

STUDENT ATTENDANCE SYSTEM USING QR CODE SCANNER

A PROJECT REPORT

Submitted by

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LDRP Institute of Technology and Research
Computer Engineering Department



CERTIFICATE

This is to certify that the Project Work entitled “**STUDENT ATTENDANCE SYSTEM USING QR CODE SCANNER**” has been carried out by **JAY B. PATEL [18BECE30073]** & **NEY K. PATEL [18BECE30108]** under my guidance in fulfilment of the degree of Bachelor of Engineering in Computer Engineering (6th Semester) of Kadi Sarva Vishwa-Vidyalaya University, Gandhinagar during the academic year 2020-2021.

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ACKNOWLEDGEMENT

I take this opportunity to humbly express our thankfulness to all those concerned with my project.

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Last but not least I am thankful to almighty GOD and my PARENTS for giving me such a good atmosphere to work hard and to succeed.

With Great regards,

Jay B. Patel & Ney K. Patel

ABSTRACT

Student Attendance System by Barcode Scan The project is a system that takes down students' attendance using barcode. This is an interesting concept set forth to automate the traditional attendance system by using authentication technique. The traditional system requires a register maintained for manually marking attendance for the students which is time consuming. Hence this proposed project eliminates the need of maintaining attendance sheet. The proposed system uses barcode method for authenticating students with a unique QR code that represents their unique id. Every student is provided with a card that contains the barcode. Students just have to scan their cards using barcode reader and the system notes down their attendance as per dates. System then stores all the students' attendance records and generates defaulter list and reports for admin. Such kind of application is very useful in school as well as in college for taking daily attendance.

Advantages of the proposed project:

1. Students will be more regular in attending their classes since now no attendance sheet signature is required, so no friend or any other student can make an attendance on behalf of others as barcodes are unique for every student.
2. Teachers do not need to waste their time approximately 15min of 1hour for taking attendance of students.
3. No need to maintain attendance sheet as the attendance are electronically stored in database.
4. The system helps the faculty to easily find out defaulters.
5. User may easily get attendance history of a particular student.
6. It saves time, cost, efforts and institute resources.

Applications: The system can be used for schools, college, or universities for taking down Attendance

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INTRODUCTION

1.1 Introduction:

Student Attendance System by QR Scan The project is a system that takes down students' attendance using barcode. This is an interesting concept set forth to automate the traditional attendance system by using authentication technique.

The traditional system requires a register maintained for manually marking attendance for the students which is time consuming. Hence this proposed project eliminates the need of maintaining attendance sheet.

The proposed system uses QR code method for authenticating students with a unique QR that represents their unique id. Every student is provided with a card that contains the barcode. Students just have to scan their cards using barcode reader and the system notes down their attendance as per dates.

System then stores all the students' attendance records and generates defaulter list and reports for admin. Such kind of application is very useful in school as well as in college for taking daily attendance.

1.2 Problem Introduction:

Lack of immediate retrievals: -

The information is very difficult to retrieve and to find particular information like- E.g. - To find out about the student's history, the user has to go through various registers. This results in inconvenience and wastage of time.

Lack of immediate information storage: -

The information generated by various transactions takes time and efforts to be stored at right place.

Lack of prompt updating: -

Various changes to information like student details is difficult to make as paper work is involved.

Preparation of accurate and prompt reports: -

This becomes a difficult task as information is difficult to collect from various register.

Objective: -

- 1) Define school/college
- 2) Recording information about the Students that come.
- 3) Recording information related to Academics of students.
- 4) Keeping record of the attendance of Students.

These are the various jobs that need to be done in a College by the operational staff and Professors. All these works are done on papers.

Scope of the Project: -

- 1) Information about Students is done by just writing the Students name, age and gender. Whenever the Student comes up his information is stored freshly.
- 2) Information of Students is generally recorded on the document, which contains Student information. It is destroyed after some time period to decrease the paper load in the office.
- 3) Records of children are maintained in pre-formatted sheets, which are kept in a file.

All this work is done manually by the admin office and other operational staff and lot of papers are needed to be handled and taken care of. Teachers have to remember various information of Students and sometimes they can miss some details.

1.3 MODULES:

The entire project mainly consists of 2 modules, which are

- Admin module
- Student module

1.3.1 Admin module:

- View Student List
- Manage/View Student Attendance
- Add new Student
- Generate QR Code for respective student

1.3.2 Student module:

- Record his Attendance
- Scan his QR code
- View his Attendance

... 2 ...

REQUIREMENT SPECIFICATION

2.1 INTRODUCTION:

To be used efficiently, all computer software needs certain hardware components or the other software resources to be present on a computer. These pre-requisites are known as (computer) system requirements and are often used as a guideline as opposed to an absolute rule. Most software defines two sets of system requirements: minimum and recommended. With increasing demand for higher processing power and resources in newer versions of software, system requirements tend to increase over time. Industry analysts suggest that this trend plays a bigger part in driving upgrades to existing computer systems than technological advancements.

2.2 HARDWARE REQUIREMENTS:

The most common set of requirements defined by any operating system or software application is the physical computer resources, also known as hardware. A hardware requirements list is often accompanied by a hardware compatibility list (HCL), especially in case of operating systems. An HCL lists tested, compatibility and sometimes incompatible hardware devices for a particular operating system or application. The following sub-sections discuss the various aspects of hardware requirements.

HARDWARE REQUIREMENTS FOR PRESENT PROJECT:

PROCESSOR	:	Intel dual Core i3
RAM	:	1 GB
HARD DISK	:	80 GB

2.3 SOFTWARE REQUIREMENTS:

Software Requirements deal with defining software resource requirements and pre-requisites that need to be installed on a computer to provide optimal functioning of an application. These requirements or pre-requisites are generally not included in the software installation package and need to be installed separately before the software is installed.

SOFTWARE REQUIREMENTS FOR PRESENT PROJECT:

OPERATING SYSTEM	:	Windows 7/ XP/8/10
FRONT END	:	Html, CSS, JavaScript
SERVER SIDE SCRIPT	:	Java(Servlet)
DATABASE	:	MySQL

... 3 ...
ANALYSIS

3.1 EXISTING SYSTEM:

Colleges currently use a manual system for the management and maintenance of critical information. The current system requires numerous paper forms, with data stores spread throughout the College management infrastructure. Often information is incomplete or does not follow management standards. Forms are often lost in transit between departments requiring a comprehensive auditing process to ensure that no vital information is lost. Multiple copies of the same information exist in the College and may lead to inconsistencies in data in various data stores.

3.2 PROPOSED SYSTEM:

The College Attendance Management System is designed for any College to replace their existing manual paper-based system. The new system is to control the information of students. Room availability, staff and operating room schedules and student details. These services are to be provided in an efficient, cost effective manner, with the goal of reducing the time and resources currently required for such tasks.

3.3 FEASIBILITY STUDY:

The feasibility of the project is analysed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential.

3.4 SOFTWARE SPECIFICATION

HTML:

HTML or Hypertext Mark-up Language is the standard mark-up language used to create web pages. HTML is written in the form of HTML elements consisting of tags enclosed in angle brackets (like <html>). HTML tags most commonly come in pairs like <h1> and </h1>, although some tags represent empty elements and so are unpaired, for example . The first tag in a pair is the start tag, and the second tag is the end tag (they are also called opening tags and closing tags). Though not always necessary, it is best practice to append a slash to tags which are not paired with a closing tag.

The purpose of a web browser is to read HTML documents and compose them into visible or audible web pages. The browser does not display the HTML tags, but uses the tags to interpret the content of the page. HTML describes the structure of a website semantically along with cues for presentation, making it a mark-up language rather than a programming language.

HTML elements form the building blocks of all websites. HTML allows images and objects to be embedded and can be used to create interactive forms. It provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items. It can embed scripts written in languages such as JavaScript which affect the behaviour of HTML web pages.

CASCADING STYLE SHEETS (CSS):

It is a style sheet language used for describing the look and formatting of a document written in a mark-up language. While most often used to style web pages and interfaces written in HTML and XHTML, the language can be applied to any kind of XML document, including plain XML, SVG and XUL. CSS is a cornerstone specification of the web and almost all web pages use CSS style sheets to describe their presentation.

CSS is designed primarily to enable the separation of document content from document presentation, including elements such as the layout, colours, and fonts.[1] This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple pages to share formatting, and reduce complexity and repetition in the structural content.

CSS can also allow the same mark-up page to be presented in different styles for different rendering methods, such as on-screen, in print, by voice (when read out by a speech-based browser or screen reader) and on Braille- based, tactile devices. It can also be used to allow the web page to display differently depending on the screen size or device on which it is being viewed. While the author of a document typically links that document to a CSS file, readers can use a different style sheet, perhaps one on their own computer, to override the one the author has specified. However, if the author or the reader did not link the document to a specific style sheet the default style of the browser will be applied.

MySQL:

MySQL is developed, distributed, and supported by Oracle Corporation. MySQL is a database system used on the web it runs on a server. MySQL is ideal for both small and large applications. It is very fast, reliable, and easy to use. It supports standard SQL. MySQL can be compiled on a number of platforms.

The data in MySQL is stored in tables. A table is a collection of related data, and it consists of columns and rows. Databases are useful when storing information categorically.

FEATURES OF MySQL:

Internals and portability:

- Written in C and C++.
- Tested with a broad range of different compilers.
- Works on many different platforms.
- Tested with Purify (a commercial memory leakage detector) as well as with Val grind, a GPL tool.
- Uses multi-layered server design with independent modules.

Security:

- A privilege and password system that is very flexible and secure, and that enables host-based verification.
- Password security by encryption of all password traffic when you connect to a server.

Scalability and Limits:

- Support for large databases. We use MySQL Server with databases that contain 50 million records. We also know of users who use MySQL Server with 200,000 tables and about 5,000,000,000 rows.
- Support for up to 64 indexes per table (32 before MySQL 4.1.2). Each index may consist of 1 to 16 columns or parts of columns. The maximum index width is 767 bytes for InnoDB tables, or 1000 for MyISAM; before MySQL 4.1.2, the limit is 500 bytes. An index may use a prefix of a column for CHAR, VARCHAR, BLOB, or TEXT column types.

CONNECTIVITY:

Clients can connect to MySQL Server using several protocols:

- Clients can connect using TCP/IP sockets on any platform.
- On Windows systems in the NT family (NT, 2000, XP, 2003, or Vista), clients can connect using named pipes if the server is started with the --enable-named-pipe option. In MySQL 4.1 and higher, Windows servers also support shared-memory connections if started with the shared-memory option. Clients can connect through shared memory by using the --protocol=memory option.
- On UNIX systems, clients can connect using Unix domain socket files.

LOCALIZATION:

- The server can provide error messages to clients in many languages.
- All data is saved in the chosen character set.

CLIENTS AND TOOLS:

- MySQL includes several client and utility programs. These include both command-line programs such as mysqldump and mysqladmin, and graphical programs such as MySQL Workbench.
- MySQL Server has built-in support for SQL statements to check, optimize, and repair tables. These statements are available from the command line through the mysqlcheck client. MySQL also includes myisamchk, a very fast command-line utility for performing these operations on MyISAM tables.
- MySQL programs can be invoked with the --help or -? option to obtain online assistance.

WHY TO USE MySQL:

- Leading open source RDBMS
- Ease of use – No frills
- Fast
- Robust
- Security
- Multiple OS support
- Free
- Technical support
- Support large database– up to 50 million rows, file size limit up to 8 Million TB

JAVASCRIPT:

JavaScript is the scripting language of the Web. All modern HTML pages are using JavaScript. A scripting language is a lightweight programming language. JavaScript code can be inserted into any HTML page, and it can be executed by all types of web browsers. JavaScript is easy to learn.

WHY TO USE JAVASCRIPT:

JavaScript is one of the 3 languages all web developers must learn:

1. HTML to define the content of web pages
2. CSS to specify the layout of web pages
3. JavaScript to specify the behaviour of web pages

Example

```
x = document.getElementById("demo");    //Find the HTML element with id="demo"
x.innerHTML = "Hello JavaScript";        //Change the content of the HTML element
document.getElementById() is one of the most commonly used HTML DOM methods.
```


OTHER USES OF JAVASCRIPT:

- Delete HTML elements
- Create new HTML elements
- Copy HTML elements
- In HTML, JavaScript is a sequence of statements that can be executed by the web browser.

JAVASCRIPT STATEMENTS:

- JavaScript statements are "commands" to the browser.
- The purpose of the statements is to tell the browser what to do.
- This JavaScript statement tells the browser to write "Hello Dolly" inside an HTML element with id="demo":

Semicolon;

- Semicolon separates JavaScript statements.
- Normally you add a semicolon at the end of each executable statement.
- Using semicolons also makes it possible to write many statements on one line.

JAVASCRIPT CODE:

JavaScript code (or just JavaScript) is a sequence of JavaScript statements. Each statement is executed by the browser in the sequence they are written. This example will manipulate two HTML elements.

Example

```
document.getElementById("demo").innerHTML="Hello Dolly";  
document.getElementById("myDIV").innerHTML="How are you?";
```

JAVASCRIPT PROPERTIES:

- Properties are the values associated with a JavaScript object.
- A JavaScript object is a collection of unordered properties.
- Properties can usually be changed, added, and deleted, but some are read only.

Servlet:

Java Servlets are server-side Java program modules that process and answer client requests and implement the servlet interface. It helps in enhancing Web server functionality with minimal overhead, maintenance and support.

A servlet acts as an intermediary between the client and the server. As servlet modules run on the server, they can receive and respond to requests made by the client. Request and response objects of the servlet offer a convenient way to handle HTTP requests and send text data back to the client.

Since a servlet is integrated with the Java language, it also possesses all the Java features such as high portability, platform independence, security and Java database connectivity.

... 4 ...
DESIGN

4.1 SYSTEM DESIGN:

4.1.1 INTRODUCTION TO UML:

UML Design

The Unified Modelling Language (UML) is a standard language for specifying, visualizing, constructing, and documenting the software system and its components. It is a graphical language, which provides a vocabulary and set of semantics and rules. The UML focuses on the conceptual and physical representation of the system. It captures the decisions and understandings about systems that must be constructed. It is used to understand, design, configure, maintain, and control information about the systems.

The UML is a language for:

Visualizing Specifying Constructing Documenting

Through UML we see or visualize an existing system and ultimately, we visualize how the system is going to be after implementation. Unless we think, we cannot implement. UML helps to visualize, how the components of the system communicate and interact with each other.

Specifying

Specifying means building, models that are precise, unambiguous and complete UML addresses the specification of all the important analysis design, implementation decisions that must be made in developing and deploying a software system.

Constructing

UML models can be directly connected to a variety of programming language through mapping a model from UML to a programming language like JAVA or C++ or VB. Forward Engineering and Reverse Engineering is possible through UML.

Documenting

The Deliverables of a project apart from coding are some Artifacts, which are critical in controlling, measuring and communicating about a system during its developing requirements, architecture, design, source code, project plans, tests, prototypes, releases, etc...

4.2 UML Approach

UML Diagram

A diagram is the graphical presentation of a set of elements, most often rendered as a connected graph of vertices and arcs. you draw diagram to visualize a system from different perspective, so a diagram is a projection into a system. For all but most trivial systems, a diagram represents an elided view of the elements that make up a system. The same element may appear in all diagrams, only a few diagrams, or in no diagrams at all. In theory, a diagram may contain any combination of things and relationships. In practice, however, a small number of common combinations arise, which are consistent with the five most useful views that comprise the architecture of a software- intensive system. For this reason, the UML includes nine such diagrams:

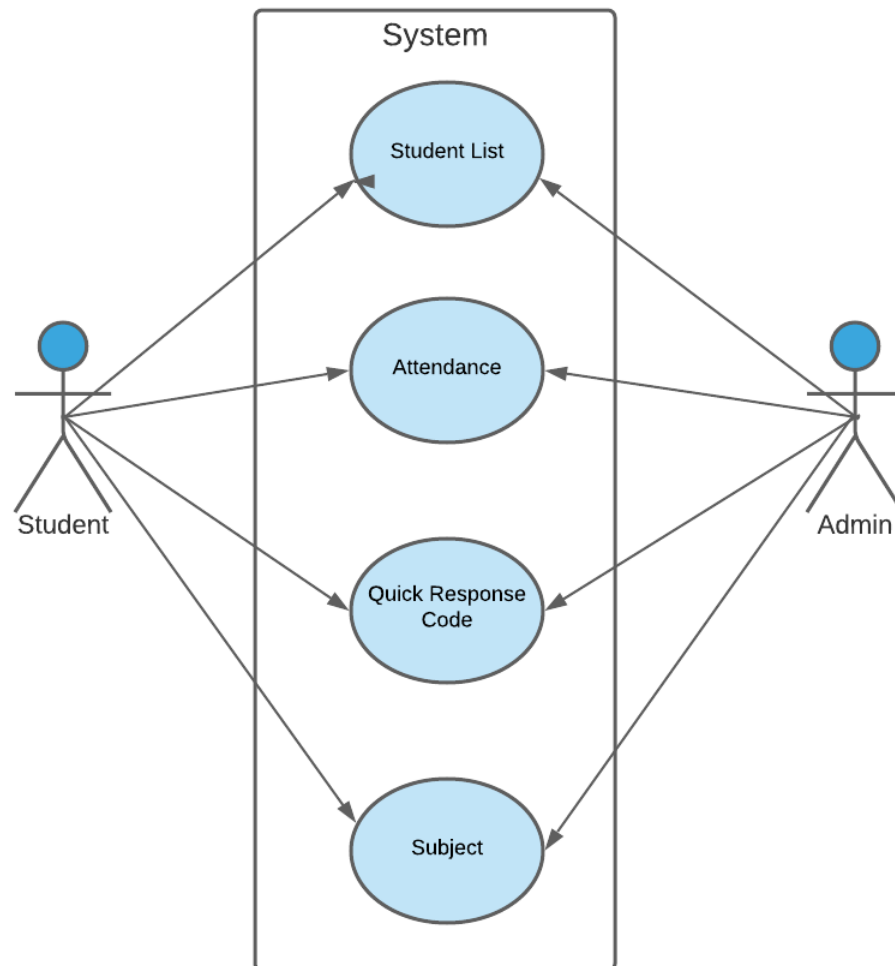
1. Class diagram
2. Object diagram
3. Use case diagram
4. Sequence diagram
5. Collaboration diagram
6. State chart diagram
7. Activity diagram
8. Component diagram
9. Deployment diagram

USE CASE DIAGRAM:

A use case diagram in the Unified Modelling Language (UML) is a type of behavioural diagram defined by and created from a use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. Use case diagrams are formally included in two modelling languages defined by the Unified Modelling Language (UML) and the Systems Modelling Language (SysML).

USE CASE DIAGRAM OF OUR PROJECT:

Use Case Diagram

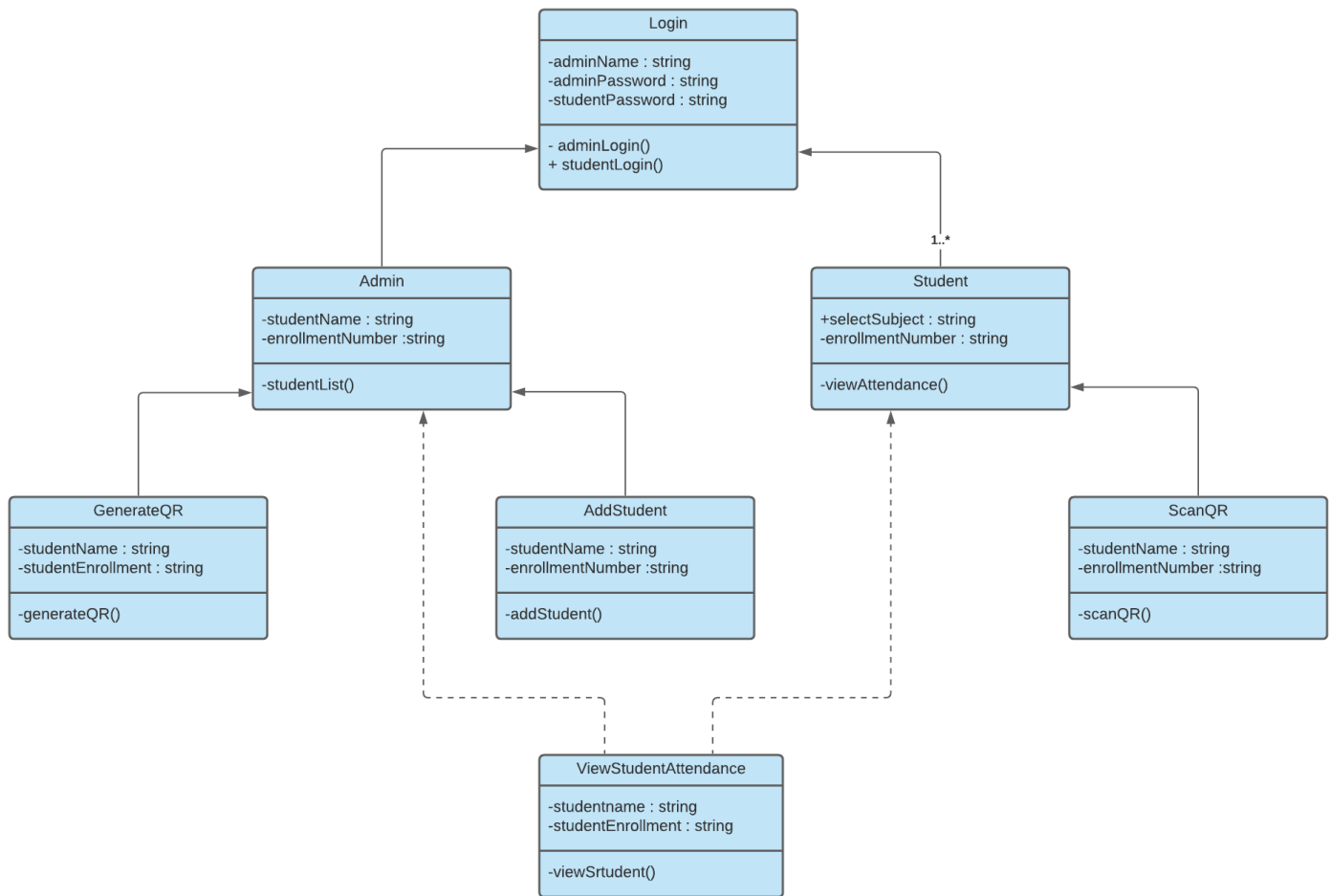


CLASS DIAGRAM:

- In software engineering, a class diagram in the Unified Modelling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among objects.
 - The class diagram is the main building block of object-oriented modelling.
 - It is used both for general conceptual modelling of the systematic of the application, and for detailed modelling translating the models into programming code.
 - Class diagrams can also be used for data modelling.
 - The classes in a class diagram represent both the main objects, interactions in the application and the classes to be programmed.
-
- In the diagram, classes are represented with boxes which contain three parts:
 - The top part contains the name of the class. It is printed in Bold, centered and the first letter capitalized.
 - The middle part contains the attributes of the class. They are left aligned and the first letter is lowercase.
 - The bottom part gives the methods or operations the class can take or undertake. They are also left aligned and the first letter is lowercase.

CLASS DIAGRAM OF OUR PROJECT:

Class Diagram



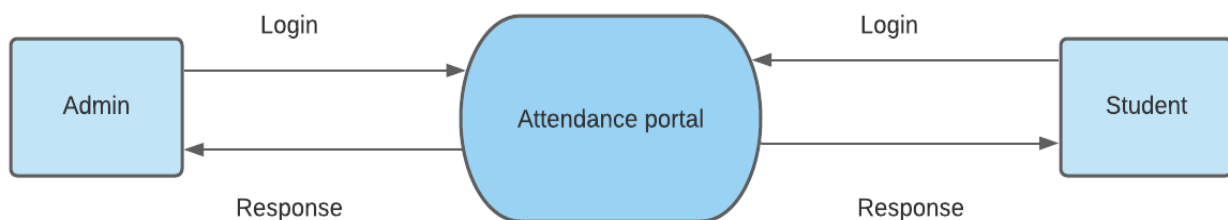
DATA FLOW DIAGRAM:

- Data flow diagrams are used to graphically represent the flow of data in a business information system.
- DFD describes the processes that are involved in a system to transfer data from the input to the file storage and reports generation.
- Data flow diagrams can be divided into logical and physical.
- The logical data flow diagram describes flow of data through a system to perform certain functionality of a business.
- The physical data flow diagram describes the implementation of the logical data flow.
- Context level/0 level DFD: It's designed to be an abstraction view, showing the system as a single process with its relationship to external entities.
- Level 1 DFD: In this level, we highlight the main functions of the system and breakdown the high-level process of 0-level DFD into sub processes.

DATA FLOW DIAGRAMS OF OUR PROJECT:

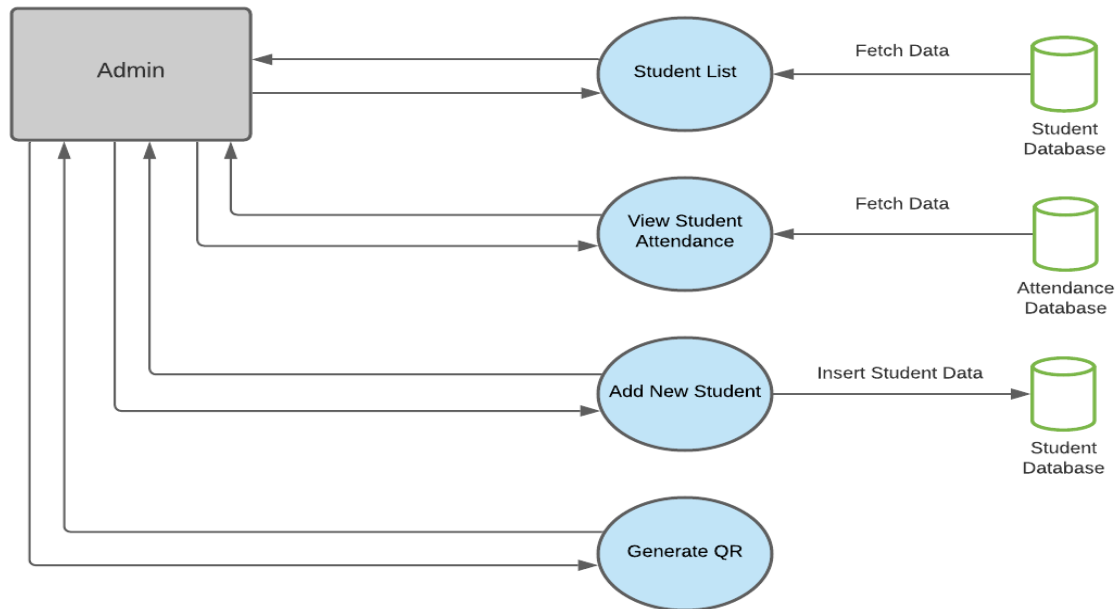
0-LEVEL DFD:

0-Level DFD : context level



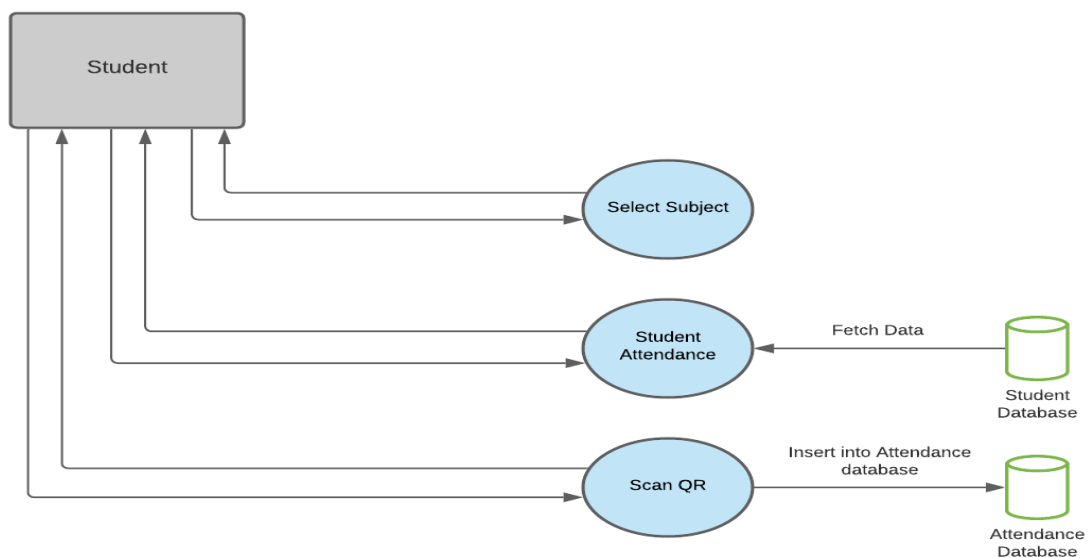
1ST LEVEL DFD FOR ADMIN:

First Level DFD of ADMIN



1ST LEVEL DFD FOR STUDENT:

First Level DFD of STUDENT



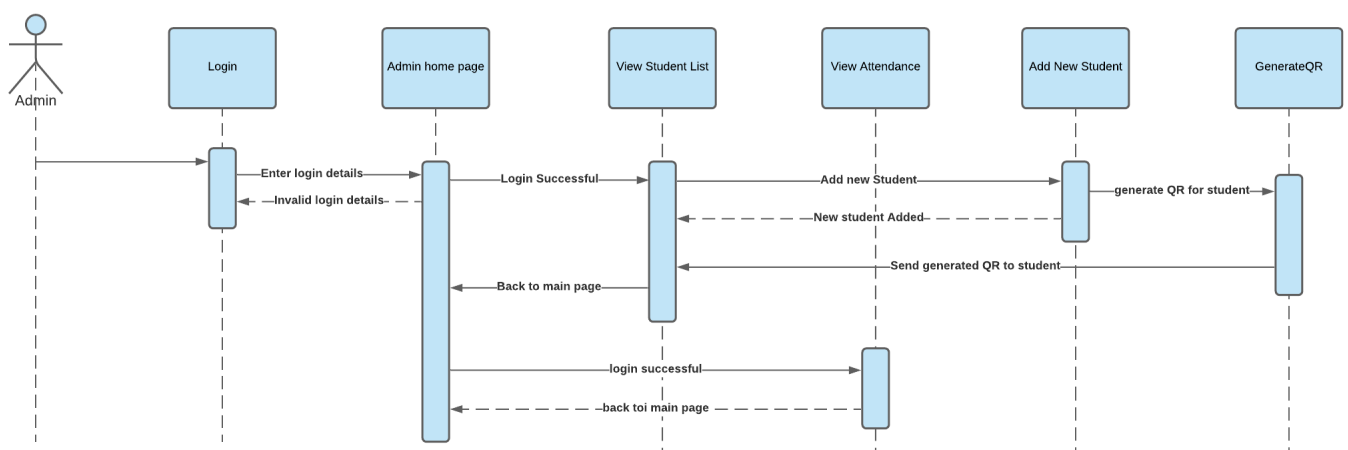
SEQUENCE DIAGRAM:

- The well-known Message Sequence Chart technique has been incorporated into the Unified Modelling Language (UML) diagram under the name of Sequence Diagram
- A sequence diagram shows object interactions arranged in time sequence.
- It depicts the objects involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario.
- A sequence diagram shows, as parallel vertical lines, different processes or objects that live simultaneously, and, as horizontal arrows, the messages exchanged between them, in the order in which they occur.
- This allows the specification of simple runtime scenarios in a graphical manner.

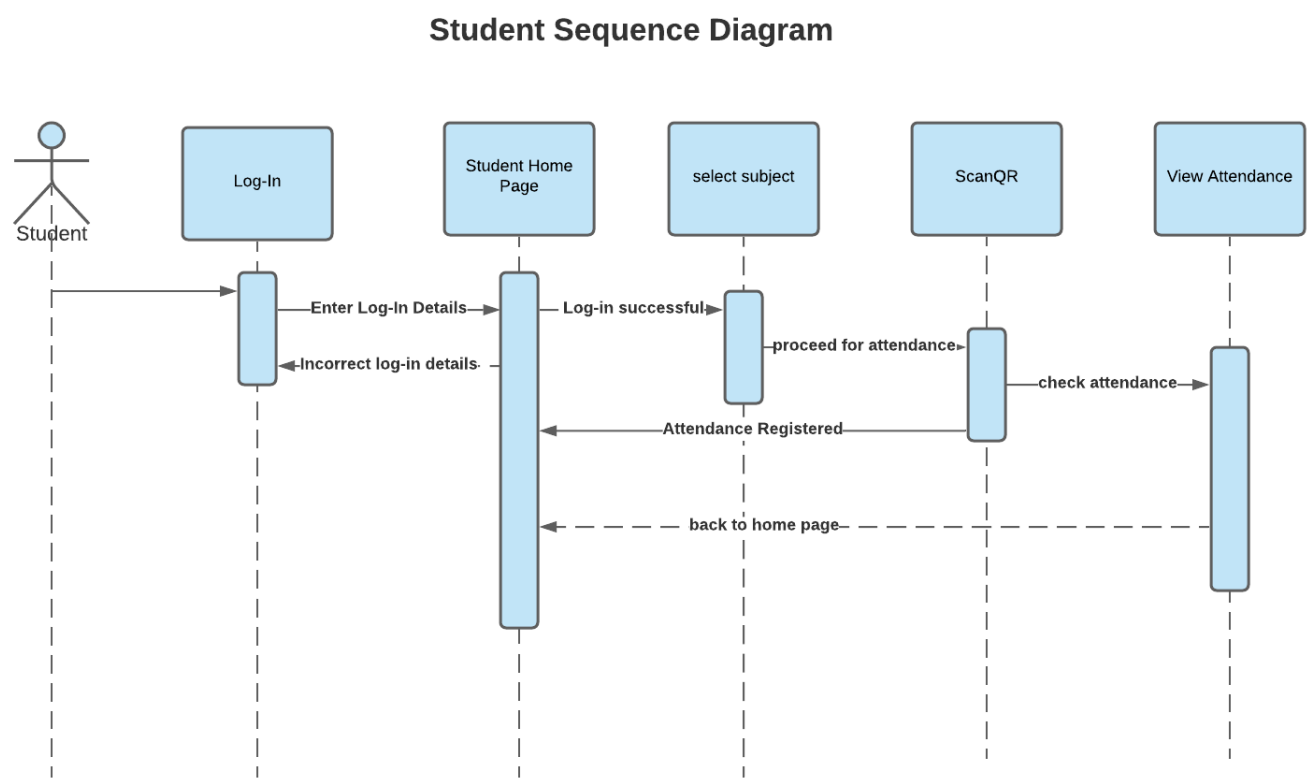
SEQUENCE DIAGRAM OF OUR PROJECT:

SEQUENCE DIAGRAM FOR ADMIN:

Admin sequence diagram



SEQUENCE DIAGRAM FOR STUDENT:



DATA DICTIONARY:

- A Data Dictionary is a collection of names, definitions, and attributes about data elements that are being used or captured in a database, information system, or part of a research project.
- The data dictionary in general contains information about the following:
 - Names of all the database tables and their schemas.
 - Details about all the tables in the database, such as their owners, their security constraints, when they were created etc.
 - Physical information about the tables such as where they are stored and how.
 - Table constraints such as primary key attributes, foreign key information etc.
 - Information about the database views that are visible.

DATA DICTIONARY OF OUR PROJECT:

DATA DICTIONARY OF STUDENT ATTENDANCE:

Enroll	Name	SE	CN	TOC	DAA	AJP
18BECE30063	Harshil V. Patel	4	3	2	3	2
18BECE30067	Henil S. Patel	2	5	1	2	2
18BECE30070	Jaidev A. Patel	1	2	1	2	4
18BECE30073	Jay B. Patel	1	2	2	5	1
18BECE30075	Jay P. Rabari	1	3	3	4	2
18BECE30076	Jay P. Patel	2	1	2	2	1
18BECE30077	Jenish Vekariya	3	4	4	2	3
18BECE30108	Ney K. Patel	1	2	2	3	1

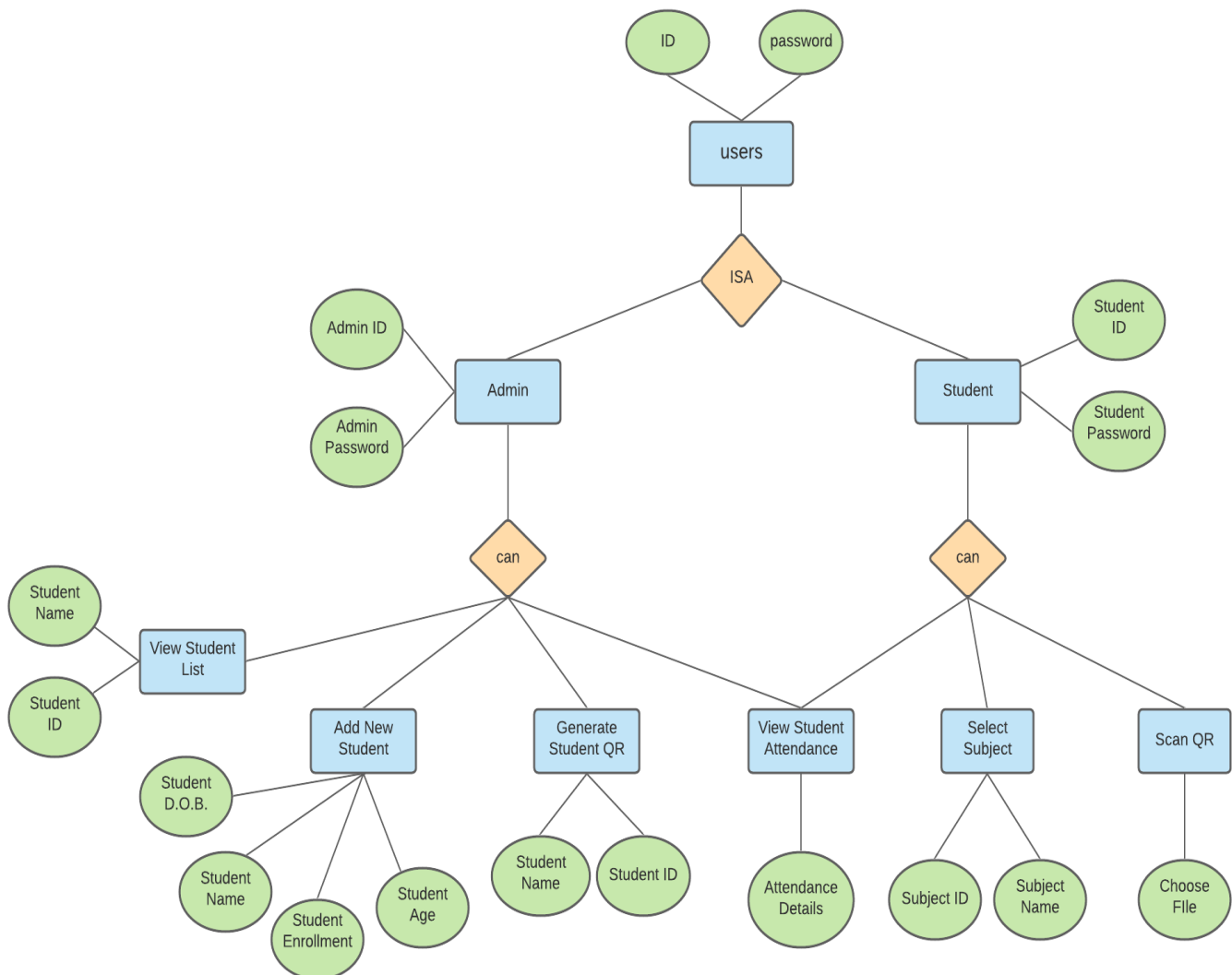
DATA DICTIONARY OF STUDENT LIST:

Enroll	Name
18BECE30063	Harshil V. Patel
18BECE30067	Henil S. Patel
18BECE30070	Jaidev A. Patel
18BECE30073	Jay B. Patel
18BECE30075	Jay P. Rabari
18BECE30076	Jay P. Patel
18BECE30077	Jenish Vekariya
18BECE30108	Ney K. Patel

ENTITY-RELATIONSHIP DIAGRAM:

- An ER diagram shows the relationship among entity sets. An entity set is a group of similar entities and these entities can have attributes.
- An entity is a table or attribute of a table in database, so by showing relationship among tables and their attributes, ER diagram shows the complete logical structure of a database.
- An ER diagram has three main components:
 - Entity: An entity is an object or component of data. An entity is represented as rectangle.
 - Attribute: An attribute describes the property of an entity. An attribute is represented as Oval
 - Relationship: A relationship is represented by diamond shape in ER diagram, it shows the relationship among entities

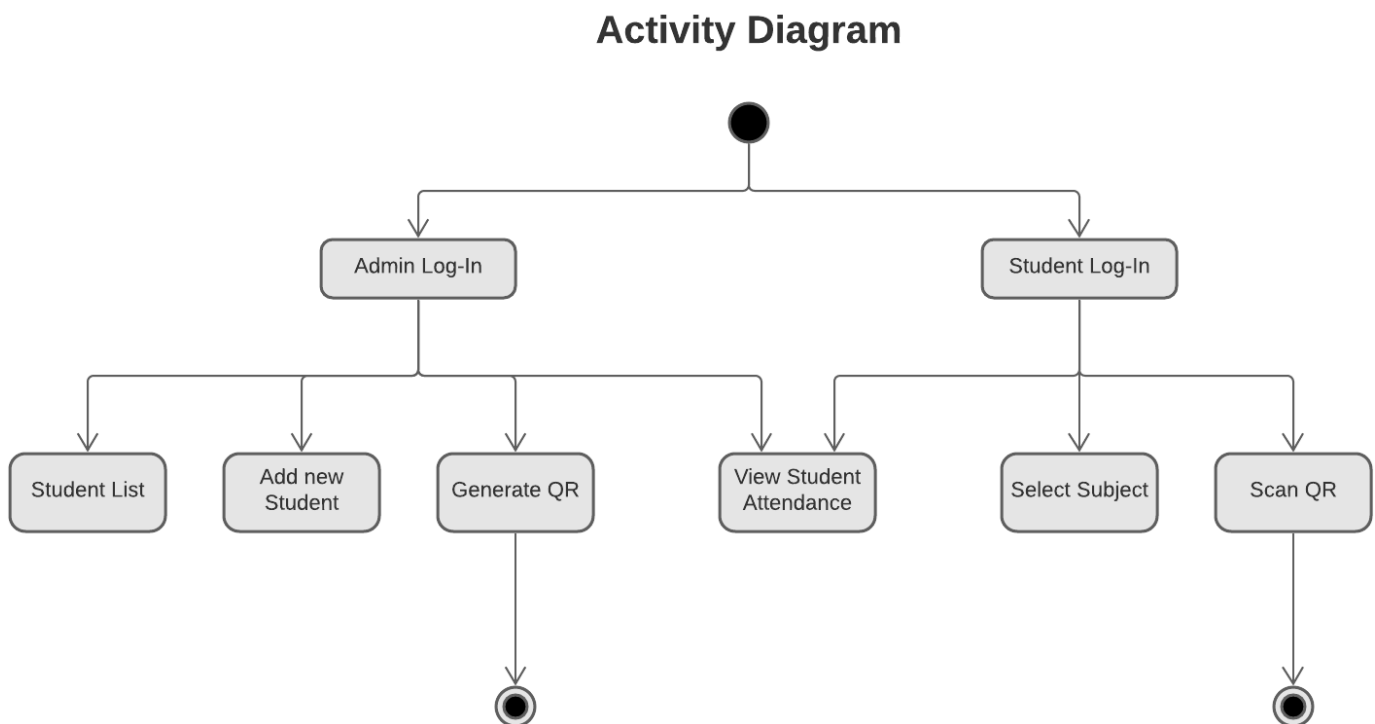
ER DIAGRAM OF OUR PROJECT:



ACTIVITY DIAGRAM:

- Activity diagram is another important diagram in UML to describe the dynamic aspects of the system.
- Activity diagram is basically a flowchart to represent the flow from one activity to another activity. The activity can be described as an operation of the system.
- The control flow is drawn from one operation to another. This flow can be sequential, branched, or concurrent. Activity diagrams deal with all type of flow control by using different elements such as fork, join, etc.
- Activity diagrams are mainly used as a flowchart that consists of activities performed by the system.
- Activity diagrams are not exactly flowcharts as they have some additional capabilities.
- These additional capabilities include branching, parallel flow, swim lane, etc.

ACTIVITY DIAGRAM OF OUR PROJECT:



... 5 ...

SYSTEM IMPLEMENTATION

5. IMPLEMENTATION:

5.1 Introduction:

Implementation is the stage of the project when the theoretical design is turned out into a working system. Thus, it can be considered to be the most critical stage in achieving a successful new system and in giving the user, confidence that the new system will work and be effective.

The implementation stage involves careful planning, investigation of the existing system and its constraints on implementation, designing of methods to achieve changeover and evaluation of changeover methods.

... 6 ...
TESTING

6.1 INTRODUCTION TO SYSTEM TEST:

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub-assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

TYPES OF TESTING:

Unit testing:

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. It is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

Integration testing:

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfactory, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

Functional test:

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

- Valid Input : identified classes of valid input must be accepted.
- Invalid Input : identified classes of invalid input must be rejected.
- Functions : identified functions must be exercised.
- Output : identified classes of application outputs must be exercised.
- Systems/Procedures : interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

System Test:

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration-oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre- driven process links and integration points.

White Box Testing:

White Box Testing is a testing in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

Black Box Testing:

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

Unit Testing:

Unit testing is usually conducted as part of a combined code and unit test phase of the software lifecycle, although it is not uncommon for coding and unit testing to be conducted as two distinct phases.

Test strategy and approach

Field testing will be performed manually and functional tests will be written in detail.

Test objectives

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

Features to be tested

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

Integration Testing:

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects. The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

Test Results:

All the test cases mentioned above passed successfully. No defects encountered.

Acceptance Testing:

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

Test Results:

All the test cases mentioned above passed successfully. No defects encountered.

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SAMPLE SCREENSHOTS

LOGIN PAGE



KADI SARVA VISHWAVIDYALAYA
LDRP INSTITUTE OF TECHNOLOGY AND RESEARCH
GANDHINAGAR



Sign In

Admin

Student

ADMIN LOGIN PAGE



KADI SARVA VISHWAVIDYALAYA
LDRP INSTITUTE OF TECHNOLOGY AND RESEARCH
GANDHINAGAR



Sign In

Admin

Username

Password

Submit


Student

ADMIN AREA PAGE



 STUDENT ATTENDANCE SYSTEM

Logged in as ADMIN [Sign-Out](#)

 Admin Area


Log-In / Admin

- STUDENT LIST
- VIEW STUDENT ATTENDANCE
- ADD NEW STUDENT
- GENERATE QR

STUDENT LIST

Student List

127.0.0.1:5500/studentlist.html

 STUDENT ATTENDANCE SYSTEM

Logged in as ADMIN

Admin Area

Log-In / Admin / Student List


#	Name	Enrollment Number
1	Ney Patel	18BECE30108
2	Jay Patel	18BECE30073
3	Jaidev Patel	18BECE30070
4	Harshil Patel	18BECE30063
5	Jay Pravin	18BECE30076
6	Jenish Vekariya	18BECE30077
7	Jay Prakash	18BECE30075
8	Henil Patel	18BECE30067

VIEW YOUR ATTENDANCE



 STUDENT ATTENDANCE SYSTEM

Logged in as **ADMIN**

 Admin Area

[Log-In](#) / [Admin](#) / [View Student Attendance](#)


#	Name	Enrollment Number	SE	CN	TOC	DAA	AJP
1	Ney Patel	18BECE30108	4	5	3	5	3
2	Jay Patel	18BECE30073	4	5	4	3	3
3	Jaidev Patel	18BECE30070	4	4	5	2	3
4	Harshil Patel	18BECE30063	4	5	4	3	3
5	Jay Pravin	18BECE30076	4	5	3	5	3
6	Jenish Vekariya	18BECE30077	4	4	5	2	3
7	Jay Prakash	18BECE30075	4	5	4	3	3
8	Henil Patel	18BECE30067	4	5	3	5	3

ADD NEW STUDENT



 STUDENT ATTENDANCE SYSTEM

Logged in as ADMIN

 Admin Area

[Log-In](#) / [Admin](#) / [Add New Student](#)

Enter the Student Details Here


Name

Enrollment Number

Submit

GENERATE QR




 Admin Area

[Log-In](#) / [Admin](#) / [Generate QR](#)

Generate Your QR Code Here

Enter the data to Generate QR Code

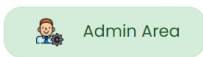


SAVE QR



STUDENT ATTENDANCE SYSTEM

Logged in as ADMIN

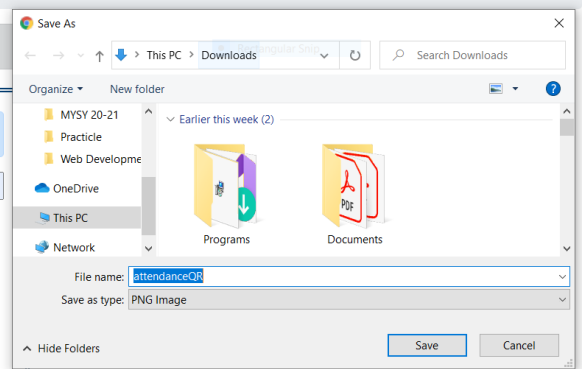


Log-In / Admin / Generate QR

Generate Your QR Code Here

Enter the data to Generate QR Code

18BECE30108



STUDENT LOGIN PAGE



KADI SARVA VISHWAVIDYALAYA
LDRP INSTITUTE OF TECHNOLOGY AND RESEARCH
GANDHINAGAR



Sign In

Admin


Student

Enrollment Number


Submit

STUDENT AREA PAGE



 STUDENT ATTENDANCE SYSTEM

Logged in as **STUDENT** [Sign-Out](#)

 Student Area

Log-In / Student

Select Your Subject [Window Snap](#)


- ☒ SE
- ☐ CN
- ☐ TOC
- ☐ DAA
- ☐ AJP

Your Attendance

Scan QR

SCAN QR



 STUDENT ATTENDANCE SYSTEM

Logged in as **STUDENT**



Student Area

[Log-In](#) / [Student](#) / [Scan QR](#)

Scan Your QR Code Here

Scan Your QR Image Here

No file chosen


Qr Content:

CHOOSE QR


Scan QR

127.0.0.1:5500/scanQR.html

☆ ⚙ ⚡ ⋮

 STUDENT ATTENDANCE SYSTEM

Logged in as STUDENT

 Student Area

Log-In / Student / Scan QR

Scan Your QR Code Here

Scan Your QR Image Here

Choose File No file chosen

Qr Content:

Open

This PC > Downloads

Search Downloads

Organize New folder

Pictures

IMAGES

MYSY 20-21

Practicle

Web Developme

OneDrive

This PC

Network

Today (1)

attendanceQR

Earlier this week (4)

File name: attendanceQR

All Files

Open Cancel

QR CONTENT



STUDENT ATTENDANCE SYSTEM

Logged in as STUDENT



Student Area

Log-In / Student / Scan QR

Scan Your QR Code Here

Scan Your QR Image Here

Choose File attendanceQR.png

Qr Content: 18BECE30108

YOUR ATTENDANCE



#	Name	Enrollment Number	SE	CN	TOC	DAA	AJP
1	Ney Patel	18BECE30108	4	5	3	5	3
2	Jay Patel	18BECE30073	4	5	4	3	3
3	Jaidev Patel	18BECE30070	4	4	5	2	3
4	Harshil Patel	18BECE30063	4	5	4	3	3
5	Jay Pravin	18BECE30076	4	5	3	5	3
6	Jenish Vekariya	18BECE30077	4	4	5	2	3
7	Jay Prakash	18BECE30075	4	5	4	3	3
8	Henil Patel	18BECE30067	4	5	3	5	3

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CONCLUSION

8.1 Advantages:

- Makes more effective and data-Based decisions.
- Efficient and quick services.
- Disciplined and organized systems, allowing timely response of appropriately qualified staff.
- Reduces paperwork.

8.2 Limitations:

- Requires a good and efficient storage and server.
- Requires a good internet connection for fast and efficient results.
- Delay in service if there is ambiguity in data (there can be two students having same name).

8.3 Future Enhancement:

A feature can be added such that when a student's attendance is below a certain limit then it automatically sends an Email/text message to its respective parents as well as the student itself. Also, a feature of scanning the QR code from the Webcam/Camera module of Smartphone can be made possible.

8.4 Conclusion:

With this System, we can remove all the tedious work of marking attendance in the registers and we can directly gain the attendance information from the servers. By this system the time can be saved of faculties as well as students.

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- https://www.youtube.com/channel/UCeVMnSShP_lviwkknt83cww
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