Hostel Management System

Report

CO527 - Advanced Database Systems Project

Group Members

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1. Introduction

1.1 Purpose

The report will provide a detailed description of requirements for the Hostel Management System. This document will be helpful for complete understanding what is to be expected from the newly introduced system which is to be constructed. The clear understanding of the system and its functionality will allow for the correct software to be developed for the end user and will be used for the development of the future stages of the project.

This document will provide the foundation of the project. The hostel end users will be able to use this document as a "test" to see if the constructing team will be constructing the system to their expectations.

1.2 Objectives

- To deal with the Hostel Management System in an easy and an efficient manner.
- Create a strong and secret database that allows for any connection in a secret way, to prevent any outside or inside attacks.

1.3 Scope of the Project

- Hostel Management System is designed for Hostel (For schools, Universities etc).
- There will be predefined criteria for the Reservation to the hostels.
- He/She checks the attested application forms of the students obtained from the internet and verifies it with the student database.
- If the students are found eligible then they are allotted the hostel Room.

1.4 Overview of Project

Hostel Room Management System is a web application which aims at computerization of current procedure of allocating hostel rooms. Currently the process involves students filling up the forms and submitting them in respective hostel offices which involves a lot of paperwork, hence less efficient. And also we have faced the problem of waiting about 3 to 4 hours for registration and allocating rooms. Therefore this system will very helpful for both students and hostel managers.

2. Overall Description

2.1 System Requirement

The Web Application has two main parts.

1.Hostel Administrators
2. Students
The student can select among the allocated hostel to a specified batch and the Hostel Administrator can assign the room number in the specific hostel that the student has selected upon the availability.

3. User Requirements Definition

The user requirement for this system is to make the system fast, flexible, less prone to error, reduce expenses and save the time.

- Less human error
- Strength and strain of manual labor can be reduced
- High security
- Data redundancy can be avoided to some extent
- Data consistency
- Easy to handle
- Easy data updating
- Easy record keeping
- Backup data can be easily generated.

4. System Requirement Specification

4.1 Functional System Requirement

This section gives a functional requirement that is applicable to the HMS.
These are sub modules in this phase.

- Administrator module.
- User Module
- Application Module

The functionality of each module is as follows:

Administrator module

The Administrator can

- Allot different students to the different hostels.
- Vacate the students from the hostels.
- Edit the details of the students & modify the student records.

User module

- Can submit the application form
- Can view the notice board
- Can submit the vacating form.

Application module

This section provides a form to the students which can be filled by them, and a copy of the filled page can be taken in the printed form. This is later submitted to the Hostel authorities can be verified by them before allocating them to the respective hostels Rooms.

4.2 Non-Functional System Requirements:

4.2.1 Performance Requirements

Some Performance requirements identified are listed below.

- The database will be able to accommodate around thousand records to store.
- The software shall support use of multiple users at a time.

4.2.2 Safety Requirements

The database may get crashed at any certain time due to virus or operating system failure. Therefore, it is required to take the database Backup.

4.2.3 Security Requirements

Some of the factors that are identified to protect the software from accidental or malicious access, use, modification, destruction, or disclosure are described below. Keep specific log or history data sets.

1. Assign certain functions to different modules
2. Restrict communications between some areas of the program
3. Check data integrity for critical variables
4. Later version of the software will incorporate encryption
5. Techniques in the user/license authentication process.

5.Comparison with other data models

In this project we used MySql as the database which is a Relational database. SQL databases are primarily called as Relational Databases (RDBMS) whereas NoSQL databases are primarily called as non-relational or distributed databases. SQL databases defines and manipulates data based structured query language (SQL). Seeing from a side this language is extremely powerful. SQL is one of the most versatile and widely-used options available which makes it a safe choice especially for great complex queries. But on the other side it can be restrictive. SQL requires you to use predefined schemas to determine the structure of your data before you work with it. Also all of your data must follow the same structure. This can require significant up-front preparation which means that a change in the structure would be both difficult and disruptive to the whole system.

A NoSQL database has dynamic schema for unstructured data. Data is stored in many ways which means it can be document-oriented, column-oriented, graph-based or organized as a KeyValue store. This flexibility means that documents can be created without having defined structure first. Also each document can have its own unique structure. The syntax varies from database to database, and we can add fields as we go.

SQL databases are table-based on the other hand NoSQL databases are either key-value pairs, document-based, graph databases or wide-column stores. This makes relational SQL databases a better option for applications that require multi-row transactions such as an accounting system or for legacy systems that were built for a relational structure. And SQL databases follow ACID properties (Atomicity, Consistency, Isolation and Durability).

We decided to implement this hostel management system for the whole University therefore we should manage a very large dataset which is a little difficult to manage in a NoSQL database. Therefore we selected MySql as the database management system of our project.

6. Hardware Requirements

- Processor: Pentium or greater
- RAM: 512MB
- Hard Disk: Depends on how much data is stored in DATABASE (min 1GB)
- Keyboard
- Monitor

7. Software Requirements

- OS: Windows/ Linux
- Database: SQL