requirements, and it is approved financially.

1. Budget of the Project: our client mentioned that the project expenses should be dealt with the Register.
2. Technology are not visible due to the client's background is limited, the client may not realize that technical approaches are not delivered or mentioned at all.
3. Payment Method: The client did not decide which method is chosen, If it is Online based payment only, Cash based payment only or Both payments are required.
4. Parking for the guest reservation are not mentioned if the parking associated with the room reservation. It should be complementary with the reservation and included as one of the facilities that provided with the room reservation.

Risks

(Here The Risks are in order from the important to less important)

1. Underestimate the time that needed to finish the project. Does not use the tools like project network to estimate the time and know the critical path is one of the risk that could led to underestimated the time that needed.
2. Underestimate the project cost: Additional cost needed in some phases of the project would.
3. Team members. if one of the team members leave the team for another position, which could cause a delay on the submission.

4. Excessive schedule pressure: Underestimated the time that needed to complete the project, pressure to meet the deadline which could led the team to critical mistakes.
5. Management malpractice: Action done by the professional who does not follow the standard of professional competence which could resulted in a clear damage to his client by the delivered product. In IT field the negligence and errors are possible, and It is the leader or manager task to avoid it by monitoring and keeping up with the project and the team. Also, team members are responsible toward themselves.
6. Creeping user requirements: is a tendency for product or project requirements to increase during development beyond those originally foreseen. Feature creep may be drivcn by a client's growing "wish list" or by developers themselves as the see opportunity for improving the product.

To deal with requirements Creep changes during the execution phase:
 - Making sure that all stakeholders and business users know about the scope.
 - Train team members how to identify and manage the scope changes (How to identify scope change when they see it, and to be able to answer correctly are appropriate back to the business user
 - Communications, the team should continuously communicating and have appropriate communications plan to manage scope changes (commercial documents, statement work, kickoff presentation with the team, stakeholders and business users, reinforcing almost every week what the scope project is)
7. Low quality: The fast base on the project to meet the deadline could lower the quality of the project.
8. Low productivity: is a tendency of lack of productivity and is due to the poor planning, poor management and lack of communication.

User Documentation

1. Technical specifications to accompany the product: A detailed description of technical requirements, with specific acceptance criteria, stated in terms suitable to form the basis for the actual design development and production processes of the item having the qualities specified in the operational characteristics.

2. User manuals: is a technical communication document intended to give assistance to people using a particular system.
3. Service manuals: Provided book with instructions on how to keep the system working properly at different point in its life
4. Emergency procedure manuals: Provided book with instructions on how to help facilities of the University (client) how to fix the system and manage the safety for the system in the emergency situation
5. Installation manuals: Provided book with instructions on how to install the system in the devices and the computers.

Waiting Room

(We cannot tell now because the waiting room are for the new coming ideas during the project execution)

The team should document any upcoming ideas, which could improve the product features. However, the team should concentrate on the project deadline and if the team got the team, they could add it.

Nonfunctional Requirements

10.Look and Feel Requirements

a. Appearance Requirements

- The website will obtain information representing the college such as college colors and the logo from the college registrar.
- The website will primarily be a text based document.
- Guests or outside groups will enjoy the same user interface as college faculty and staff.
- The requirement gathering procedure and designers will ensure that the website's appearance adheres to the client's vision for the final product.

b. Style Requirements

- The product should have a neutral and inviting mood.

- The product should influence potential college faculty or guests to schedule a room reservation.
- The website will focus on the process of reserving rooms. The design of the website will not direct the user's attention to any other phenomenon.
- The client's specific requirements of the website might not be met within the first requirements gathering meeting. This is because a broader perspective is obtained during the initial meeting. Subsequent communication with the client will clarify further detailed requirements and design refinement.
- Fit Criterion:
The website will attempt to gain 100% of all potential user's attention during their first room reservation experience via the website.

11. Usability and Humanity Requirements

a. Ease of Use Requirements

- The website will provide options for increasing and/or decreasing the font size. This is independent of the functionality which various modern internet browsers offer to alter font size. The location of the font size modification option will be strategically placed in the website so that it will be clearly visible to all potential users. This may aid potential users with special visual needs. Placement of the location font modification option will be discussed with the client during a future communication.
- The website will provide options for converting webpage text to speech. This will also be independent of the option which certain modern internet browsers offer for 'text to speech' functionality. The website will provide an initial alert window before the webpage begins to read the text out loud. Placement of the location font modification option will be discussed with the client during a future communication.
- The website will ensure that minimal cognitive memory from the user's part will be required to remember steps and functions within the website. The website will be addressing a diverse age range. Hence, simple, step by step instructions will be provided if a complex task is entailed, if any.
- The website will allow very few to no errors when it comes to navigating through webpages and especially during the room reservation process. A confirmatory window will be displayed to ensure that the correct room (room number, room location, room functionality, such as a SmartLab, room with different types of technology, such as one with a projector), number of

rooms, date and time, and cost of reservation are verified. This window will be displayed before the final transaction completion window.

- The website will provide instructions and feedback to the user throughout the room reservation process. This will be achieved by:
 - a. A tiny button with a question mark sign '?' will be found next to all crucial steps of the room reservation process. On clicking the '?' button, the user will be displayed a pop-up window with a brief, lucid explanation describing the step. The explanation will be complete with an example.
 - b. A detailed Frequently Asked Questions (FAQ) webpage will be present in the Help section of the website. The FAQ webpage will provide answers to commonly asked questions. Also, solutions to non-technical questions which may arise during the quality assurance testing phase of the website will also be reported in the FAQ section before the final release of the website.
- Fit Criterion: 90% of all potential website users shall be able to successfully reserve the desired number of rooms according to their room reservation requirements.

b. Learning Requirements:

- The website should have a user interface which is equally easy to use for both college faculty and guests.
- The website will allow for successfully completing the room reservation process by potential user's in accordance with the client's expected learning curve time frame ranging between 0 seconds to 5 minutes.
- Fit Criterion:
 1. 100% of individuals who belong to the college and/or individuals who are familiar with the college website's user interface should successfully complete the room reservation process within 3 – 5 minutes before contacting the webmaster for help.
 2. 100% of individuals who are not familiar with the college website's user interface should successfully complete the room reservation process within 8 – 15 minutes before contacting the webmaster for help.

c. Understandability and Politeness Requirements

- The website will be designed in a way which mimics the user interface of the college website.

- The website's design may be altered to a more widely-acceptable website design given the client's permission, if the development team jointly conclude that the college website's functionality is difficult to comprehend by the general public. This will also be reviewed during the quality assurance phase post website development.
- The website's design will ensure that focus is laid on its core purpose: the room reservation process. Methods such as highlighting the reservation process heading title on the initial page and providing headings on every subsequent webpage can help realize this purpose.
- The website will have no webpage elements providing functionality other than addressing the client's requirements. For example, there will be no local news, weather, events widgets present.
- No aspect of the website's internal framework will be displayed to the user. This will include programming code which may be displayed in the description section of a Google Search below the title of the search.

d. Accessibility Requirements

- The website will provide functionality within webpages to adjust font text size for potential users who may require visual aids.
- Users who are visually impaired may require external assistance and/or the use of the 'text to speech' function. The 'text to speech' functionality has been discussed in the 'Usability and humanity requirements'.
- Users with learning disabilities may require external assistance and/or any of the previously discussed options. These factors may increase the website's functionality learning curve.
- The client would like ensure that the website will allow users from both the college and guests, with or without disabilities to reserve rooms with equal ease.

12. Performance Requirements

a. Speed and Latency Requirements

- The website will follow the client's vision of the project and implement a predominantly text based interface. Excess use of multimedia elements may contribute to webpage navigation latency and hence will be avoided.

- Fit Criterion:
 1. The website will ensure that room reservations will be displayed in real time. Hence, internal webpage refresh functionality will be a requirement.
 2. The website will ensure that no additional internal processes will occur during the monetary transaction processing time on the reservation finalization webpage.

b. Reliability and Availability Requirements

- The website should be available for reserving rooms 24 hours a day, 365 days a year, except the first Sunday of each month between 8 – 10 am. The acceptance of this time slot will be discussed with the client in a future communication.
- If an error is reported by a user via the error report form, the website will immediately notify the webmaster. The development team will attempt to resolve the issue as soon as possible.
- The development team will follow the guidelines provided by the college IT department regarding maximum webpage down time as the website will be hosted by the college.
- The website will undergo exhaustive quality assurance testing prior to the launch of the website to rule out a predominant percentage of errors. At the same time, the website does not constitute a high-value project and hence availability of support staff 24 hours, 7 days a week is not feasible.

c. Capacity Requirements

- The website can host 50 users navigating its webpages at the same time between 4 – 9pm on Friday and Sunday evenings.
- Fit Criterion:
The website should ensure that if a specific room is reserved at the same time by more than one user, priority will be given to individuals associated to the college first, and then guests. Within the college domain, professors will be given higher priority before other college staff.

13. Maintainability Requirements

- Website maintenance checks will be conducted on the first Sunday of each month between 8 – 9.30 am. The acceptance of this time slot will be discussed with the client in a future communication.

- The development team will discuss the possibility of sending a non-technical report to the client every time an error on the website is detected and resolved. This will be discussed in an upcoming client-development team briefing.

14. Security Requirements

a. Access Requirements

- The website will afford the same level of security measures as that of the college website as the former will be hosted on the college website's domain.
- The website will display a Terms and Conditions webpage in the About section, the contents of which would be decided upon by college authorities.
- In the unforeseen event of a criminal activity, the website will provide a notification stating that responsibility was taken by the individual who reserved the room.
- Fit Criterion:
 1. The website will ensure that the individuals, employed by the college with existing login details will use the same login information to access information for room reservations.
 2. The website will allow guests and outside groups to create non-academic login accounts for finalizing a room reservation.

b. Privacy Requirements

- The website would not share user information, in any circumstances with any party other than those designated by the client.
- The website will use the technology and guidelines afforded through the college's cyber security system for storing private data, which may include information regarding monetary transactions, bank account information and/or credit card details.

The website's development team will obtain their motivation to create, design and deliver a website which meets the specific requirements provided via the requirements gathering process and eventually help realize the client's vision for the project.