Meeting Scheduler System: Requirement Document

Module Code: SS4301 Software Engineering

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1. Abstract

This document gives details for the system requirements and issues for the Meeting Scheduler System. This document is a project assignment for the Software Engineering at University of Brunei Darussalam.

This document is set out in order to the project assignment given by Dr Arosa, lecturer of the SE4301 course of Computer Science Department.

In this project we, as the UBD students, are acting as the developer and the client of the MMS system simultaneously.
2. Introduction

2.1 Purpose

A meeting scheduler system (MSS) will be created for the Computer Science (CS) Program to schedule various types of meetings such as CS academic program meetings undergraduate or postgraduate thesis presentation. The MSS will be able to find a time slot suitable for all the attendees who must attend the meeting and will be able to accommodate other potential attendees. For example, in a time slot, when many students can attend, the MSS will be able to allow CS program leader to create meetings and send communications and/or confirmation regarding the schedules of the meetings. Users can login into the MSS or may be brought via a link sent by the organizer of the meeting via MSS.

The user will be able to specify their preference and constraints for the meeting time. The MMS will also be able to allow the admin to integrate the module schedules of lecturers in CS and the students when needed.

The system will be user friendly, whether they are computer literate or not. The MSS will also be accessible via a web-browser.

2.2 Constraints

One of the major constraints will be time given to complete the project. And due to this time constraint, only a number of property of the system will be satisfied.

2.3 Work Breakdown

The project objective is broken down into sub-objective, to ensure that no task will be missed, necessary for the achievement all the main objectives.

a. User management – user will be divided into 2 types: lecturers and students

b. User interface – as different types of users will be created, different interface will be made due to restrictions

c. Collection of data – timetable of lecturers will be required when creating a meeting

d. User restrictions – as lecturers and admin will have access to all data, students will only be able to view limited information

e. Create database – database will be required to place information retrieved

f. Calendar – A calendar widget will be added for easy viewing of all the timetable and upcoming scheduled meeting.
2.4 Definition
Meeting Invitation: An invitation to a meeting including meeting agenda, date range and duration, that is sent to a list of meeting participants.

Meeting Participant: A person who has been invited to a proposed meeting and can accept or deny the invitation. A participants can be a lecturer or a student.

Meeting Initiator: A person who initiates the meetings and send the invitation to the participants. Initiator can be a manager or lecturer.

Meeting Location: Physical location of the meeting room.

Web-based System: is an information system that uses Internet web technologies to deliver information and services, to users or other information systems/applications. It is a software system whose main purpose is to publish and maintain data by using hypertext-based principles.

Web Interface: The interaction among a user and software running on a server.

Web Browser: is a software application for retrieving, presenting and traversing information resources on the World Wide Web.

2.5 Abbreviations and Acronyms

**SRS** – Software Requirement Specifications

**MMS** – Meeting Scheduler System

**FR** – Functional Requirement

**NFR** – Non functional requirement

**DR** - Domain requirement

**SE** - Software Engineering

**IC** - Identity Card

**HTTP** - Hypertext transfer Protocol

**HTML** - Hypertext Markup Language

**CS** - Computer Science
2.6 stakeholders

The following lists are the stakeholders in the MMS system being developed:

Users

Project Manager

Team Leader

Development Team

Testing Team

User: The user prefers easily manage their preferences and monitor meetings correctly.

- Initiator: Person who propose a meeting
- Participants: Person who attend the meeting
- Important Participants: Person that his/her attendance to the meeting directly influences a meeting.

Project Manager: The project manager prefers a high degree of control to system data. Who desires detailed system accounting access for accurate logging and system’s monitoring.

Development Team: The development team prefers a well-defined system to design and implement.

Testing Team: The testing team prefers a comprehensive set of system functional and non-functional requirements to execute testing.

2.7 Reference

Book:

- Chapter 4_Requirement Engineering

Website:

- [http://www.cs.cmu.edu/~ModProb/CSdef1.html](http://www.cs.cmu.edu/~ModProb/CSdef1.html)
3. Preface

3.1 About Documentation

The document consists of different sections including the system interface, user interface, hardware interface, production functions, characteristics of initiator, administrator and participants. It also describes about the system constraints, hardware and database specifications, assumptions and dependencies, and functional and non-functional requirements and its description like Security, Reliability, Performance, Usability, Maintainability.

The interface system basically explains about the software and hardware requirement for the project. Since the application is web-based, a web-browser is required for the interface for all the participants.

The user characteristics emphasis on the role of all members which includes Initiator, Participants, Administrator. They all have limited functionality within the system.

The system constraints mostly focuses on rules and requirements that is implemented in the system. Each of them is given tasks, which no other participants are allowed to do. This part explains how above mentioned functions are applied in the system.

The hardware and database specification describes about both hardware and software requirement for the entire project including the language and additional service and framework used (MODX, Dropbox).

The User Requirement Section describes the non-functional requirements such as Usability, Efficiency, Flexibility, Performance, Accuracy, Integrity, Confidentiality and User Friendliness.
3.2 Purpose

The purpose of this documentation is to describe the above mentioned requirements, how they are implemented and used. It includes the quality attributes of the system such as Flexibility, Performance, Accuracy, Security, User Friendliness, System Constraints and Maintainability.

3.3 Scope

The documentation applies to the MSS which is being developed by the team. The team will develop a system that allows the departments of UBD to efficiently and accurately schedule meeting in accordance with the faculty requirement and availability. The scope of this document does on how the software system will try to achieve what it is intended to do, by describing requirements such as security, reliability, maintainability, usability and performance.
4. General Description:

4.1 Product Perspective:

The Meeting Scheduler System is a Web based application that is user friendly tool enables users to setup different meetings, register and access the system anytime. The system also sends relevant meeting notifications and information to respective users through emails.

a) System Interface
It requires interfacing with a ModX/ exchange server for the e-mail functionality to work. It also requires a database system for storage of information and obviously Network/internet connection to connect to the system.

b) User Interface
User interface is a web-browser.

c) Hardware Interface
The system requires no additional hardware interfaces.

4.2 Overview

The Meeting scheduler system has three main members involved; the initiator, administrator and the attendees (participants). The steps for the event scenarios includes the user input, processing for the meeting schedule and the notification sent to the various users. The user input consists of login with his/her email. The pre-condition to this function is “register” incase the user hasn’t registered to the system. The initiator logs in to process the function for initiating, altering and canceling the meeting when required. Once the meeting has been finalized all the participants registered for the meetings are notified.

The following figure is showing the context-diagram of the system. It also shows the interaction of the main actors with the system.
4.3 Product function

With this system, users can do the following major functions:

- Set up meetings.
- Re-plan meetings.
- Cancel meetings
- Send email to the users.
4.4 User Characteristics

i) Initiator

. Initiator can invite users for meetings by sending meeting requests. Initiator also is allowed to invite specific users for particular meetings.

. Initiator can send and receive messages from users.

. Initiator can confirm, cancel or reschedule meetings.

. Initiator can plan a meeting by log in to the system and input preferences for the preferred date and location.

. Initiator can change date and location of meeting.

. Only initiator can take final decision regarding meeting occurrence.

ii) Participants

. Participants who receive an invitation are allowed to accept it.

. Participants can receive and send messages regarding the meetings.

. Participants can view their schedules.

. Participants can modify their personal contact information and reset the password.

. Participants can only select the date they prefer.

iii) Administrator

. Administrator can modify user profile.

. Administrator can add/delete users.

. Administrator can add/delete rooms (location).

. Administrator can view data of all meetings.

. Administrator can create and maintain login details for users.
4.5 Constraints

Constraints of the system are:

. User should be able to access the system over the network.

. Participants should be the lecturer or students of UBD.

. Participants must have the UBD email for the authentication purpose.

. UBD’s students and employees database is needed for the list of participants.

. Meeting room database is required for scheduling the meeting’s location.

. Participants and the initiator are not allowed to modify the information about the rooms and resources.

4.6 Assumptions and dependencies

. This system supposed to be a web based application which can be accessed 24/7.

. Network connection should be available to use the application.

. System assumes that all the participants will be actively involved in responding to meeting requests.

. The initiator must decide about the importance of participants. MMS can only schedule a meeting, not the priority of participants.

. Priorities of meetings also has to be done by initiator, the system is not responsible for the importance level of meetings.

. System assumes the users are familiar with basic windows and web browser operations.
5. User and System Requirements

5.1 User requirement definition

The meeting scheduler system is an application for scheduling meetings. It allows the users to easily, efficiently, and precisely schedule meetings and help solve any conflict that might arise.

5.2 System Requirement Specification

a. The system will authenticate users at the beginning, differentiate among teachers and students via their email addresses.
b. The system will allow the admin or lecturer (from now on referred to as the creator) to plan meetings under the constraints expressed by participants. They should also be able to invite the users (lecturers and students) by sending email.
c. The creator of the meeting should customize meeting room which is adequate with the number of participants.
d. The creator will be able to reschedule the meeting to support as much flexibility as possible. He/she will be the only one allowed to modify and cancel the meetings and their information.
e. The initiator is able to send or receive messages from users and informs users of any schedule changes.
f. The users are able to send and receive messages. They can confirm their availability to participate in the meeting at a link provided. They are also allowed to view and update their schedule.
g. The MMS system should request a user response to initiator’s messages. The nonprivileged participants should not be aware of the meeting schedule, e.g. students do not have to receive any invitation to a meeting which is particularly for the lecturers.
5.3 Hardware and database specification

I. Hardware requirement specification

a. Operating System: Open Source
b. RAM size: minimum: 2GB
c. Internet connection: Yes
d. Web-browser: Chrome, Safari, Mozilla and Internet Explorer
e. Keyboard and mouse: Yes

II. Software requirement specification

a. Framework: MODX
b. Server: Apache
c. Database: MySQL
d. Coding language: HTML, CSS and PHP
e. Temporary storage: Dropbox

5.4 Functional Requirements

1. A “meeting initiator” may cancel the meeting or reschedule the meeting at any time prior to the start of the meeting.

2. A meeting scheduler may automatically propose another meeting if current meeting is canceled by an important participant.

3. A “meeting initiator” shall confirm the meeting and the system shall change the “time slots” of accepting “meeting participants” from a temporary reservation to a scheduled meeting, once all “potential meeting participants” have responded to the “meeting proposal.”

4. A meeting scheduler will inform the “meeting initiator” that no “time slot” exists for all “potential meeting participants” and may optionally suggest an alternative “date range”, “duration”, and “location” which is available.

5. The system shall keep participants informed about meeting schedules and their changes.
6. The meeting scheduler system must in general handle several meeting requests in parallel.

Requirements: list of meeting schedules and their adopted room

5.5 Non-Functional Requirements
1. Usability:
   keyboard and mouse
2. Efficiency:
   Performance - minimum 512RAM, Space - minimum 1GB
3. Security:
   Privacy rules should be enforced, a meeting participant should not be aware of constraints stated by other meeting participants.
   Password protected DB.
4. Reliability:
   i) Meeting locations should be convenient, and information about meetings should be secure.
   ii) A person may not be at two different places at the same time; a meeting room may not be allocated to more than one meeting at the same time.
5. Flexibility:
   i) Re-planning of a meeting should be done as dynamically and with as much flexibility as possible.
6. Performance:
   i) The elapsed time between the submission of a meeting request and the determination of the corresponding date/location should be minimal.
   ii) The meeting date and location should be as convenient as possible, and available as early as possible, to all participants.
7. Accuracy:
   The system shall be accurate in terms of scheduling.
8. Maintainability:
   The system should be modularized with each module having least amount level of interdependence with other modules.
   MSS shall be maintainable. Maintainability is provided by features like:
Modifiable: Customizable according to customers/users needs. It depends upon the design.

Evolvable: It shall be able to evolve to support new functionality like setting up virtual meetings, etc.

Scalable: The system shall be built in such a way that new functionalities can be added easily in future as per features required.

9. User friendliness:

Convenience: The system shall be convenient to use in terms of accessing and using the interface.

Ease of Learning: The system shall be user friendly and be easy to learn with a minimal learning curve.

11. Integrity:

The data stored in the system should be complete and accurate.

12) Confidentiality:

User should be able to access the system after successful authentication. User information is not visible to other users in the system.
6. System Architecture (SA)

The MMS is a web-based meeting scheduler system to schedule various types of meetings. It would efficiently schedule meetings and determine the available resources such as location and free-time-slots suitable for all attendees which are necessary for the meeting to be initiated. The purpose of this system is to support the faculty in scheduling meetings by determining each attendee’s free time slot, date and location. The MMS system will monitor meetings, plan meetings under constraints expressed by the participants, reschedule meetings based on constraints, support conflict resolutions, and manages all the interactions among participants. Since MMS is an online system, it can be easily accessed from web-browser with internet access, thus removing any constraints of time or place. The system also sends relevant notifications and information to respective users through emails. The system will have a user-friendly interface which will make it easier for all kinds of participants.

6.1 Architecture

Fig: System Architecture (a)
The figure above shows a simple architecture of the MSS. It consists of Initiator, Administrator and the attendees which are both students and lecturers. When a meeting is scheduled, the Initiator first sends request for the meeting to administrator for the approval. After then, it is sent to both students and lecturers. After the attendees are notified through emails, they can accept or decline the meeting request. In case of unavailability the attendees can request a new time slot to Meeting Initiator through Administrator.
6.2 Use Diagram

Fig: Use Case Diagram
6.3 System Evolution

Unlimited number of users can use the MSS system without having problem, due to use of MySQL database.