**DPG Assignment – User Requirements**

Group 36

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Topic 2: Design and develop an application for daily student attendance in schools, universities, and institutes. It facilitates access to the attendance information of a particular student in a particular class. This system will also help in evaluating the attendance eligibility criteria of a student. The student attendance system helps teachers to mark the online attendance of students during class & reduce manual work. It is used to track student's attendance, absentee record, attendance history & other related documents.

Identifying the problem

Teachers have to spend a substantial amount of time going through attendance sheets, to identify which students have been absent from class. This is a manual process which becomes more time consuming with a larger number of students in a class. After which, the teacher needs to review all the attendance sheets to figure out how many times each student has been absent in that particular school year or semester. This would give a clear indication of whether a student has met the minimum attendance standard or not. With an automated system in place, their time could be better spent grading assignments or preparing for their next class.

Who will use the system:

The system would be used by teachers/lecturers, Dean/Principal and the administration office.

How will the system be used:

Teachers and lecturers will be able to manually log student attendance. As well as view a report of the attendance of all the students under their purview.

The Dean/Principal has complete access to view the attendance logs of all the students in the school or university.

The administration office will also view all the attendance logs but also be able to manipulate the data. Examples would be creating new entries or deleting existing ones, adding students to the system and ensuring the data is correct.

During classes students will be required to fill out an attendance form at a random point during a lecture. This and the attendance collected on Teams or Zoom will be used to by the system to check if the student was present. Lecturers only need to upload to the system and it will do the rest.  The systems criteria are as follows:

●      If the student does both and was in class attendance on teams than they were present.

●      If a student only completes the first/second attendance form. The system will then look at when the student joined and left class to determine if they were late or if they forgot to do attendance and will notify them.

●      If a student is absent with reason, a function is also in place to accommodate the different reasons.

The system will also inform students and lecturers when a student is not eligible for exam by using the 20% of classes that a students can miss as a threshold, if a student were to miss more than 20% of their classes they and their lecturer will be informed that they are no longer eligible to write final exams.

Front-end – The system will be accessed by the lecturers, students, Dean and Administration office via a web application. The application would require a user to log on with a username and password, providing access to the data specific to that user’s given privileges.

Middle-man application – This is responsible for querying the database for information requested by the user via the front-end. This information, once checked for validity, will be sent from the database to the front-end.

Back-end –  This is the database that stores the student data. Queries will be received from the middle-man application and the database will return the appropriate results and update the records. The end-user does not directly interact with the database.

What data should be stored in the system:

User\_ID, User\_Name, User\_Mobile, User\_Email

Login\_ID, Login\_Username, Login\_Password, Login\_Role

Role\_ID, Role\_Name, Role\_Desc

Perm\_ID, Perm\_Role\_ID, Perm\_Name

Student\_ID, Student\_Name, Student\_Surname, Student\_Address, Student\_DOB, Student\_Mobile

Employee\_ID, Employee\_Name, Employee\_Surname, Employee\_Address, Employee\_DOB, Employee\_Mobile, Employee\_Department

Attendance\_ID, Attendance\_Date, Attendance\_Status Student\_Days\_Absent, Student\_Days\_Present

How should data be related:

A user can only have one role

A user can only have one login

An employee can manage many attendance logs

An employee can manage many users

An employee can manage many students

How should access be restricted:

By using the three elements of access control.

**Identification:** For access control to be effective, it must provide a way for an individual to identify themselves.

**Authentication:** Verifying that a user is who they identify as.

**Authorisation:** Only providing the permissions to resources that a user is permitted to access and verifying what they can access.

By using Data Control Language(DCL), user permissions can be set up for each user. Allowing an administrator to control the access of each user and revoke it whenever necessary. E.g. Students would be unable to alter their attendance logs or the logs of any other student.