

DECLARATION

I **MOHAMED SAVAD V** hereby declare that the project entitled "**Smarty**" submitted to the **Calicut University** in partial fulfillment of the requirement for the award of degree of **BACHELOR OF COMPUTER APPLICATION** is a record of original work done by me during my period of study at **PPTM ARTS AND SCIENCE COLLEGE, VENGARA** under the supervision and guidance of **Mr. AZAD**, Assistant Professor of Department of Computer Science

Place : Vengara

Date :

Signature of Candidates

MOHAMED SAVAD V

ACKNOWLEDGEMENT

The success of the project depends upon the effort invested. At this pleasure moment of having successfully completed my project. It's my duty to acknowledge and thanks the individuals who have contributed in the successful completion of the project.

I wish to express our heartfelt gratitude to **Dr. KUNHI MUHAMMED** , Principal, PPTM Arts and Science College, Cherur for his encouragement and inspiring guidance throughout the preparation of the project.

I express our deep sense of gratitude and sincere thanks to head of the department **Mr. Ramesh Kumar P.R** for the valuable guidance to do the project successfully.

I also thankful to our department faculties for their continuous motivation for the successful completion of our project.

I wish to express our love and respect to our parents, for their support, contribution and encouragement which helped us a lot to complete the project successfully.

I am very much thankful to our friends for their support and contribution to complete this project successfully

ABSTRACT

The objective of the project is to develop A Learning Management Portal incorporating the latest trends and focusing more to the core services, where the site visitors should be able to get more and detailed information regarding the featured courses. It also helps to manage the overall learning & development activity to enhance user learning experience and push relevant training content to train Students and trainers.

A lot of new platforms have come up in this short period of time. But all of this requires the self-motivation of children and proper time management skill. The learners spend most of time listening to podcasts, watching videos and looking at slide presentations. There's no hand-on experience. E-learning system Cheating is unavoidable, learners can cheat while exams, attendance time. they can mark attendance and go for their work. The Online Learning Courses Are Primarily In English. And the Amount they have to pay for it is very high.

CONTENTS

1. INTRODUCTION AND BACKGROUND

The objective of the project is to develop A Learning Management Portal incorporating the latest trends and focusing more to the core services, where the site visitors should be able to get more and detailed information regarding the featured courses. It also helps to manage the overall learning & development activity to enhance user learning experience and push relevant training content to train Students and trainers.

- The LMS Web portal will have a different styled and interactive interface that gives a neat professional outlook.
- Effective contents can be updated from CMS admin panel in the LMS Web portal.
- The LMS Web portal will have a collaborative model and it makes the user to surf the information they want and go through details.
- The LMS Web portal provides easy accessibility and allows future scalability without compromising or affecting the application structure.
- To develop the LMS Web portal in English with full responsive providing an accessible to all kinds of users on both desktop and mobile devices.

2. SYSTEM ANALYSIS

System analysis is a general term that refers to an orderly, structured process for identifying and solving a problem. The system analysis process is called the life cycle methodology, since it relates to four significant phases in the life cycle of all business information system. It is a process of collecting and interpreting facts, identifying the problems, and decomposition of a system into its components. System analysis is conducted for the purpose of studying a system or its parts in order to identify its objectives. It is a problem solving technique that improves the system and ensures that all the components of the system work efficiently to accomplish their purpose.

Analysis specifies **what the system should do**.

2.1 EXISTING SYSTEM

A lot of new platforms have come up in this short period of time. But all of this requires the self-motivation of children and proper time management skill. The learners spend most of time listening to podcasts, watching videos and looking at slide presentations. There's no hand-on experience. E-learning system Cheating is unavoidable, learners can cheat while exams, attendance time. they can mark attendance and go for their work. The Online Learning Courses Are Primarily In English. And the Amount they have to pay for it is very high.

2.2 PROPOSED SYSTEM

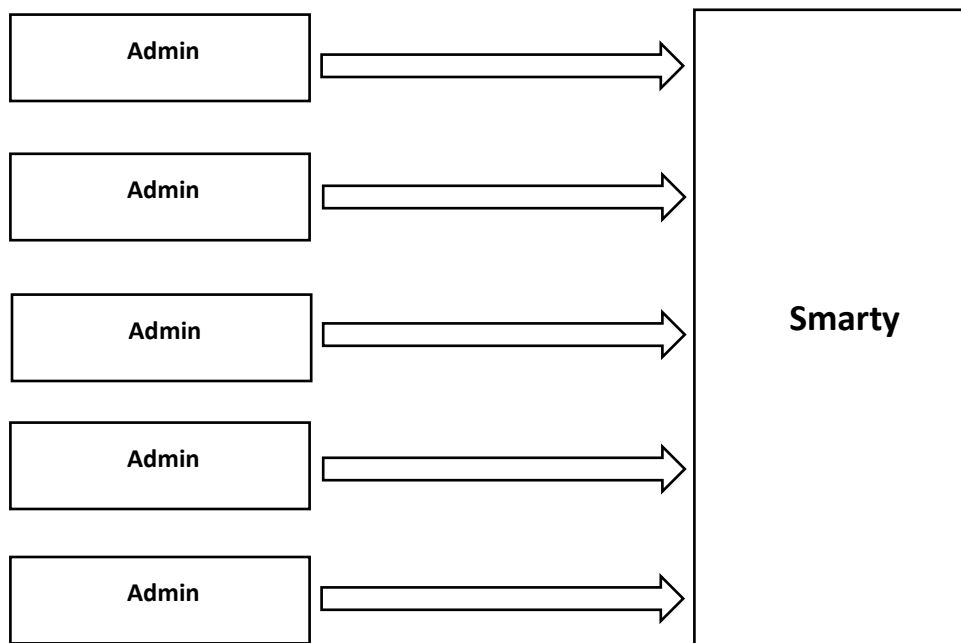
It makes the interaction between teacher and student easier. It helps to simplify the online learning process. We can use this platform for school students, higher education and also for technical courses. The teacher can monitor each student by evaluating the attendance and progress of each student in a simple and efficient manner. Attendance of each student will be marked automatically by the system when they completing their detail tasks. Teacher can add a course as a single video as well as some parts.

The system will provide it one by one according to the instructions. There will be unique ID for each teacher the teacher can access data of students who logged in with the same ID. There will be a student dash board and a teacher dash board which will help to get all the details of their courses. Students can attend exam and submit their assignments and projects through this system. The mark list and certificates will be generated automatically in this system.

2.2.1 ADVANTAGES OF PROPOSED SYSTEM

1. Easy to use
2. Accessibility
3. Multiple type contents are allowed
4. Automatic resume builder
5. Teacher can monitor one by one
6. One to one or Group video chat

2.3 MODULE DESCRIPTIONS



2.4 TECHNOLOGY FOR LMS

Programming Languages	Python
Data Base	PostgreSQL
Framework	Django
Operating Systems	Windows
Chat SDK	Agora
Web Technologies	HTML5,CSS,AJAX,JavaScript,JQuery,Bootstrap
Testing	Django Unit testing,Selenium

1. Python

Python is a high-level, general-purpose programming language. Its design philosophy emphasizes code readability with the use of significant indentation. Its language constructs and object-oriented approach aim to help programmers write clear, logical code for small- and large-scale projects

Python is a multi-paradigm programming language. Object-oriented programming and structured programming are fully supported, and many of its features support functional programming and aspect oriented programming (including by Meta programming and meta objects (magic methods)). Many other paradigms are supported via extensions, including design by contract and logic programming. Python uses dynamic typing, and a combination of reference counting and a cycle-detecting garbage collector for memory management. It also features dynamic name resolution (late binding), which binds method and variable names during program execution

2. Django

Django is a high-level Python web framework that encourages rapid development and clean, pragmatic design. Built by experienced developers, it takes care of much of the hassle of web development, so you can focus on writing your app without needing to reinvent the wheel. It's free and open source. It follows the model–template–views architectural pattern. It is maintained by the Django Software Foundation, an independent organization established in the US as a 501 non-profit.

Django was designed to help developers take applications from concept to completion as quickly as possible. Django includes dozens of extras you can use to handle common web development tasks. Django takes care of user authentication, content administration, site maps, RSS feeds, and many more tasks — right out of the box.

Django takes security seriously and helps developers avoid many common security mistakes, such as SQL injection, cross-site scripting, cross-site request forgery and click jacking. Its user authentication system provides a secure way to manage user accounts and passwords. Some of the busiest sites on the planet use Django's ability to quickly and flexibly scale to meet the heaviest traffic demands. Some of the busiest sites on the planet use Django's ability to quickly and flexibly scale to meet the heaviest traffic demands. Companies, organizations and governments have used Django to build all sorts of things — from content management systems to social networks to scientific computing platforms.

3. PostgreSQL

Postgres, is a free and open-source relational database management system (RDBMS) emphasizing extensibility and SQL compliance. It was originally named POSTGRES, referring to its origins as a successor to the Ingres database developed at the University of California, Berkeley. In 1996, the project was renamed to PostgreSQL to reflect its support for SQL. After a review in 2007, the development team decided to keep the name PostgreSQL and the alias Postgres.

PostgreSQL features transactions with Atomicity, Consistency, Isolation, Durability (ACID) properties, automatically updatable views, materialized views, triggers, foreign keys, and stored procedures. It is designed to handle a range of workloads, from single machines to data warehouses or Web services with many concurrent users. It is the default database for macOS Server and is also available for Windows, Linux, FreeBSD, and OpenBSD.

4. Agora

Agora is the leading video, voice and live interactive streaming platform, helping developers deliver rich in-app experiences—including embedded voice and video chat, real-time recording, interactive live streaming, and real-time messaging. Real-time video chatting immerses people in the sights and sounds of human connections, keeping them engaged in your app longer. Agora's video call APIs can further enhance social apps with fun features like AR facial masks and sound effects while business and education apps can benefit from screen sharing, whiteboards and more.

A 48 kHz sampling rate with full-sound bandwidth capture provides natural audio reproduction, ensuring clear audio when it matters most. Extensive video APIs create a more immersive experience with local background music, accompaniment, and sound effects along with voice. Agora's Real-Time Engagement Platform supports augmented-reality facial masks and filtering, so users can customize their appearance in live video. Using 3A and an AI-powered noise cancellation algorithm, Agora's platform adapts to variant acoustic conditions to remove ambient and distracting noises, ensuring voices come through crystal clear.

5. Selenium

Selenium is an open source umbrella project for a range of tools and libraries aimed at supporting browser automation. It provides a playback tool for authoring functional tests without the need to learn a test scripting language.

3. SYSTEM DESIGNING

3.1 INTRODUCTION

System design is the phase that bridges the gap between problem domain and the existing system in a manageable way. This phase focuses on the solution domain, i.e. "how to implement?" It is the phase where the SRS document is converted into a format that can be implemented and decides how the system will operate. In this phase, the complex activity of system development is divided into several smaller sub-activities, which coordinate with each other to achieve the main objective of system development.

Inputs to System Design

System design takes the following inputs –

- Statement of work
- Requirement determination plan
- Current situation analysis
- Proposed system requirements including a conceptual data model, modified DFDs, and Metadata (data about data).

Outputs for System Design

System design gives the following outputs –

- Infrastructure and organizational changes for the proposed system.
- A data schema, often a relational schema.
- Metadata to define the tables/files and columns/data-items.
- A function hierarchy diagram or web page map that graphically describes the program structure.
- Actual or pseudo code for each module in the program.
- A prototype for the proposed system.

Types of System Design

Logical Design:

Logical design pertains to an abstract representation of the data flow, inputs, and outputs of the system. It describes the inputs (sources), outputs (destinations), databases (data stores), procedures (data flows) all in a format that meets the user requirements.

While preparing the logical design of a system, the system analyst specifies the user needs at level of detail that virtually determines the information flow into and out of the system and the required data sources. Data flow diagram, E-R diagram modeling are used.

Physical Design:

Physical design relates to the actual input and output processes of the system. It focuses on how data is entered into a system, verified, processed, and displayed as output.

It produces the working system by defining the design specification that specifies exactly what the candidate system does. It is concerned with user interface design, process design, and data design.

It consists of the following steps –

- Specifying the input/output media, designing the database, and specifying backup procedures.
- Planning system implementation.
- Devising a test and implementation plan, and specifying any new hardware and software.
- Updating costs, benefits, conversion dates, and system constraints.

Architectural Design:

It is also known as high level design that focuses on the design of system architecture. It describes the structure and behavior of the system. It defines the structure and relationship between various modules of system development process.

Detailed Design:

It follows Architectural design and focuses on development of each module.

Conceptual Data Modeling:

It is representation of organizational data which includes all the major entities and relationship. System analysts develop a conceptual data model for the current system that supports the scope and requirement for the proposed system.

The main aim of conceptual data modeling is to capture as much meaning of data as possible. Most organization today use conceptual data modeling using E-R model which uses special notation to represent as much meaning about data as possible.

3.2 ENTITY RELATIONSHIP MODEL

It is a technique used in database design that helps describe the relationship between various entities of an organization.

Terms used in E-R model

- **ENTITY** – It specifies distinct real world items in an application. For example: vendor, item, student, course, teachers, etc.
- **RELATIONSHIP** – They are the meaningful dependencies between entities. For example, vendor supplies items, teacher teaches courses, then supplies and course are relationship.
- **ATTRIBUTES** – It specifies the properties of relationships. For example, vendor code, student name. Symbols used in E-R model and their respective meanings

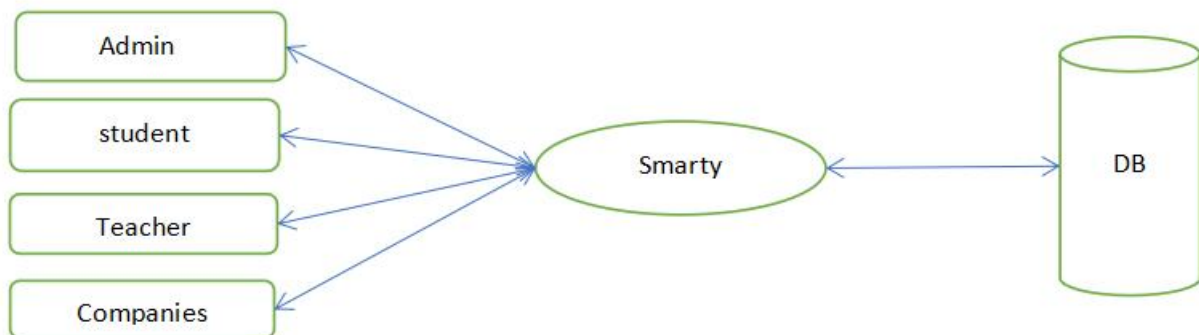
3.4 DATA FLOW DIAGRAM (DFD)

DFD is the abbreviation for **Data Flow Diagram**. The flow of data of a system or a process is represented by DFD. It also gives insight into the inputs and outputs of each entity and the process itself. DFD does not have control flow and no loops or decision rules are present. Specific operations depending on the type of data can be explained by a flowchart. Data Flow Diagram can be represented in several ways. The DFD belongs to structured-analysis modeling tools. Data Flow diagrams are very popular because they help us to visualize the major steps and data involved in software-system processes.

Rules for creating DFD:

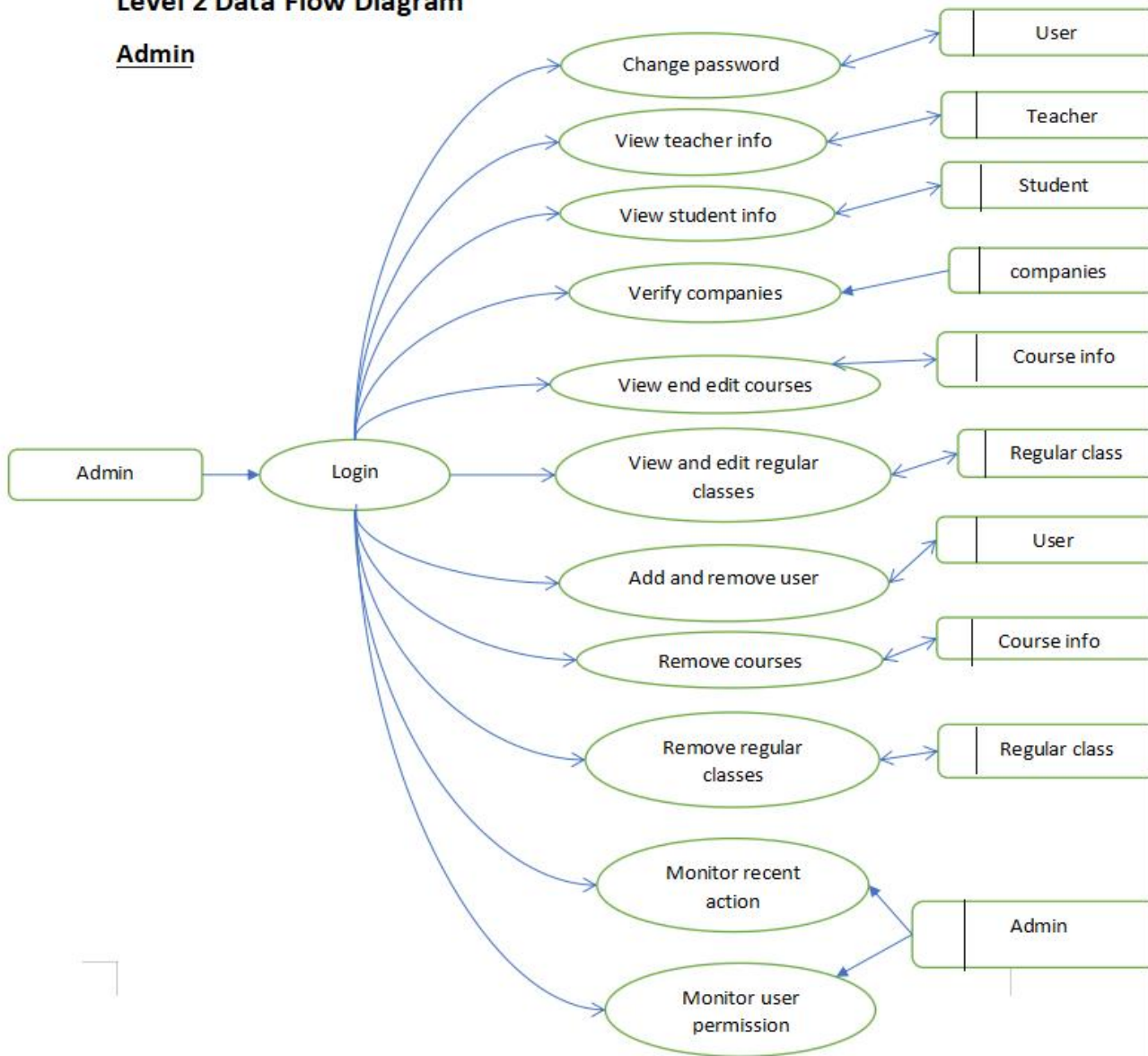
- The name of the entity should be easy and understandable without any extra assistance (like comments).
- The processes should be numbered or put in ordered list to be referred easily.
- The DFD should maintain consistency across all the DFD levels.
- A single DFD can have maximum processes up to 9 and minimum 3 processes.

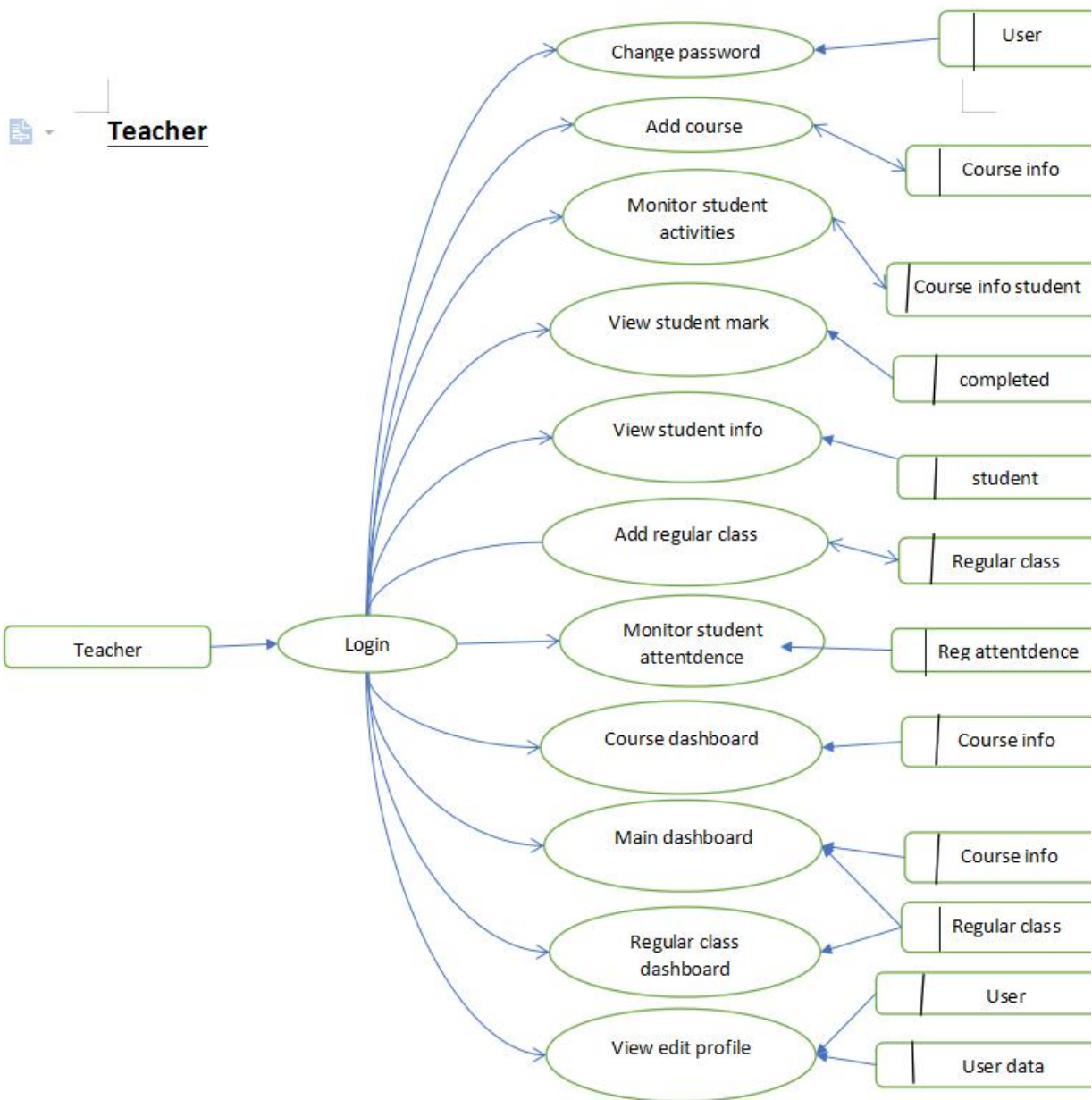
Level 1 Data Flow Diagram



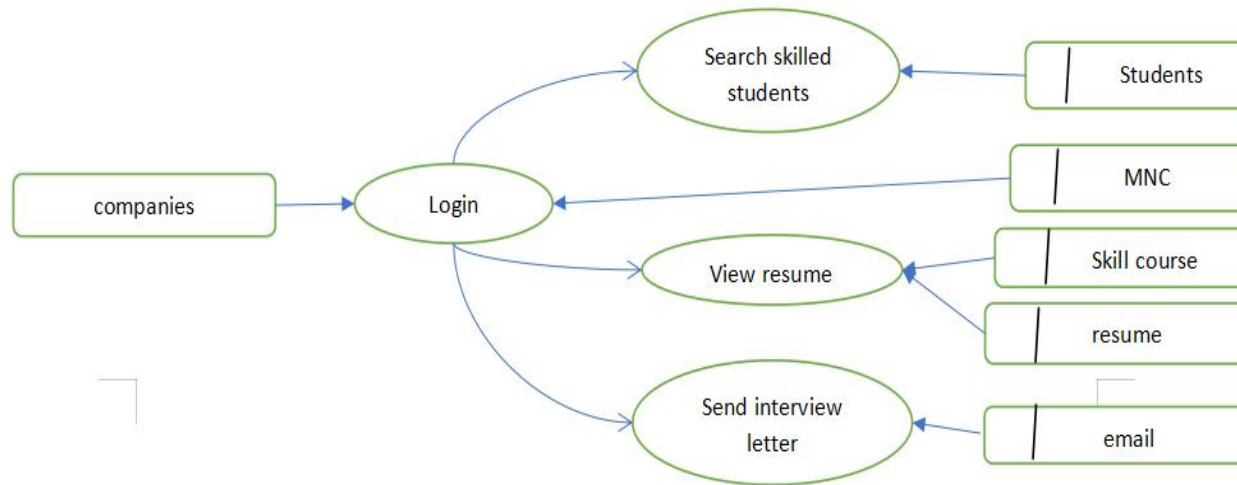
Level 2 Data Flow Diagram

Admin





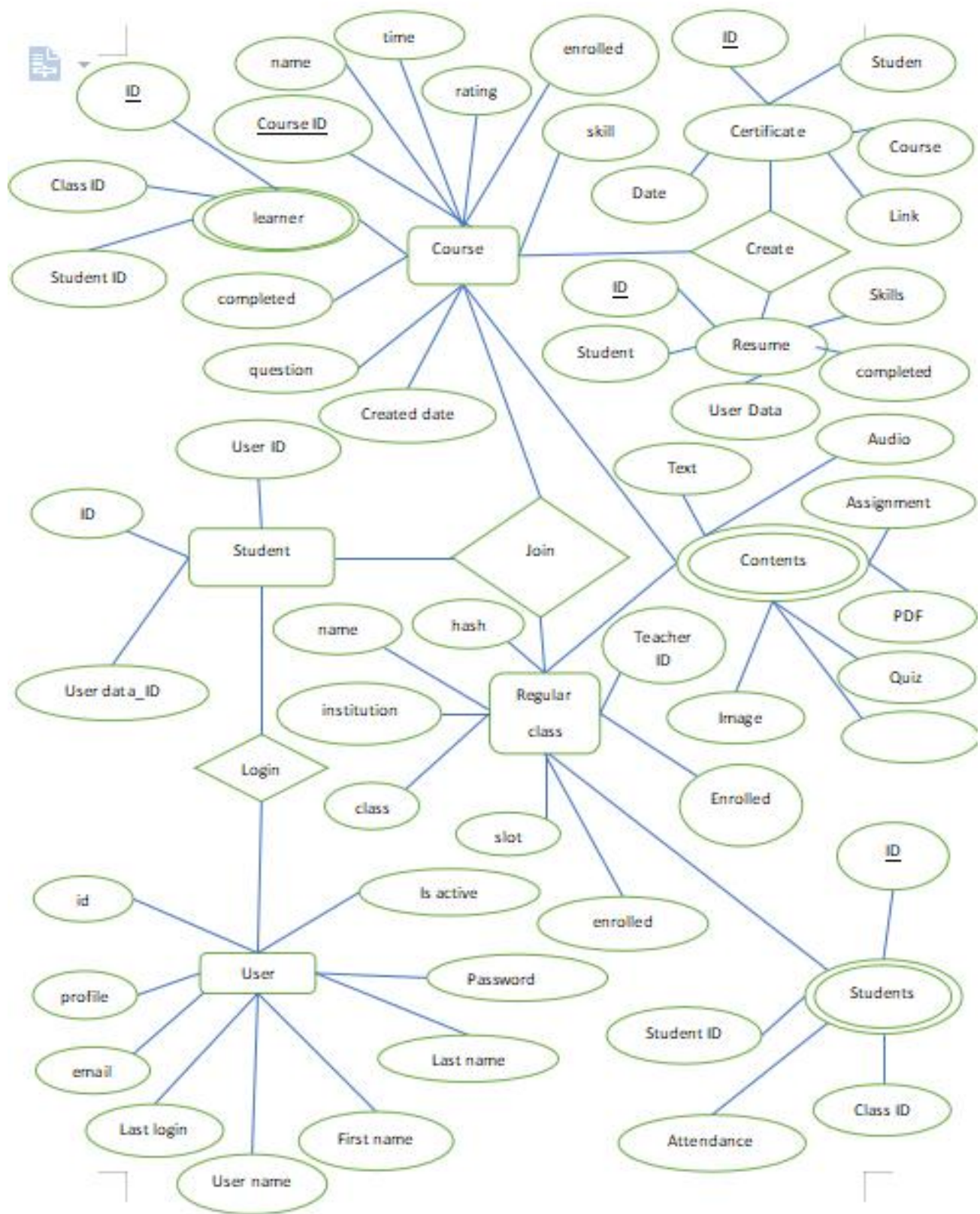
Companies

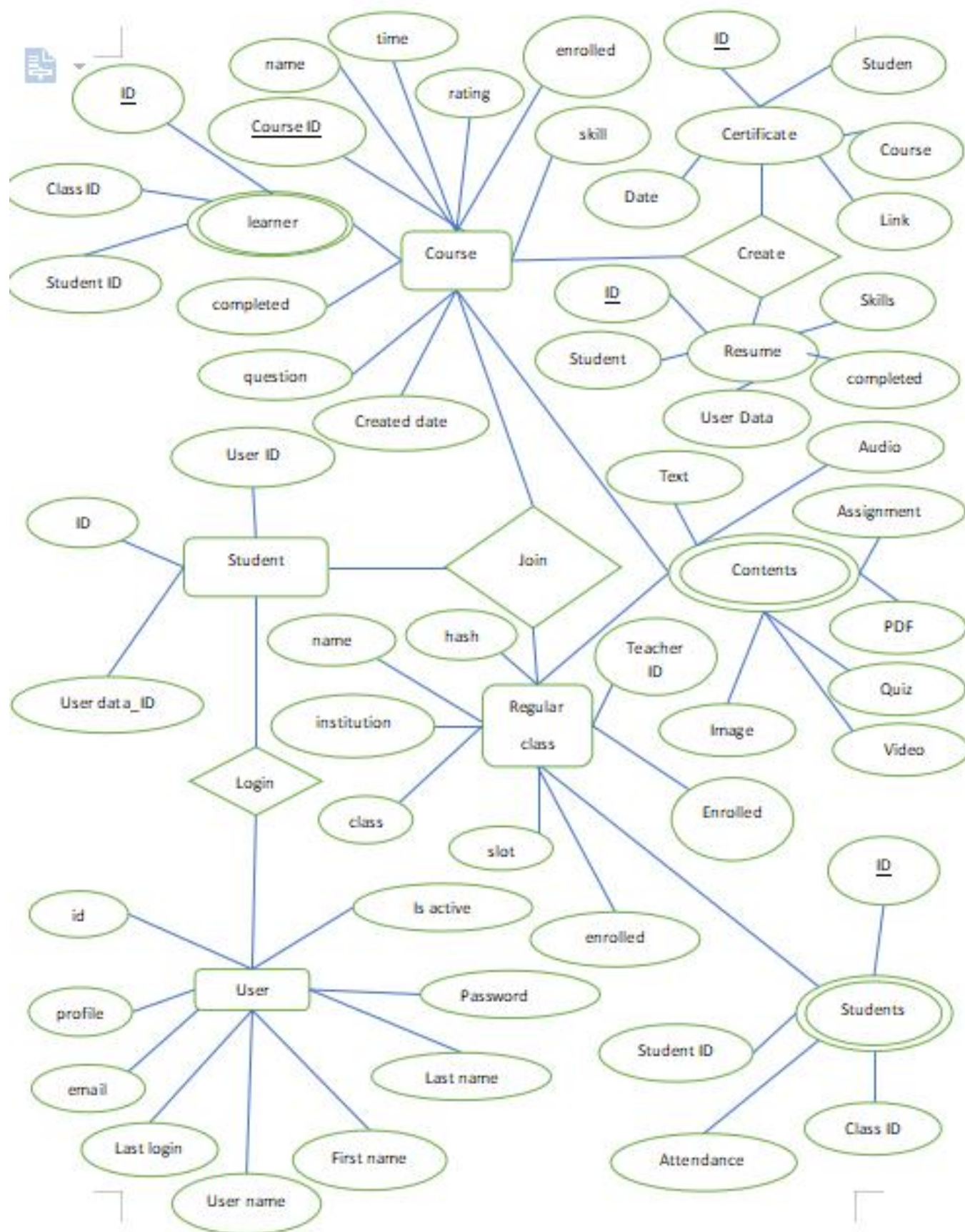


3.5 ENTITY RRELATIONSHIP DIAGRAM

An Entity Relationship (ER) Diagram is a type of flowchart that illustrates how “entities” such as people, objects or concepts relate to each other within a system. ER Diagrams are most often used to design or debug relational databases in the fields of software engineering, business information systems, education and research. Also known as ERDs or ER Models, they use a defined set of symbols such as rectangles, diamonds, ovals and connecting lines to depict the interconnectedness of entities, relationships and their attributes. They mirror grammatical structure, with entities as nouns and relationships as verbs.

ER diagrams are related to data structure diagrams (DSDs), which focus on the relationships of elements within entities instead of relationships between entities themselves. ER diagrams also are often used in conjunction with data flow diagrams (DFDs), which map out the flow of information for processes or systems





4. PROPOSED SYSTEM

Broadly, the LMS shall contain the below listed types, such as:

- a) Learners/Students (requires login)
- b) Instructors/Trainers(requires login)
- c) Administrators (Site Manager) (requires login)

4.1 PERSONALIZED DASHBOARD

Using login credentials: Users can login which takes directly to their personalized dashboard.

- Home Page
 - Login/Register
 - Instructor Dashboard
 - Student Dashboard
 - Admin Dashboard
 - Companies Dashboard

4.2 USER SIDE PRIVILEGES

4.2.1 ADMINISTRATOR PRIVILAGES

Administrator will be having the supreme power to manage the entire system. Admin will be having full access to the system. Admin will be having the rights on file management. Admin when loggedin will be able to see the admin dashboard and admin profile. Privileges to manage instructors as well as Learner will be given to the administrator. Privileges to manage the Learner in each batch are given to admin.

The Role of Site Admin

- Admin Dashboard
- Managing accounts (learner and instructor).
- Roles and permissions.
- View delete courses
- Monitor students performance and skills
- Logging - Manage log stores.
- View activities of users
- Admin can add, delete users.
- Course Completion status
- View Certificate

The Admin Privileges

- All Roles Authorization (all Edit, delete, modification Privileges)
 - Dashboard
 - Able to add Student, Faculty users
 - Able to assign Students and Instructors to Course
 - Able to add Subjects to Course
 - Able to send mails/notifications to the Student and Instructors
 - Able generate Reports. Student wise reports will be available, seeing how many students are there foreach subjects, how many of them attended each class etc. and all kind of learning reports shall be available.
 - Email marketing
 - Able to set courses as paid or free

4.2.2 INSTRUCTOR PRIVILAGES

The instructor can register to the system by the administrator. Instructors when logged into the system will be able to see the instructor dashboard and the profile. Instructors can update the course and add new course to the system. They can manage the learner and can view the status of course completion.

The Role of an Instructor

- Trainer/Instructor Dash Board
- Availability of instructor dashboard.
- Instructor can edit and update his/her profile, and password.
- Assigning assignments to Students.
- Course Listing.
- View Students information
- Create Regular Class
- Monitor Students attendance
- Assessment Status and evaluation
- Able to admin each learners.
- Doing introductory videos.
- Status of Course learning by learner.

4.2.3 LEARNER PRIVILEGES

The Student can register to the system by using their E-mail address or with help of admin or Instructor. Student access the paid courses, when logged will be able to see the dashboard, profile and the courses he/she has enrolled. Students can view the assignments assigned to them under each course.

The Role of a Student

- Student Dash Board
- Search Enroll to course
- Search Join to regular class
- Student can edit and update his/her profile, and password.
- View of completed courses.
- Assessment Uploads
- Viewing video course files.
- Login to webinar
- Students can choose the course and attend the session.
- Students can click to go directly to a required item - for example, 'Add submission' to submit an assignment.
- The account details of the Student as well as his personal details can be enrolled here. The Student can change these data later also.
- All the notifications posted by admin will be visible in the dashboard. The remainder/alerts can be notified at his account.
- Students can see the activities/schedule/training assigned to them.
- Notifications.
- Mark complete
- Raise questions with respect to each training as mail
- Feedback from

4.3 COURSES

This page will be listing the courses available to attend through this Learning Management Solution. Course can be structured as category/subcategory. Each course can have different sections/chapters/lesson depend on how the course is structured. Course activity completion progress will be available.

The registered participants can view the registered course.

- image and Title
- Brief Description
- Instructor details
- Course Structure
- Course content: Files (Including video and audio both), Quiz, Assessments, Assignment submission

4.4 REGULAR CLASS

This page will be listing the regular class available to attend through this Learning Management Solution. Regular classes are special type because Teacher can add contents day by day. Teacher can also monitor attendance and Exam results. Exams are automatic evaluated by system. All type of contents can add and view. Regular class enrolment done through secure hash code. teacher can share hash code to his students. students can Join by the hash code

It includes:

- Day by day topic update
- Students wise attendance
- Day wise attendance
- Result board
- Notification board
- One to one or group video chat

4.5 COMMUNINCATION CHANNEL

The communication channel includes internal chat, and notifications.

One to one secure video chat

Group video chat

Agora Video Call SDK using for Video chat

4.6. RESOURCES & ACTIVITIES

- The course contents can be video, text, image, audio, presentations, assignments, PDF/word files.
- The Quiz can be added as activity inside the course which will be in the form of true or false, objective.
- Live sessions can be scheduled through third party platform (Zoom) for end users. The live recordings can be recorded from the third party platform and can be uploaded to video server and the link can be embedded inside the LMS by the admin/trainer manually.
- Discussion Forum activity created inside the course where all the enrolled users can have an interaction and having the option to discuss any topics, also can share pictures /links/documents.
- Private chat or one to one doubt clearing session can be done by creating the activity chat or scheduler inside the course.
- Unlimited activities can be set for the course.
- Feedback can be received by the learner

5. SYSTEM TESTING

4.1 INTRODUCTION:

System testing is testing conducted on a complete integrated system to evaluate the system's compliance with its specified requirements.

System testing takes, as its input, all of the integrated components that have passed integration testing. The purpose of integration testing is to detect any inconsistencies between the units that are integrated together (called *assemblages*). System testing seeks to detect defects both within the "inter-assemblages" and also within the system as a whole. The actual result is the behavior produced or observed when a component or system is tested.

System testing is performed on the entire system in the context of either functional requirement specifications (FRS) or system requirement specification (SRS), or both. System testing tests not only the design, but also the behavior and even the believed expectations of the customer. It is also intended to test up to and beyond the bounds defined in the software or hardware requirements specification

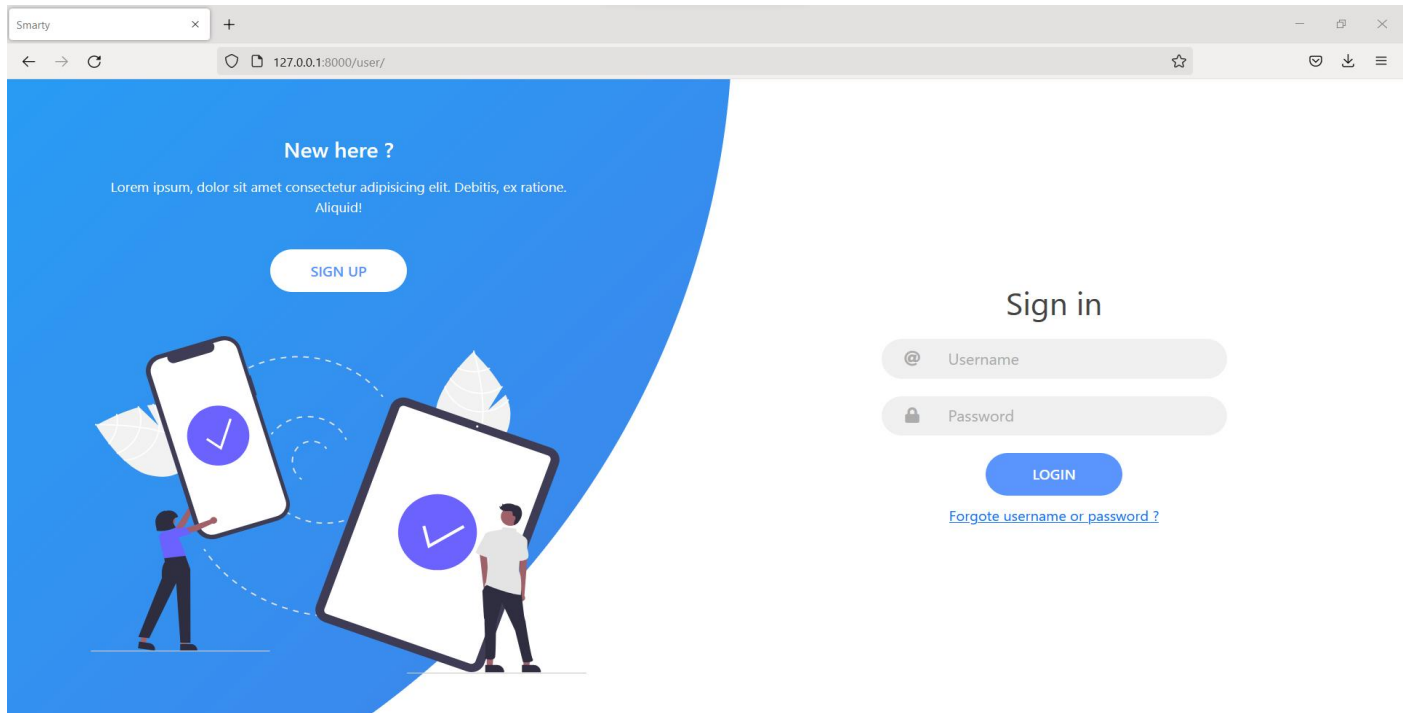
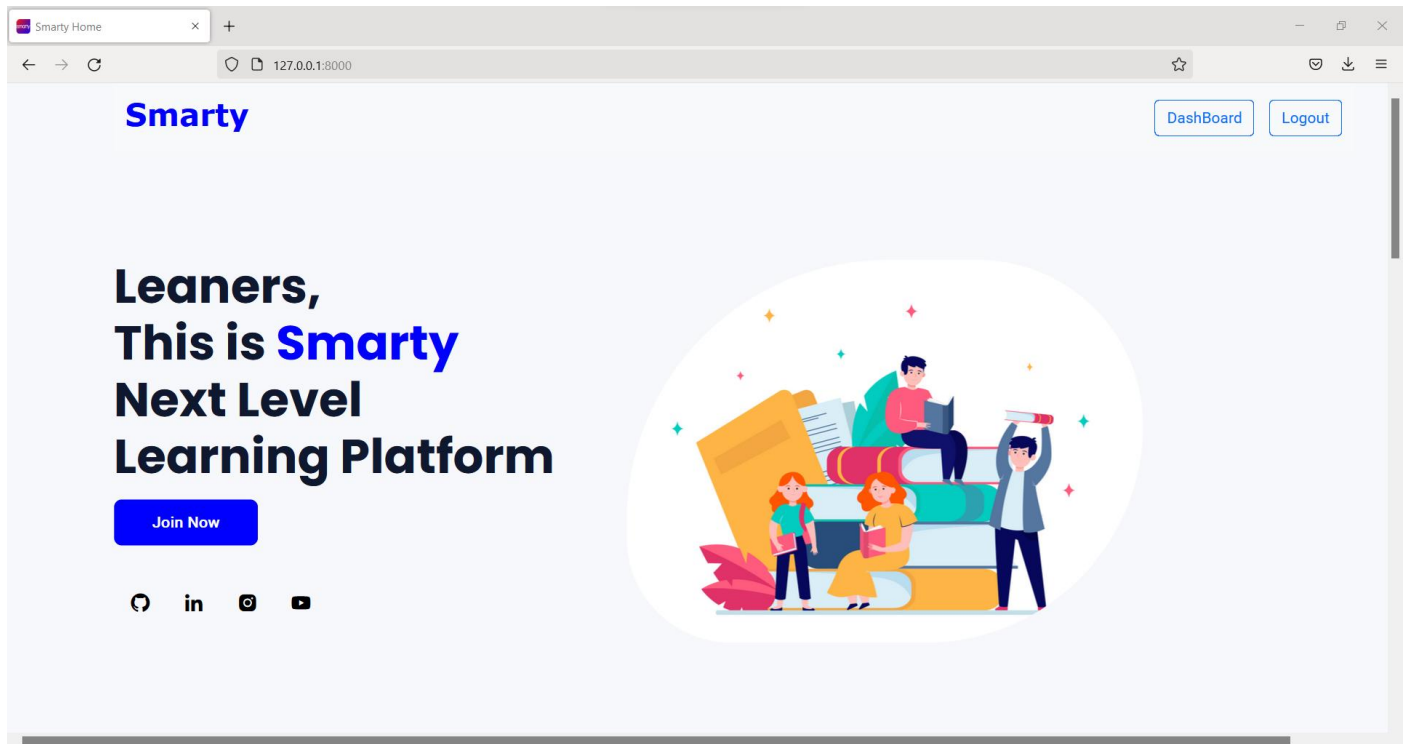
5.1 UNIT TESTING:

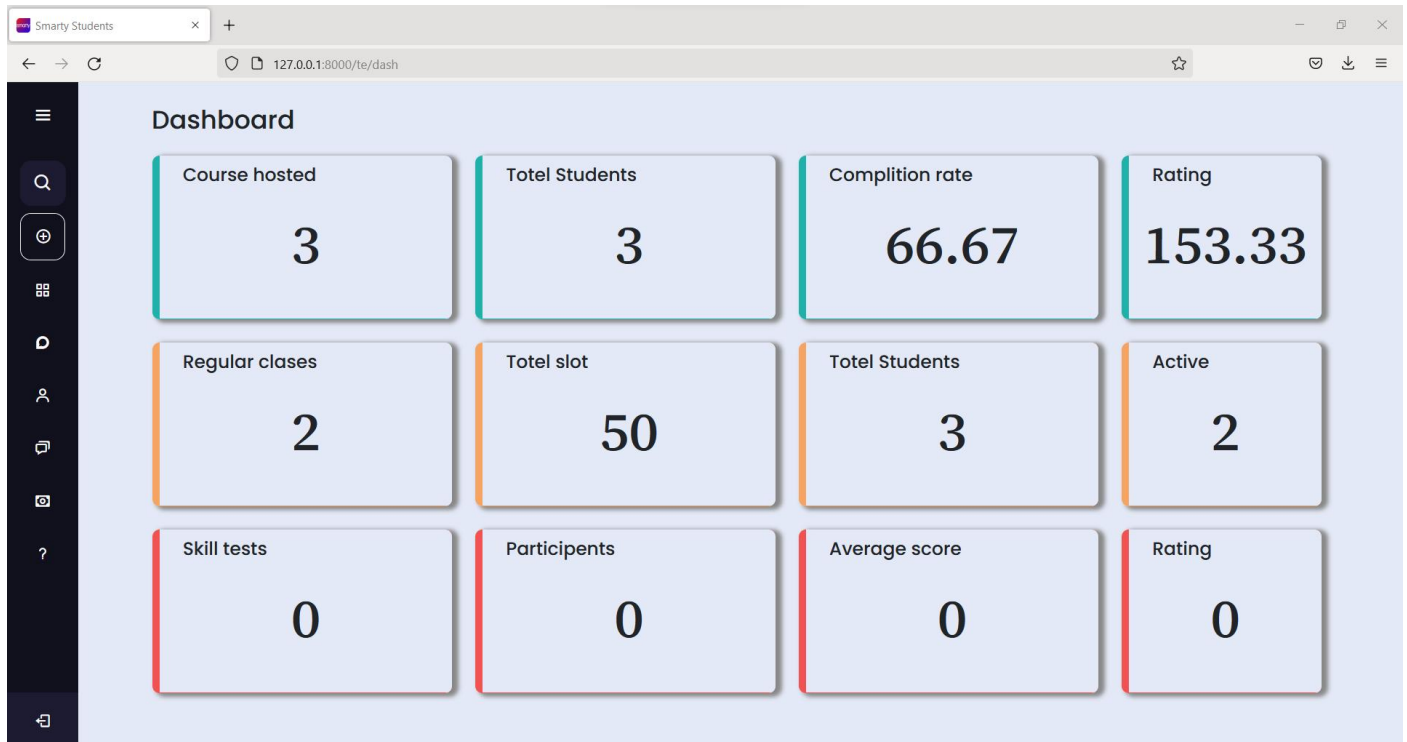
unit testing is a type of software testing where individual units or components of a software are tested. The purpose is to validate that each unit of the software code performs as expected. Unit Testing is done during the development (coding phase) of an application by the developers. Unit Tests isolate a section of code and verify its correctness. A unit may be an individual function, method, procedure, module, or object.

6. CONCLUSION

This project can build up every growing students for their future studies and knowledge. Our main goal to make every single students to prepare their studies through online platform. We build this project to make the education to a professional to every students and teachers. Hope this project can develop students ideas to an external level through our website and system.

7. SCREENSHOTS





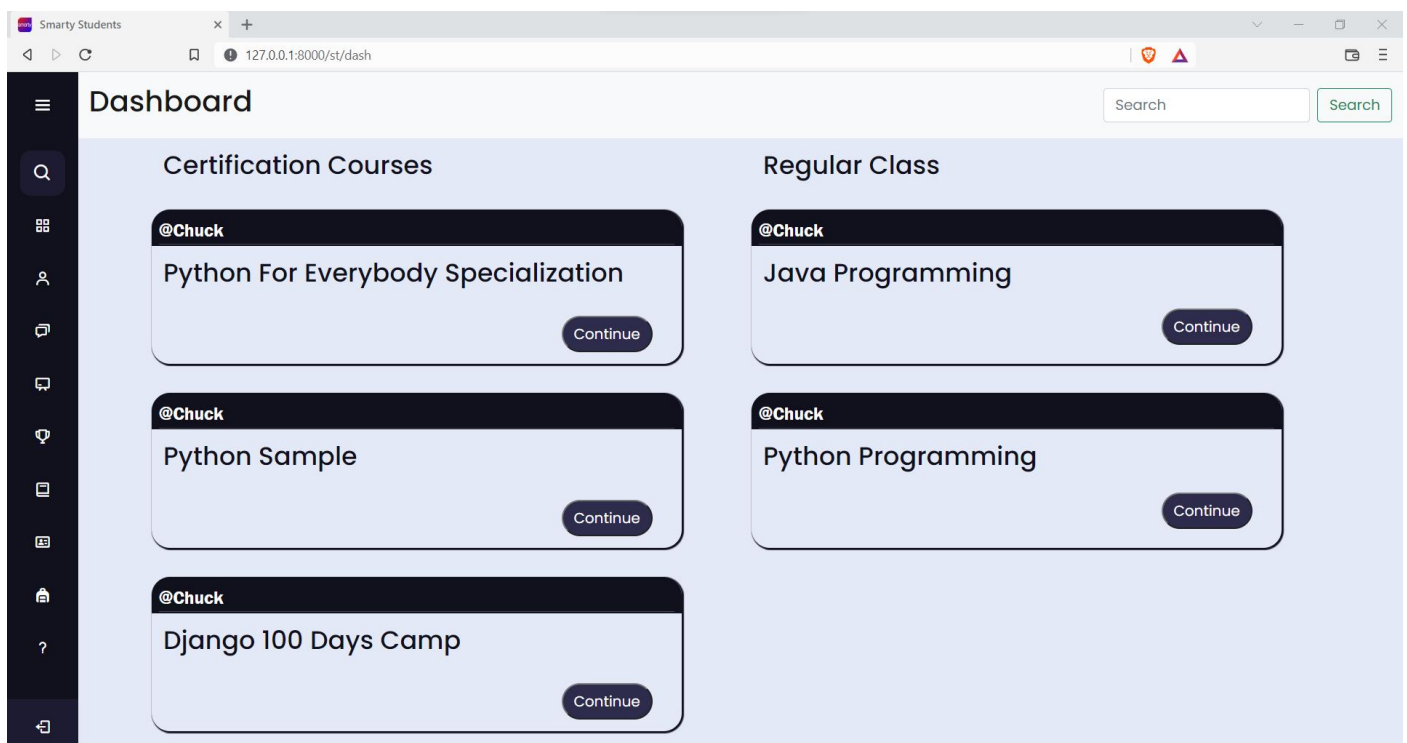
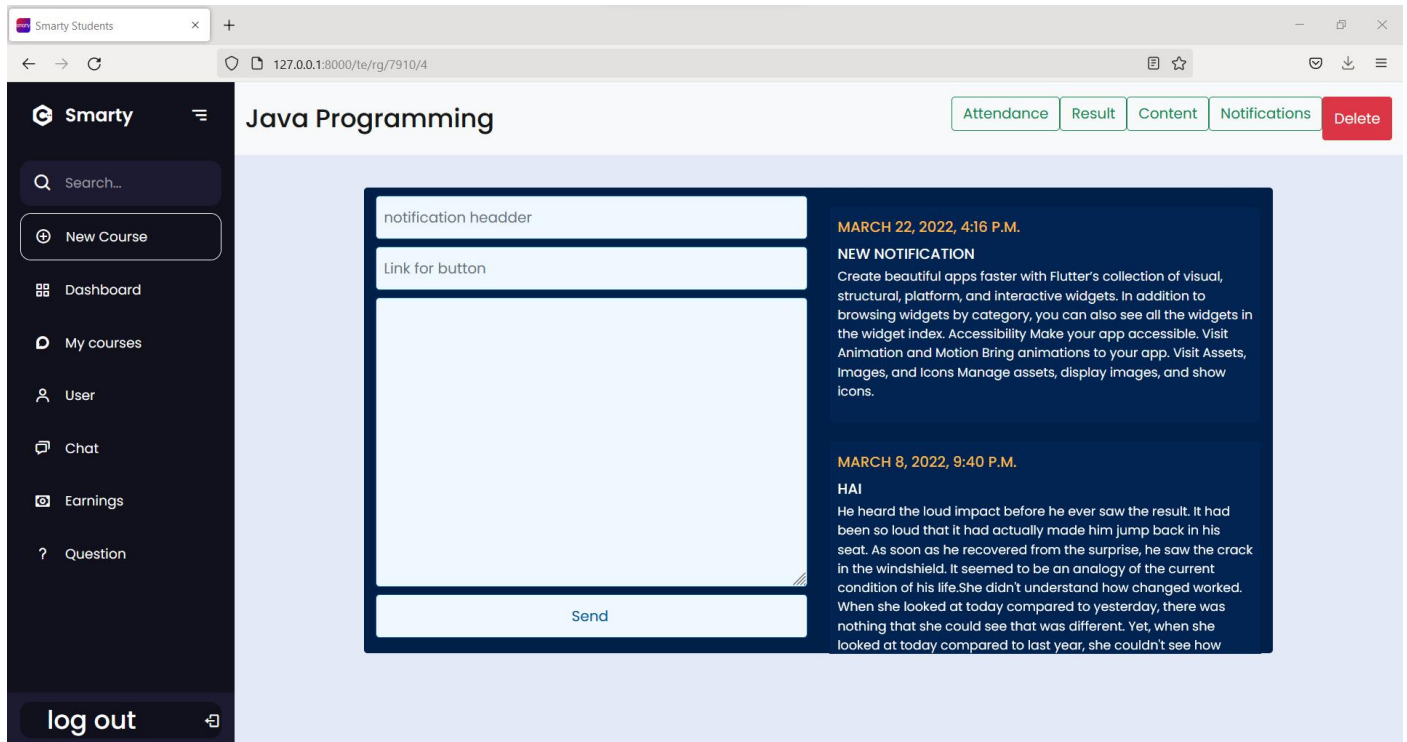
☐ My Courses

Certification Courses

#	Course ID	Course Name	Completed	Rating	Link (click to copy)
1	25783	machine learning	1	5	http://127.0.0.1:8000/course/25783
2	71651	python sample	0	2	http://127.0.0.1:8000/course/71651
3	42007	python for everybody specialization	1	16	http://127.0.0.1:8000/course/42007

Regular class

#	Institution	Subject ID	Subject Name	class & div	shareable ID (click to copy)
1	pptm	7910	java programming	BCA 5th
2	pptm	86202	python programming	BCA 3rd



Smarty Students

127.0.0.1:8000/st/course/search?keyword=python

Course Dashboard

Search

Search

Course ID	Course name	Teacher name	Time to complet	Total Enroled	Rating
71651	python sample	chuck	100 d	2	2
42007	python for everybody specialization	chuck	8 m	1	16
58888	django 100 days camp	chuck	10 d	1	0


Smarty Students

127.0.0.1:8000/st/certificates

Certificate Locker

Search

Search



Smarty


COURSE CERTIFICATE

diyal dheen
has successfully completed
python for everybody specialization
Issue Date: 2022-03-08

Charles Russell
Course Director

Mohammed savad
Smarty CEO & Founder

[View Course](#) [Download](#)



Smarty

COURSE CERTIFICATE

diyal dheen
has successfully completed
python for everybody specialization

Log in | Smarty site admin

127.0.0.1:8000/admin/login?next=/admin/

Smarty administration

Username:

Password:

Log in

Site administration | Smarty site admin

127.0.0.1:8000/admin/

Smarty administration

WELCOME, FASIL. [VIEW SITE](#) / [CHANGE PASSWORD](#) / [LOG OUT](#)

Site administration

ACCOUNTS

Teachers [+ Add](#) [Change](#)

Userdatas [+ Add](#) [Change](#)

AUTHENTICATION AND AUTHORIZATION

Groups [+ Add](#) [Change](#)

Users [+ Add](#) [Change](#)

COURSE

Course infos [+ Add](#) [Change](#)

Regularclasses [+ Add](#) [Change](#)

STUDENT

Certifications [+ Add](#) [Change](#)

TEACHER

Attendances [+ Add](#) [Change](#)

Notifications [+ Add](#) [Change](#)

Recent actions

My actions

✖ regularclass object (80950)

Regularclass

✖ courseInfo object (91825)

Course info

✖ courseInfo object (98700)

Course info

✖ Certification object (1)

Certification

✖ Certification object (8)

Certification

✖ courseInfo object (91825)

Course info

✖ courseInfo object (98700)

Course info

✖ Userdata object (10)

Userdata

✖ Userdata object (12)

Userdata

✖ savad1

User

Select course info to change | Smarty site - X

127.0.0.1:8000/admin/Course/courseinfo/

Smarty administration

WELCOME, FASIL. VIEW SITE / CHANGE PASSWORD / LOG OUT

Home > Course > Course infos

Start typing to filter...

ACCOUNTS

Teachers + Add

Userdatas + Add

AUTHENTICATION AND AUTHORIZATION

Groups + Add

Users + Add

COURSE

Course infos + Add

Regularclasss + Add

STUDENT

Certifications + Add

TEACHER

Attendances + Add

Notificationss + Add

Select course info to change

Action: 0 of 4 selected

<input type="checkbox"/>	NAME	TEACHER	WEEKS	ENROLLED	TIME	RATING	CREATED DATE
<input type="checkbox"/>	python sample	chuck	0	2	100 d	2	March 22, 2022
<input type="checkbox"/>	django 100 days camp	chuck	0	1	10 d	0	April 18, 2022
<input type="checkbox"/>	python for everybody specialization	chuck	0	1	8 m	16	March 7, 2022
<input type="checkbox"/>	machine learning	chuck	0	1	4 w	5	April 16, 2022

4 course infos

ADD COURSE INFO +

Select user to change | Smarty site - X

127.0.0.1:8000/admin/auth/user/

Smarty administration

WELCOME, FASIL. VIEW SITE / CHANGE PASSWORD / LOG OUT

Home > Authentication and Authorization > Users

Start typing to filter...

ACCOUNTS

Teachers + Add

Userdatas + Add

AUTHENTICATION AND AUTHORIZATION

Groups + Add

Users + Add

COURSE

Course infos + Add

Regularclasss + Add

STUDENT

Certifications + Add

TEACHER

Attendances + Add

Notificationss + Add

Select user to change

Search

Action: 0 of 5 selected

<input type="checkbox"/>	USERNAME	EMAIL ADDRESS	FIRST NAME	LAST NAME	STAFF STATUS
<input type="checkbox"/>	aju	aju@gmail.com	azha fathima	student	0
<input type="checkbox"/>	chuck	chuck@gmil.com	Charles Russell Severance	teacher	0
<input type="checkbox"/>	fasil	fasil@gmail.com			1
<input type="checkbox"/>	monu	dilu@gmail.com	diyal dheen	student	0
<input type="checkbox"/>	savad_v	mohammedsavad.v@gmail.com	mohammed savad v	teacher	0

5 users

ADD USER +

FILTER

By staff status

All

Yes

No

By superuser status

All

Yes

No

By active

All

Yes

No