SOFTWARE REQUIREMENTS SPECIFICATION

FOR

School Time Table Management System

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Introduction

Purpose

The main objective of this document is to illustrate the requirements of the project Time Table Management system. The document gives the detailed description of the both functional and non-functional requirements proposed by the client. The purpose of this project is to assign a shifted time table for each and every student and teacher in a particular school during this COVID-19 outbreak so that any school can continue their work every day with a minimum number of students and teachers. The main purpose of this project is to maintain a simple website where everyone can have a particular time table. This project describes the hardware and software interface requirements using different diagrams.

Scope of Development Project

The Time Table Management System is basically updating a convenient and easy to use weekly time table where each student and teacher can access their time table schedule by using an internet-based application so that the users can have a particular time table in every week during this COVID-19 outbreak. Since we should keep social distance with everyone until the threat goes away, every school can start their work by respecting health rules and regulations with a minimum number of students and teachers.

The project is specifically designed for the use of school teachers and students. The product will work as a complete user interface for library management process and library usage from ordinary users. Each school will have a particular system depending on their requirements. It is useful for not only schools but any educational institute where modifications in the content can be done easily according to requirements.

The project can be easily implemented under various situations. We can add new features as and when we require, making reusability possible as there is flexibility in all the modules. The language used for developing the project is Java as it is quite advantageous than other languages in terms of performance, tools available, cross platform compatibility, libraries, cost (freely available), and development process

Definitions and Abbreviations

JAVA -> Programming Language
SQL-> Structured query Language
ER-> Entity Relationship
UML -> Unified Modeling Language
IDE-> Integrated Development Environment
SRS-> Software Requirement Specification

References

Books

- Software Requirements and Specifications: A Lexicon of Practice, Principles and
- Prejudices (ACM Press) by Michael Jackson
- Software Requirements (Microsoft) Second EditionBy Karl E. Wiegers
- Software Engineering: A Practitioner's Approach Fifth Edition By Roger S. Pressman

Websites

- https://github.com/point85/Shift
- https://github.com/NamanDeept/Time-table-management-system
- https://github.com/AnderUR/Employee-Scheduling-System/blob/master/libraries/Shift.php
- https://github.com/point85/ShiftSharp/blob/master/README.md

Project Architecture and Description

System Overview
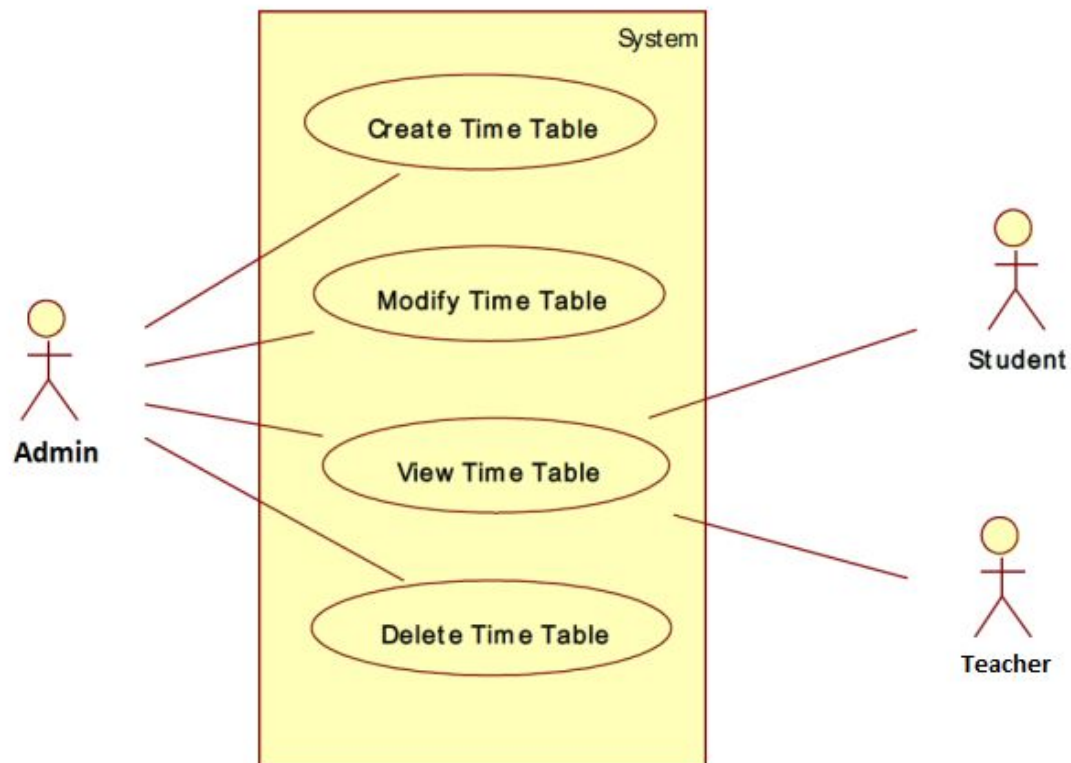
This is a broad diagram of the project showing a basic overview. The users can be either staff(teachers) or students. This System will provide a search/view and edit/modify functionality in order to generate/find a particular time table. Further the administrator(can be a qualified staff member) can add/update the resources and the resource users from the system. The users of the system can request authentication for which they would have to follow certain criteria.

Operating Environment

The product will be operating in a Windows environment. The Time Table Management System is a website and shall operate in all famous browsers, for a model we are taking Microsoft Internet Explorer, Google Chrome and Mozilla Firefox. Also it will be compatible with the IE 6.0. Most of the features will be compatible with the Mozilla Firefox & Opera 7.0 or higher version. The only requirement to use this online product would be the internet connection. The hardware configuration includes Hard Disk: 40 GB, Monitor: 15" Color

monitor, Keyboard: 122 keys. The basic input devices required are keyboard, mouse and output devices are monitor, printer etc.

Assumptions and Dependencies

Assumptions

- The coding should be error free.
- The system should be user-friendly so that it is easy to use for the users.
- The information of all users must be stored in a database that is accessible by the website.
- The system should have more storage capacity and provide fast access to the database.
- The system should provide search facility and support quick transactions.
- The System is running 24 hours a day.
- Users may access from any computer that has Internet browsing capabilities and an Internet connection.
- Users must have their correct usernames and passwords to enter into their online accounts and do actions.

Dependencies

- The specific hardware and software due to which the product will be run on the basis of listing requirements and specification .
- The end users (admin) should have proper understanding of the product.
- The system should have the general report stored.
- The information of all the users must be stored in a database that is accessible by the System.
- Any update regarding a time table is to be recorded to the database and the data entered should be correct.

Functional Requirements

User Stories

A **user story** is a short, simple description of a product feature from the perspective of the person who wants to use the new feature, usually a **user** or customer of the product.

Time Table Management System

Actors	Teacher : After successful authentication, a teacher can view/ edit the time table based on his/her convenience and a teacher can publish an announcement, he/she can also change or edit the current announcement.
	Student : A student doesn't need an authentication , once clicked a student(he/she) will automatically be redirected to the time table page (or menu).
	Admin : An admin can add or remove or edit the credentials of any faculty or a teacher in the database, once a teacher registers into the portal , admins task is to verify it and allow the successful append of information of that teacher into the database, if allowed then the teacher can login else cannot.

As a Teacher

User Type (As a)	Epic	User Story (I want to..)	Expected Outcome (So that ..)
Teacher	Login	I want to log into the system using my username and password	I can view the admin dashboard to manage everything
		I want to reset my password, when I forget it	I can use a new password.
		I want to log into this system, using my Facebook password	I don't want to remember a new password for this system separately

User Type	Epic	User Story	Expected Outcome
Teacher	View/ Edit	I want to edit the time table based on my convenience	I can find specific user details and I can contact them when necessary
Teacher	Publish	I want publish an announcement	I can also change or edit the current announcement

As a Student

User Type (As a)	Epic	User Story (I want to..)	Expected Outcome (So that ..)
Student	Login	Once I click, I will automatically be redirected to the time table page (or menu).	I have no right to modify the time table. I can only view the contents of the time table and the announcements made by respective teacher in the time table forum.

Non Functional Requirements

Performance Requirement

The response time must be quick to extend convenience. Too, the associations between MySQL database server, webpage and web servers must be smooth without any idleness to avoid the misfortune of information and keep the stream of utilization going.

Safety Requirement

The framework is secured because it will give access to approved users. It'll have a legitimate login framework which is able to require client id and password. The database is secured from SQL Injection methods with the assistance of private keys and a SSL/TLS key

encryption. This guarantees that all information passed between the internet server and browsers stay private and indispensable.

Security Requirement

It is more secure than the current websites because it is not only ensured by the encryption of institute's servers but also by SSL/TLS encryption which can halt SQL Infusion endeavors .The database cannot be modified by the client and as it can only be done by the admin of the website. The key web administrations security necessities are confirmation, authorization, information security. In the proposed site verification is required for getting to information through legitimate channels. Faculty and Students need to authorize their login using login id and password. It is only after the authentication that they can access the information on the website. Data is ensured employing a private key which uses SSL encryption.

Requirement attributes

- There may be multiple admins creating the project, all of them will have the right to create changes to the system. But the members or other users cannot do changes
- The project should be open source
- The Quality of the database is maintained in such a way so that it can be very user friendly to all the users of the database
- The user be able to easily download and install the system

Business Rules

A business rule is anything that captures and implements business policies and practices. A rule can enforce business policy, make a decision, or infer new data from existing data. This includes the rules and regulations that the System users should abide by. This includes the cost of the project and the discount offers provided. The users should avoid illegal rules and protocols. Neither the admin nor a member should cross the rules and regulations.

User Requirements

The users of the system are Teachers and Students of a particular school who act as administrator to maintain the system. The students and teachers are assumed to have basic

knowledge of the computers and internet browsing. The administrators(Admin) of the system should have more knowledge of the internals of the system and are able to rectify the small problems that may arise due to disk crashes, power failures and other catastrophes to maintain the system. The proper user interface, user manual, online help and the guide to install and maintain the system must be sufficient to educate the users on how to use the system without any problems.

The admin provides certain facilities to the users in the form of

- Backup and Recovery
- Forgot Password
- Data migration i.e. whenever user registers for the first time then the data is stored in the server
- Data replication i.e. if the data is lost in one branch, it is still stored with the server
- Auto Recovery i.e. frequently auto saving the information
- Maintaining files i.e. File Organization
- The server must be maintained regularly and it has to be updated from time to time

Software Quality Attributes

- AVAILABILITY: The website is designed for any school which can be changed as their requirements vary.

- CORRECTNESS: It will create and modify the data on the database correctly and It ensures that only authorized people should get the access.

- MAINTAINABILITY: The administrators and library in charge should easily restart the program if there is any power failure. New developers should be able to understand the configurations and coding easily.

- USABILITY: Every user should be able to find the weekly time table that they need.

External Interface Requirements

Requirement for Deployment

Software Configuration

This software package is developed using java as front end which is supported by sun micro system. Microsoft SQL Server as the back end to store the database.
Operating System: Windows 7, Windows 8/8.1, Windows 10
Language: Java Runtime Environment, Net beans 7.0.1 (front end)
Database: MS SQL Server (back end)

Hardware Configuration

Processor: Pentium(R)Dual-core CPU or higher
Hard Disk: 40GB
RAM: 1GB or more

Communication Interfaces

This project supports all types of web browsers. Only android support and IOS will not support.

Graphical User Interface Requirements

The software provides a good graphical interface for the user and the administrator can operate on the system, performing the required task such as create, update, viewing the time table.

- It allows users to view quick details and posts regarding each time table.
- It provides stock verification and search facility based on different criteria.
- The user interface must be customizable by the administrator.

- All the modules provided with the software must fit into this graphical user interface and accomplish to the standard defined
- The design should be simple and all the different interfaces should follow a standard.
- The user interface should be able to interact with the user management module and a part of the interface must be dedicated to the login/logout module

A mock UI design is preferred if you can provide for the user. Use free online wireframe designing tools

Software Interface Requirements

Sharing data between two or more systems has always been a fundamental requirement of software development.

If you are unable to understand this, just ignore it and let's discuss later

Example Documentation : https://bocoup.com/blog/documenting-your-api