

DHARMSINH DESAI UNIVERSITY
Faculty of Management & Information Science



Academic Year: 2022-2023
Master of Computer Application
Subject: Software Engineering
Termwork on
College (BCA) Attendance System

<p>Name: Tank Rajnikumar R. Roll No: MA067 Id No: 22MAPBG075</p> <p>Name: Valaki Jaymin V. Roll No: MA075 Id No: 22MAPOG014</p>	<p>Submitted to: Prof. Minal V. Shah</p>
<p>Student sign.</p>	<p>Professor sign.</p>

Attendance Management System

Table of Contents

Table of Figure	3
ABSTRACT.....	4
1. INTRODUCTION.....	5
1.1 OBJECTIVE	5
2. SYSTEM ANALYSIS	6
2.1 INTRODUCTION.....	6
2.2 EXISTING SYSTEM.....	6
2.3 PROPOSED SYSTEM.....	6
2.4 FEASIBILITY STUDY	6
2.4.1 Economically Feasibility	6
2.4.2 Technical feasibility.....	7
2.4.3 Operational Feasibility	7
3. SYSTEM SPECIFICATION	8
3.1 HARDWARE REQUIREMENTS (Minimum Requirement).....	8
3.2 SOFTWARE REQUIREMENTS (minimum Requirement)	8
4. PROJECT DESCRIPTION.....	9
4.1 PROBLEM DEFINITION.....	9
4.2 PROJECT OVERVIEW.....	9
4.3 MODULE DESCRIPTION	9
4.3.1 ADMINISTRATOR MODULE	9
4.3.2 STAFFS MODULE	10
4.4 SYSTEM FLOW DIAGRAM.....	11
4.5 Data Flow Diagram.....	11
4.5.1 DFD level 0:	11
4.5.2 DFD level 1:	12
4.5.3 DFD level 2:	12
4.6 SYSTEM DESIGN	14
4.6.1 Entity Relationship Diagram.....	14
4.6.2 Use case Diagram:.....	15
4.7 Timeline Chart.....	16
5. SYSTEM TESTING	17

Attendance Management System

5.1	Testing Methodologies	17
5.1.1	Unit testing.....	17
5.1.2	System testing.....	17
5.1.3	Performance Testing.....	17
5.2	Test cases	18
6.	Scope and Goal of system	19
6.1	Scope.....	19
6.2	Goal	19
7.	LIST OF USER	20
8.	LIST OF USER STORIES AND ACCEPTANCE CRITERIA.....	21
8.1	User Stories	21
8.2	Acceptance Criteria.....	22
	References	23

Table of Figure

Figure 1: System Flow Diagram	11
Figure 2: DFD Level 0	12
Figure 3: DFD Level 1	12
Figure 4: DFD Level 2-ADMIN	13
Figure 5: DFD Level 2 - STAFF	13
Figure 6: E-R Diagram	14
Figure 7: Use Case Diagram	15
Figure 8: Time line chart	16

ABSTRACT

Student attendance management system deals with the maintenance of the student's attendance details. It is generating the attendance of the student on basis of presence in class. It is maintained on the daily basis of their attendance. the staffs will be provided with the separate username & password to make the student's status.

The staffs handling the particular subjects responsible to make the attendance for all students. Only if the student present on that particular period, the attendance will be calculated. The student's attendance reports based on weekly and consolidate will be generated.

1. INTRODUCTION

1.1 OBJECTIVE

“Attendance Management System” is software developed for maintaining the attendance of the student on the daily basis in the collage. Here the staffs, who are handling the subjects, will be responsible to mark the attendance of the students. Each staff will be given with a separate username and password based on the subject they handle. An accurate report based on the student attendance is generated here. This system will also help in evaluating attendance eligibility criteria of a student. Report of the student’s attendance on weekly and monthly basis is generated.

2. SYSTEM ANALYSIS

2.1 INTRODUCTION

Analysis can be defined as breaking up of any whole so as to find out their nature, function etc. It defines design as to make preliminary sketches of; to sketch a pattern or outline for plan. To plan and carry out especially by artistic arrangement or in a skillful way. System analysis and design can be characterized as a set of techniques and processes, a community of interests, a culture and an intellectual orientation.

This system manages to the analysis of the report creation and develops manual entry of the student attendance. First design the student's entry form, staff allocation and time table allocation forms. This project will help the attendance system for the department calculate percentage and reports for eligibility criteria of examination. The application attendance entry system will provide flexible report for all students.

2.2 EXISTING SYSTEM

The Existing system is a manual entry for the students. Here the attendance will be carried out in the hand written registers. It will be a tedious job to maintain the record for the user. The human effort is more here. The retrieval of the information is not as easy as the records are maintained in the hand written registers.

This application requires correct feed on input into the respective field. Suppose the wrong inputs are entered, the application resist to work. so the user find it difficult to use.

2.3 PROPOSED SYSTEM

To overcome the drawbacks of the existing system, the proposed system has been evolved. This project aims to reduce the paper work and saving time to generate accurate results from the student's attendance. The system provides with the best user interface.

The efficient reports can be generated by using this proposed system.

2.4 FEASIBILITY STUDY

Feasibility analysis begins once the goals are defined. It starts by generating broad possible solutions, which are possible to give an indication of what the new system should look like. This is where creativity and imagination are used. Analysts must think up new ways of doing things- generate new ideas. There is no need to go into the detailed system operation yet. The solution should provide enough information to make reasonable estimates about project cost and give users an indication of how the new system will fit into the organization. It is important not to exert considerable effort at this stage only to find out that the project is not worthwhile or that there is a need significantly change the original goal.

2.4.1 Economically Feasibility

Development of this application is highly economically feasible. The only thing to be done is making an environment with an effective supervision.

Attendance Management System

It is cost effective in the sense that has eliminated the paper work completely. The system is also time effective because the calculations are automated which are made at the end of the month or as per the user requirement.

2.4.2 Technical feasibility

The technical requirement for the system is economic and it does not use any other additional Hardware and software. Technical evaluation must also assess whether the existing systems can be upgraded to use the new technology and whether the organization has the expertise to use it.

2.4.3 Operational Feasibility

The system working is quite easy to use and learn due to its simple but attractive interface. User requires no special training for operating the system. Technical performance include issues such as determining whether the system can provide the right information for the Department personnel student details, and whether the system can be organized so that it always delivers this information at the right place and on time using intranet services. Acceptance revolves around the current system and its personnel.

3. SYSTEM SPECIFICATION

3.1 HARDWARE REQUIREMENTS (Minimum Requirement)

- Minimum RAM:-1GB
- Hard Disk:-128 GB
- Processor:-Intel Pentium 4(1.50 GHZ) or above

3.2 SOFTWARE REQUIREMENTS (minimum Requirement)

- **Operating system :**Windows XP
- **Front_Design:**VB.Net version 10.0 ,.NET framework 4.0
- **Front-End Language :**Visual basic
- **Back-End :** Oracle 10g
- **Back-End Connectivity:**ADO.net

4. PROJECT DESCRIPTION

4.1 PROBLEM DEFINITION

This system developed will reduce the manual work and avoid redundant data. By maintaining the attendance manually, then efficient reports cannot be generated. The system can generate efficient weekly, consolidate report based on the attendance. As the attendances are maintained in registers it has been a tough task for admin and staff to maintain for long time. Instead the software can keep long and retrieve the information when needed.

4.2 PROJECT OVERVIEW

Attendance Management System basically has two main modules for proper functioning

- Admin module is has rights for creating any new entry of faculty and student details
- User has a rights of making daily attendance, generating report. Attendance report can be taken by given details of student details, date, class.

4.3 MODULE DESCRIPTION

The system should be designed in such a way that only authorized people should be allowed to access some particular modules. The records should be modified by only administrators and no one else. The user should always be in control of the application and not the vice versa.

The user interface should be consistent so that the user can handle the application with ease and speed. The application should be visually, conceptually clear.

4.3.1 ADMINISTRATOR MODULE

• Student Details:

In this module deals with the allocation of roll no and personal details for new batch. It will generate of personal details of student and academic details of the students with the photos.

• Staff Details:

It helps to allot the subject and the subject code to the particular staffs.

It provides the facility to have a user name and password to the staffs.

• Time table details:

It will retrieve the subject information from the subject database and assign time table to the staffs.

It will help the admin, staff to make the entry of attendance based of the subject and period allotted to the respective staff.

• Report details:

weekly report gets all hour details of attendance starting date to ending date and display the status.

Consolidate report get all student attendance details starting date to ending date status help for the eligibility criteria of the student to attend the examination.

4.3.2 STAFFS MODULE

- **Attendance details:**

It assists the staff to mark attendance to the students for their subject. This will authenticate the staff before making the entry.

- **Report details:**

weekly report get particular hour details of attendance from starting date to ending date and display the status.

consolidate report get all student attendance details from starting date to ending date status help for the eligibility criteria of the student to attend the examination.

Attendance Management System

4.4 SYSTEM FLOW DIAGRAM

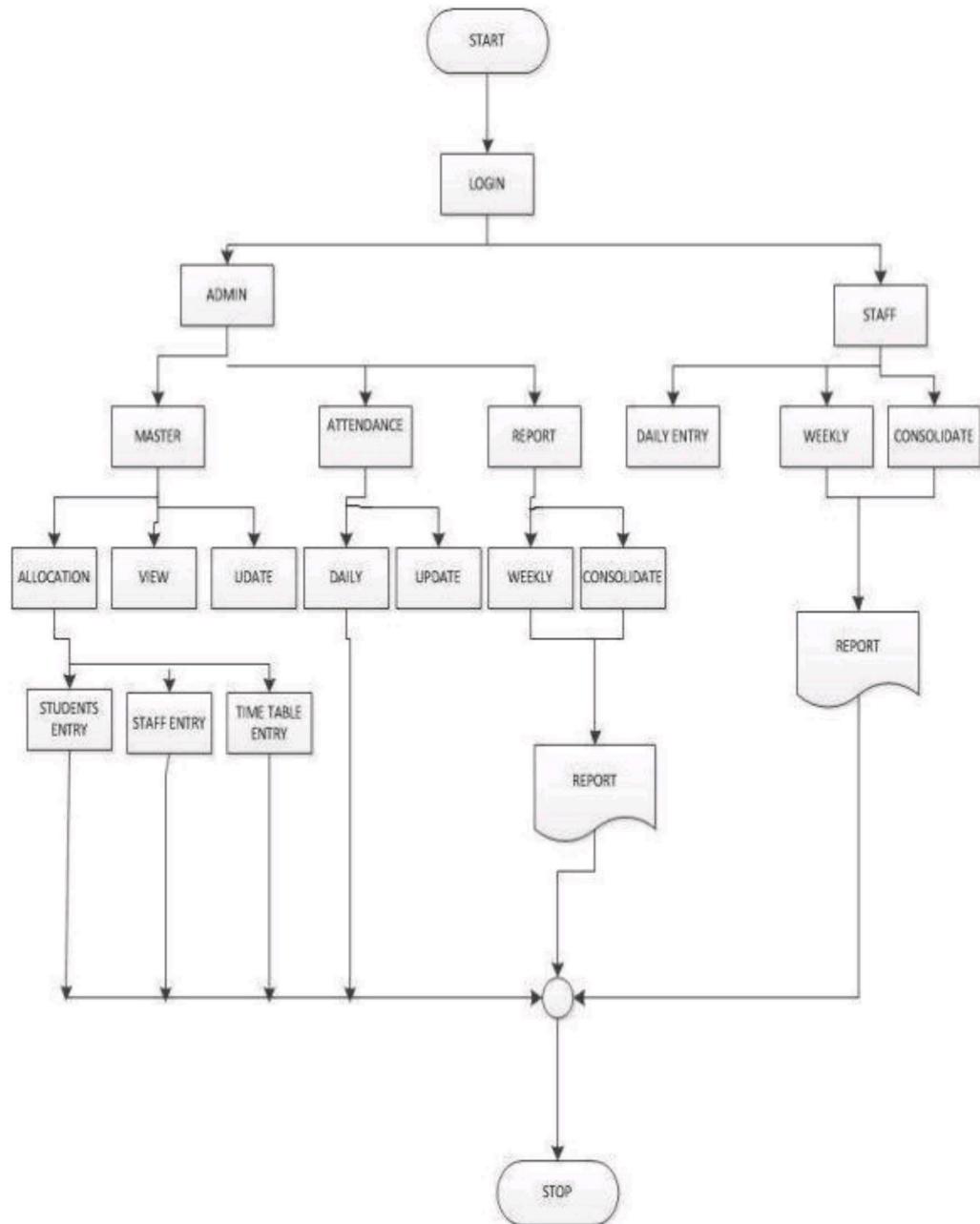


Figure 1:System Flow Diagram

4.5 Data Flow Diagram

4.5.1 DFD level 0:

Attendance Management System

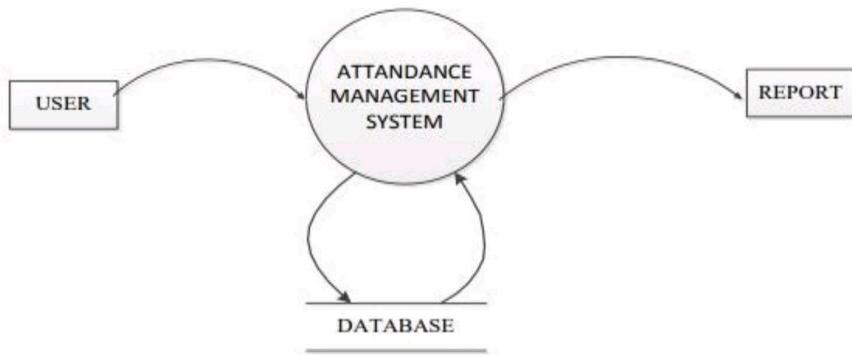


Figure 2:DFD Level 0

4.5.2 DFD level 1:

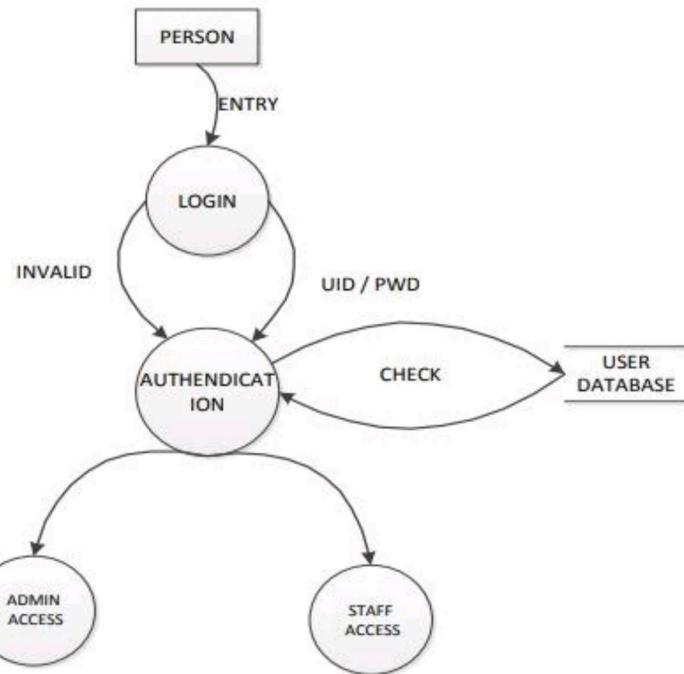


Figure 3:DFD Level 1

4.5.3 DFD level 2:

ADMIN:

Attendance Management System

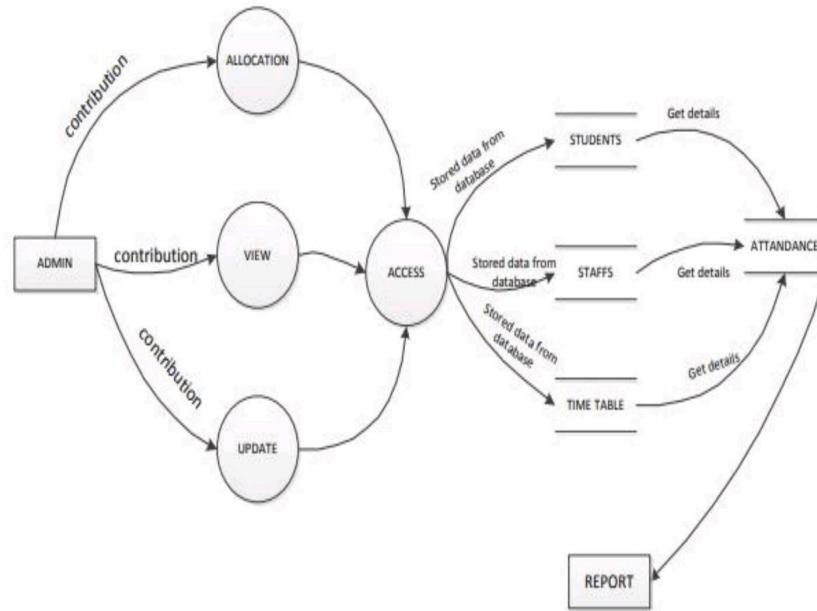


Figure 4:DFD Level 2-ADMIN

STAFF:

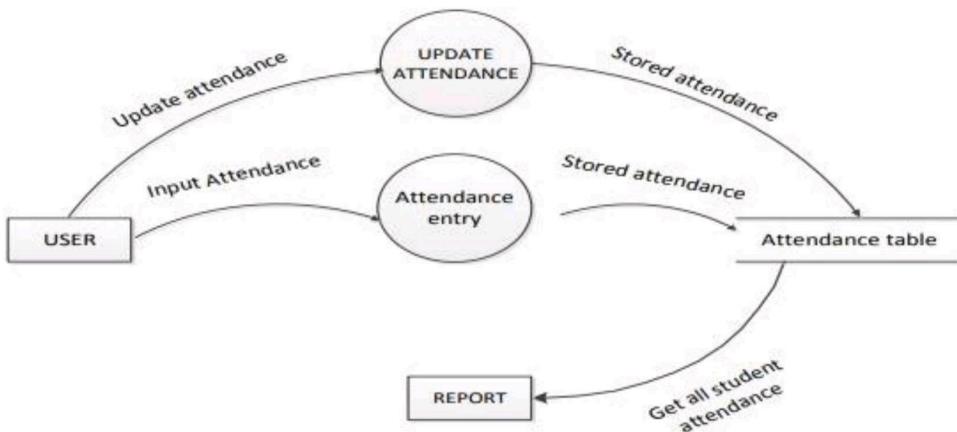


Figure 5:DFD Level 2 - STAFF

4.6 SYSTEM DESIGN

4.6.1 Entity Relationship Diagram

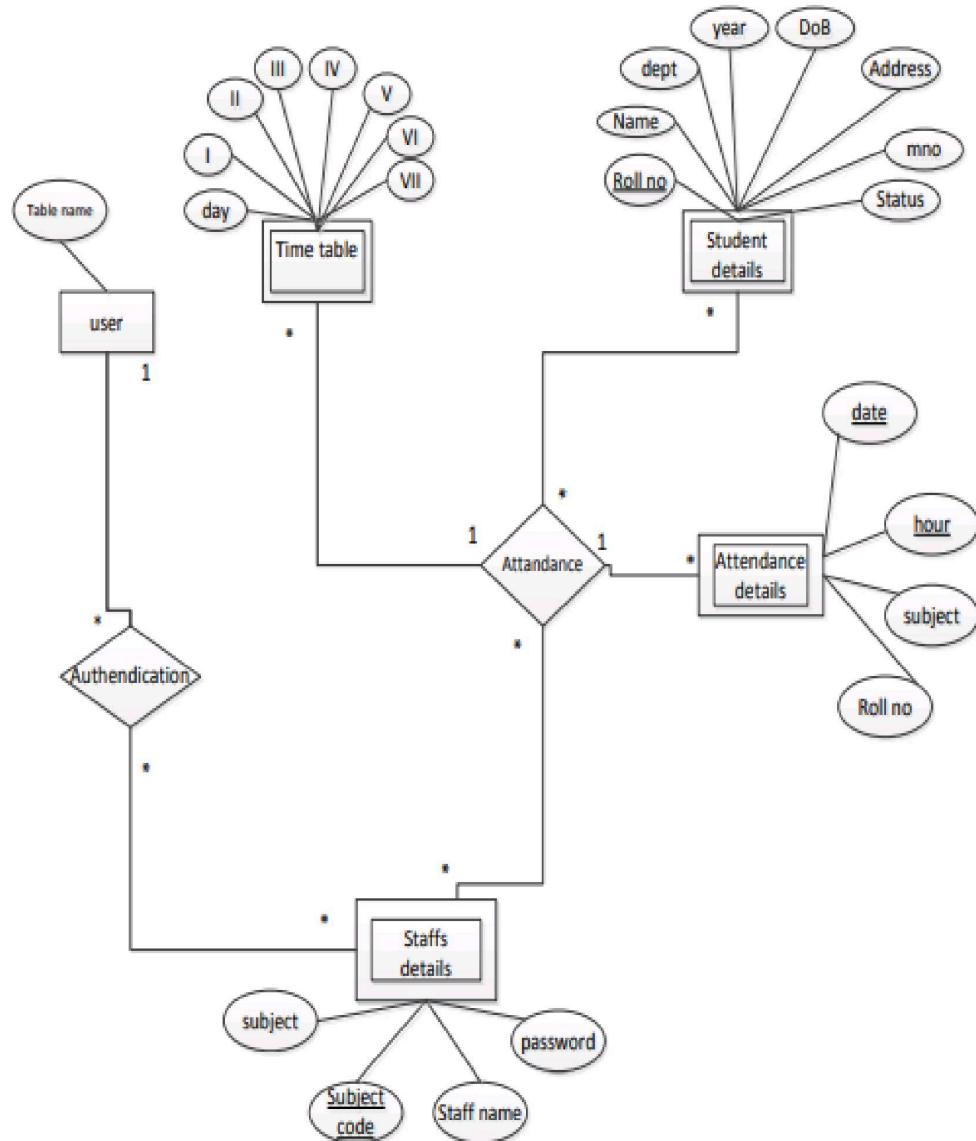


Figure 6:E-R Diagram

4.6.2 Use case Diagram:

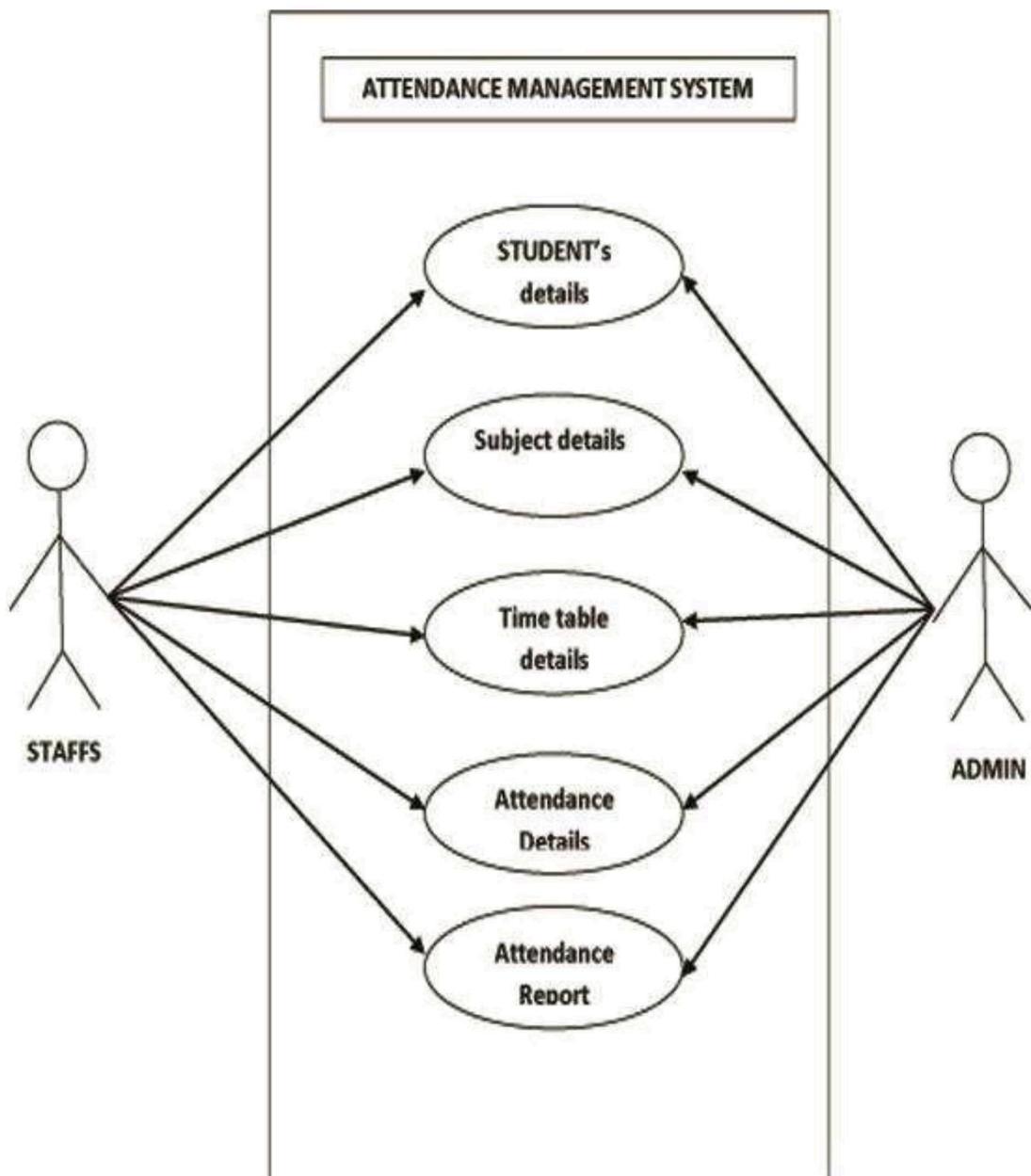


Figure 7:Use Case Diagram

Attendance Management System

4.7 Timeline Chart

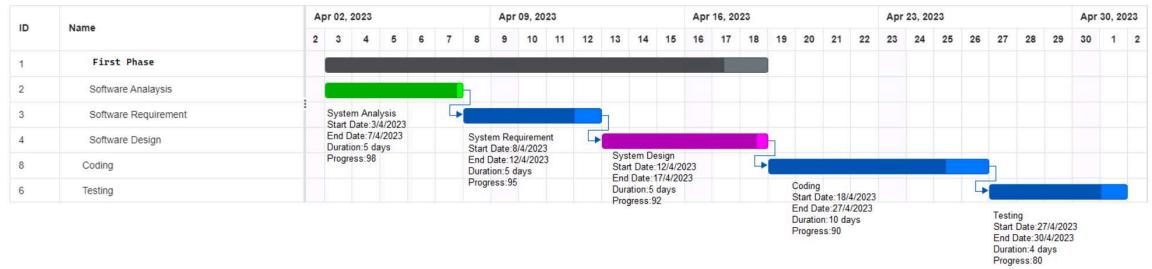


Figure 8:Time line chart

5. SYSTEM TESTING

Once source code has been generated, software must be tested to uncover (and correct) as many errors as possible before delivery to customer. Our goal is to design a series of test cases that have a high likelihood of finding errors. To uncover the errors software techniques are used. These techniques provide systematic guidance for designing test that

- Exercise the internal logic of software components, and
- Exercise the input and output domains of the program to uncover errors In program function, behavior and performance.

5.1 Testing Methodologies

A strategy for software testing must accommodate low-level tests that are necessary to verify that a small source code segment has been correctly implemented as well as high-level tests that validate major system functions against customer requirements. A strategy must provide guidance for the practitioner and a set of milestones for the manager. Because the steps of the test strategy occur at a time when deadline pressure begins to rise, progress must be measurable and problems must surface as early as possible. Following testing techniques are well known and the same strategy is adopted during this project testing.

5.1.1 Unit testing

Unit testing focuses verification effort on the smallest unit of software design- the software component or module. The unit test is white-box oriented. The unit testing implemented in every module of student attendance management System. by giving correct manual input to the system, the data are stored in database and retrieved. If you want required module to access input or get the output from the End user. any error will accrue the time will provide handler to show what type of error will have accrued.

5.1.2 System testing

System testing is actually a series of different tests whose primary purpose is to fully exercise the computer-based system. Below we have described the two types of testing which have been taken for this project. it is to check all modules worked on input basis. if you want change any values or inputs will change all information. so specified input is must.

5.1.3 Performance Testing

Performance testing is designed to test the run-time performance of software within the context of an integrated system. Performance testing occurs throughout all steps in the testing process. Even at the unit level, the performance of an individual module may be assessed as white-box tests are conducted.

This project reduces attendance table, codes. it will generate report fast.no have extra time or waiting of results. entered correct data will show result few milliseconds. just used only low memory of our system. Automatically do not getting access at another software. Get user permission and access to other applications.

5.2 Test cases

Test case is an object for execution for other modules in the architecture does not represent any interaction by itself. A test case is a set of sequential steps to execute a test operating on a set of predefined inputs to produce certain expected outputs. There are two types of test cases: - manual and automated. A manual test case is executed manually while an automated test case is executed using automation.

In system testing, test data should cover the possible values of each parameter based on the requirements. Since testing every value is impractical, a few values should be chosen from each equivalence class. An equivalence class is a set of values that should all be treated the same.

Ideally, test cases that check error conditions are written separately from the functional test cases and should have steps to verify the error messages and logs. Realistically, if functional test cases are not yet written, it is ok for testers to check for error conditions when performing normal functional test cases. It should be clear which test data, if any is expected to trigger errors.

6. Scope and Goal of system

6.1 Scope

The project has a very vast scope in future. The project can be implemented on intranet in future. Project can be updated in near future as and when requirement for the same arises, as it is very flexible in terms of expansion. With the proposed software of database Space Manager ready and fully functional the client is now able to manage and hence run the entire work in a much better, accurate and error free manner. The following are the future scope for the project.

- Discontinue of particular student eliminate potential attendance.
- Bar code Reader based attendance system.

Individual Attendance System with photo using Student login

6.2 Goal

- Develop a system that integrates seamlessly with other college systems such as the student information system and learning management system.
- Create a user-friendly interface that is accessible to all users including students, teachers, and administrators, regardless of technical expertise.
- Implement an attendance tracking mechanism that can capture attendance data for all students and all courses accurately and efficiently.
- Design a notification system that alerts students, parents, and teachers in real-time of any missed attendance or any other attendance-related information.
- Develop comprehensive reporting capabilities that enable administrators and teachers to analyze attendance data, identify patterns, and make informed decisions.
- Ensure data privacy and security by adhering to all relevant laws and regulations.
- Provide training and support to all users to ensure they can effectively use the attendance system.
- Create a system that is scalable and flexible to accommodate the college's evolving needs.
- Establish a reliable system that is available for use at all times, with minimal downtime or disruption.
- Foster a culture of accountability, engagement, and transparency among all users of the attendance system.
- Continuously review and evaluate the system's performance and make improvements based on user feedback and evolving needs.

7. LIST OF USER

- **Teachers:**

Teachers are typically responsible for taking attendance in their classes and recording it in the college attendance system. They may also be able to view attendance records for their students and generate reports on attendance patterns. Teachers may have access to additional features in the attendance system, such as the ability to send automated attendance notifications to absent students.

- **Students:**

Students are required to attend classes regularly and check in with the college attendance system to confirm their attendance. This may involve swiping an ID card or entering a unique code on a mobile device. By tracking student attendance, the college attendance system can help identify students who may be at risk of falling behind and alert teachers or advisors to intervene and offer support.

8.LIST OF USER STORIES AND ACCEPTANCE CRITERIA

8.1 User Stories

➤ Admin User Stories:

- As an admin, I want to be able to add, modify, and delete users in the attendance system, so that I can maintain an accurate and up-to-date user database.
- As an admin, I want to be able to generate attendance reports for specific courses, departments, or time periods, so that I can track overall attendance patterns and identify areas where additional support may be needed.
- As an admin, I want to be able to configure attendance settings such as attendance policies, notification rules, and integration with other systems, so that I can tailor the system to meet the specific needs of the college.
- As an admin, I want to be able to view and analyze attendance data in real-time, so that I can identify attendance issues as they occur and take corrective action if necessary.
- As an admin, I want to be able to monitor the attendance system for errors or issues, so that I can ensure that the system is running smoothly and efficiently.

➤ Staff User Stories:

- As a staff member, I want to be able to view and edit my own attendance records, so that I can maintain an accurate attendance record and avoid errors or omissions.
- As a staff member, I want to be able to view attendance records for my classes or students, so that I can monitor attendance patterns and identify students who may need additional support or intervention.
- As a staff member, I want to be able to generate attendance reports for my classes or students, so that I can communicate attendance information to students, parents, or administrators as needed.
- As a staff member, I want to be able to configure attendance settings for my classes or students, so that I can tailor the attendance policy to the needs of the course or student population.
- As a staff member, I want to be able to view notifications or alerts for absent students, so that I can follow up with those students and offer support if needed.

- As a staff member, I want to be able to use the attendance system on a mobile device or tablet, so that I can take attendance from anywhere and on-the-go.
- As a staff member, I want to be able to integrate the attendance system with other course management tools such as gradebooks, so that I can get a complete picture of student performance and attendance in one place.
- As a staff member, I want to be able to export attendance data to other systems or tools, such as student information systems or learning analytics platforms, so that I can use the data for further analysis or reporting.
- As a staff member, I want to be able to communicate attendance policies and procedures to my students clearly, so that they understand their attendance requirements and can comply with them.
- As a staff member, I want to be able to access training or support resources for the attendance system, so that I can use the system effectively and efficiently.

8.2 Acceptance Criteria

Admin User Acceptance Criteria:

- The admin user should be able to manage users effectively and efficiently by adding, modifying, and deleting users as needed.
- The admin user should be able to configure attendance settings such as attendance policies, notification rules, and integration with other systems with ease and simplicity.
- The admin user should be able to generate comprehensive reports on attendance patterns, trends, and outliers for specific courses, departments, and time periods.
- The admin user should be able to monitor the system for errors or issues and provide support as necessary to ensure the system is running smoothly.
- The admin user should be able to view and analyze attendance data in real-time and take corrective action if necessary.

Staff User Acceptance Criteria:

- The staff user should be able to view and edit their own attendance records accurately and without errors.
- The staff user should be able to view attendance records for their own classes or students and monitor attendance patterns to identify students who may need additional support or intervention.
- The staff user should be able to generate accurate and timely attendance reports for their own classes or students and communicate the attendance information to students, parents, or administrators as needed.
- The staff user should be able to receive notifications or alerts for absent students and follow up with those students to offer support if needed.

References

- Roger Pressman, Software Engineering A practitioner's Approach; 6th ed.; McGraw-Hill International Edition
- <https://examfeed.com/software-engineering-project-ideas/>