

Online Support Platform For CDIP Students

“GET_CDIP”



Salma Sultana, Sagor Sarker, Rubina Parvin Noor,
Shubhra Roy and Md. Mehedi Hasan

Department of Computer Science and Engineering

United International University

A thesis submitted for the degree of
BSc in Computer Science & Engineering

February 2020

Declaration

We, Salma Sultana, Sagor Sarker, Shubhra Roy, Rubina Parvin Noor and Md. Mehedi Hasan, declare that this project titled, “GET_CDIP” and the work presented in it are our own. We confirm that:

- This work was done wholly or mainly while in candidature for the BSc degree at United International University.
- Where any part of this project has previously been submitted for a degree or any other qualification at United International University or any other institution, this has been clearly stated.
- Where we have consulted the published work of others, this is always clearly attributed.
- Where we have quoted from the work of others, the source is always given. With the exception of such quotations, this project is entirely our own work.
- We have acknowledged all main sources of help.
- Where the project is based on work done by ourselves jointly with others, We have made clear exactly what was done by others and what we have contributed ourselves.

Salma Sultana, 011 151 140

Sagor Sarker, 011 143 076

Shubhra Roy, 011 142 070

Rubina Parvin Noor, 011 161 061

Md. Mehedi Hasan, 011 143 098

Certificate

I do hereby declare that the research work embodied in this project entitled “GET_CDIP” is the outcome of an original work carried out by Salma Sultana, Sagor Sarker, Shubhra Roy, Rubina Parvin Noor and Md. Mehedi Hasan under my supervision. I further certify that the dissertation meets the requirements and the standard for the degree of BSc in Computer Science and Engineering.

Signed:

Date:

Suman Ahmmed

Asst. Professor, Department of CSE

Director of Center for Development of IT Professionals (CDIP)

United International University,

Dhaka-1209, Bangladesh.

Abstract

“Get_CDIP” is an online-based e-learning application. This paper develops a methodology where students and instructors can interact with each other for academic purposes. This platform is one of the best ways to monitor students and full fill their gaps.

CDIP (Center for development of IT Professionals) is an institution where they want to develop the engineering students for fitting themselves into the industry. Thats why they need a platform where they can monitor all the student and instructor performance. Communication between students and instructors which is also a very important part here.

In this application, admin can add, update, delete and view the activities of teacher and student. The teacher can view their course schedules, add announcements, upload assignments, evaluate students, ask and answer questions. Students can view and submit assignments, ask and answer questions. Here, the question-answer system is a unique feature, where one can help others and share knowledge. We hope that soon it will bring a good result for CDIP.

Acknowledgements

At first, we thank the Almighty. Without His blessings, we could not be able to complete our project. We also would like to express our deep and sincere gratitude to our honorable course teacher Professor Dr. A.K.M. Muzahidul Islam and our supervisor Asst. Professor Suman Ahmed. We are very lucky enough that they have allowed us to work on this project. Without their guidance and motivation, we were unable to complete the project. We also would like to express our real acknowledgement and deepest thanks to our dear lovely friends, for their endless love, support, understanding and encouragement in the most difficult period in our work. Special thanks to Kazi Shakhawat Hossain, Associate Coordinator of CDIP to guided us.

Contents

List of Figures	xi
List of Tables	xiii
1 Introduction	1
1.1 Problem Statement	1
1.2 Motivation	2
1.3 Objectives	2
1.4 Project Scope	2
1.5 Project Framework	2
1.6 Thesis Organization	3
2 Documentation	4
2.1 Diagrams	4
2.1.1 Activity Diagram	4
2.1.2 Entity Relationship Diagram	7
2.1.3 Use Case Diagram	8
2.2 Software Requirement Specification (SRS)	9
2.3 Literature Review	15
2.3.1 Student Oriented planning of e-learning content for moodle.	16
2.3.2 Prototyping A Learning Management System for Higher Education	16
2.3.3 Answering Questions about Unanswered Questions of Stack Over- flow.	17
2.3.4 The role of new technologies in the learning process: Moodle as a teaching tool in Physics	17

2.3.5	Learning Analytics for Smart Classroom in Higher Education . .	17
2.3.6	Automated Course Management System	18
2.3.7	Effective E-Learning through Moodle	18
2.4	Case Study	19
3	Methodology	21
3.1	Way to Process the Work	21
3.1.1	Planning	21
3.1.2	Analysis	22
3.1.3	Design	22
3.1.4	Implementation	22
3.1.5	Maintenance	23
3.2	Software Tools	23
3.2.1	HTML5	23
3.2.2	CSS3	23
3.2.3	JavaScript	23
3.2.4	Bootstrap 4	24
3.2.5	AJAX	24
3.2.6	Laravel 5.8	24
3.2.7	MySQL	24
3.2.7.1	Storage capacity	25
3.2.7.2	Concern	26
3.2.8	Tawk.to	27
3.2.9	PNG Format	27
4	Project Execution and Description	28
4.1	Public page	29
4.2	Log in	30
4.3	Admin	31
4.3.1	Home page	31
4.3.2	Profile	31
4.3.3	Add New	32
4.3.3.1	Create Course	33
4.3.3.2	Create Batch	34

4.3.3.3	Create Instructor	35
4.3.4	Assignment	36
4.3.5	Problem Solution	37
4.3.6	Course Materials	38
4.4	Instructor	39
4.4.1	Home Page	39
4.4.2	Assignment	40
4.4.3	Document	41
4.4.4	Question and Answer	42
4.4.5	Profile	43
4.5	Student	44
4.5.1	Home Page	44
4.5.2	Profile	45
4.5.3	Edit Profile	45
4.5.4	Problem Share	46
4.5.5	Document	46
4.5.6	Assignment Submission	47
4.5.7	Assignment List	47
4.5.8	Student Registration	48
5	Impacts, Challenges and Difficulties	49
5.1	Impacts	49
5.1.1	Economic Impacts	49
5.1.2	Environmental	49
5.1.3	Ethical constraints	49
5.1.4	Social	49
5.1.5	Political Impacts	50
5.1.6	Sustainability	50
5.1.7	Health Impact	50
5.2	Challenges and Difficulties	50
5.2.1	Client Communication Problem	50
5.2.2	Development Purpose	50
5.2.3	Database Management	50

5.2.4	Design maintain	50
5.2.5	Security	51
6	Project Planning	52
6.1	Gantt Chart	52
6.2	SWOT-Analysis	54
6.2.1	Strength	54
6.2.2	Weakness	54
6.2.3	Opportunity	54
6.2.4	Threat	54
7	Conclusions and Future Work	55
7.1	Conclusions	55
7.2	Future Work	55
	Bibliography	56

List of Figures

1.1	Project Framework	3
2.1	Activity Diagram of Assignment	5
2.2	Activity Diagram of Question and Answer	6
2.3	Activity Diagram of Documentation	7
2.4	Entity Relationship Diagram	7
2.5	Use Case Diagram	9
3.1	Google Trend Statistics	25
4.1	Public Page	30
4.2	Log in for All User	30
4.3	Home page for Admin	31
4.4	Profile Page for Admin	32
4.5	Edit Profile page for Admin	32
4.6	Course list	33
4.7	Create Course by Admin	33
4.8	Select Course	34
4.9	Batch List	34
4.10	Create New Batch	35
4.11	Instructor List	35
4.12	Create New Instructor	36
4.13	Select Course and Batch	36
4.14	Assignments List	37
4.15	View Assignment	37
4.16	Problem Solving	38

LIST OF FIGURES

4.17 Select Course and Batch	38
4.18 Course Materials	39
4.19 Home page for Instructor	39
4.20 Select Batch to Show Assignment List	40
4.21 Assignment List	40
4.22 View Assignment Submission	41
4.23 Create New Assignment	41
4.24 Select Batch	42
4.25 Document List	42
4.26 Question List	43
4.27 Answer System for Instructor	43
4.28 View Profile for Instructor	44
4.29 Edit Profile for Instructor	44
4.30 Home Page for Student	45
4.31 View profile for Student	45
4.32 Edit Profile for Student	46
4.33 Question and Answer Field for Students	46
4.34 View Documents	47
4.35 Assignment Submission	47
4.36 View Assignment	48
4.37 Student Registration Form	48
6.1 Gantt chart of our Capstone project	52
6.2 SDLC	53

List of Tables

2.1	Submit Assignment Use Case	10
2.2	Upload Assignment and Document Use Case	11
2.3	Login Use Case	11
2.4	Live Chat Use Case	12
2.5	Ask Question and Solve Use Case	13
2.6	Contact with Instructor (Functional Requirement)	13
2.7	Assignment Submit (Functional Requirement)	14
2.8	Ask Question and Solve (Functional Requirement)	14
2.9	Integrity for Probationary Consultant (Non-Functional Requirement) . .	15
2.10	Performance (Non-Functional Requirement)	15
2.11	Case Study	19
2.12	Case Study	20
3.1	Data Storage System	26

Chapter 1

Introduction

In the last ten years, Internet users have been increasing rapidly. Many online social networking sites and some other course management sites are getting popular among students and Instructors because of their online support platform system. In social networking sites, users are allowed to do multiples activities. So we want to create an ideal platform for the teachers and students to interact with each other for academic purposes. Most of the top institutions are using their own course management system. An institution has its own user (e.g. students, teachers, employees) data and those are very important data for that institution. Using this data, an institution can develop and maintain its own online course management system for its users.

1.1 Problem Statement

Center for development of IT Professionals (CDIP) established in United International University (UIU) intending to prepare or develop the engineering students properly for fitting themselves into the industry. CDIP conducts different IT industrial training for enhancing the IT skills of the students and to make them ready for both local/global IT industries. But this institution has no personal course management system. So they have to use different websites to assemble student and instructor activities. In the case of contacting the instructor, there is no fixed way and the most important thing is there is no authenticated support for assignment submission system. For this reason, in this project, we proposed an online platform where the students can solve their problems by helping each other.

1.2 Motivation

As stated earlier in the problem statement, one of the major problems is to manage the activities of both students and instructors. By solving this problem, we will fix a proper way to manage the online support platform system. Reducing the dependency of other websites by creating a better platform for the institution (CDIP) motivated us to do this project. We take it as a challenge cause it a real-life problem and moreover it's a company project.

1.3 Objectives

1. To thoroughly investigate and analyze the exiting work about the online support platform system.
2. To develop an online support platform system for CDIP where students and instructors can easily collaborate with each other, questionnaires will be answered soon and make an authentication for the submitted assignment.
3. To evaluate the performance of the online support platform system we will make it live.
4. To upgrade the system we fixed bugs and use the latest tools for better performance.

1.4 Project Scope

The online support platform system is a vast area for research. We focused on the management of student-instructor activities and also ensured the authentication of assignment submission. Here the Admin creates the new course and batch. No automated classroom feature added here. We do not use AI (Artificial Intelligence) for the question-answer system.

1.5 Project Framework

In this framework Figure 1.1, we schedule our project work process in a flowchart diagram. First of all, we read some journal papers and get familiar with the online

support platform system. We find out the bindings and problems and proposed a better platform to solve those problems. We design a database for data migration and create a front-end design for the user interface. We properly maintain the conventional rule for coding. At last, we test the software for error detection and better performance.

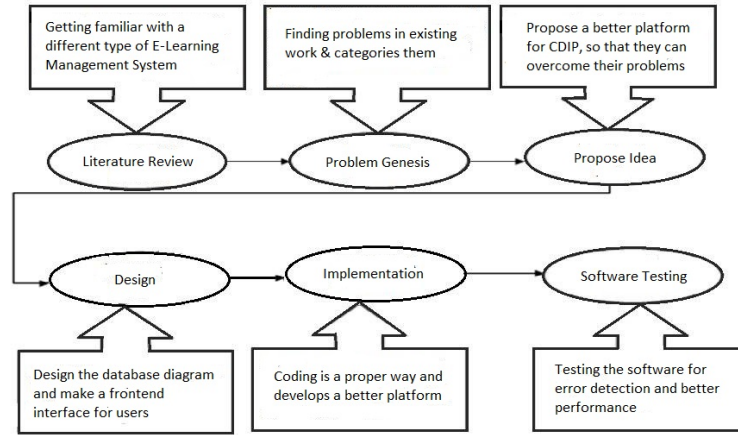


Figure 1.1: Project Framework

1.6 Thesis Organization

This report contains all the necessary information to develop this project. The full report is divided into five sections and all the sections have subsections. In the first chapter, the introduction described the problem, motivation, objective, research scope, research framework and thesis organization. In the second chapter, all the diagrams, Software Requirements Specification (SRS) and the literature review are added. The activity diagram and use case diagram are added in the diagram subsection. All the functional and nonfunctional requirements are added to the SRS subsection. The literature review is done where the summary of different papers and journals related to this project is given. Chapter three discusses the full methodology. Here we added the process of work, tools and techniques and the pictures of our implemented features. Chapter four shows experimental work. Then chapter five is about impacts, challenges and difficulties. Project planning is in chapter six. Chapter seven is the concluding chapter where the summary of the project is given and future work also been added.

Chapter 2

Documentation

Documentation is a major part of software engineering. Software documentation is written text or illustration that constructs computer software or is embedded in the source code. Mainly it explains how it operates or how to use it and may mean different things to people in different roles. This chapter contains different types of diagrams, SRS (Software Requirements and Specification), literature review and case study.

2.1 Diagrams

For our project “GET_CDIP” we need those diagram to represent our work flow.

- Activity Diagram
- Entity relationship Diagram
- Use Case Diagram

These Diagrams are described below.

2.1.1 Activity Diagram

Activity Diagrams describe how activities are coordinated to provide a service which can be at different levels of abstraction. Typically, an event needs to be achieved by some operations, particularly where the operation is intended to achieve a number of different things that require coordination or how the events in a use case relate to one another, in particular, use cases where activities may overlap and require coordination.

It is also suitable for modeling how a collection of use cases coordinates to represent business workflows.

Assignment

We draw an activity diagram for each feature of our project. First We draw the Assignment submission activity diagram. This diagram mention in Figure 2.1. In the assignment activity diagram, it starts from registered an account. If he/she is not registered it redirect to the sign-up page with course select and batch select. If registered they have to logged-in. If the student is in the present batch they can see all the assignments provider by Instructor, if not they can view only the assignment and then the process end.

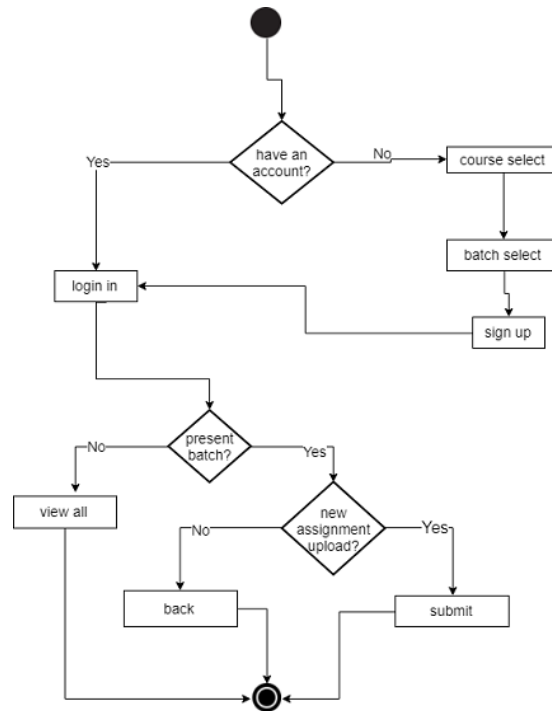


Figure 2.1: Activity Diagram of Assignment

Question and Answer

Question and Answer system is one of the major features in our project. Here, the user has to login in first and select the type of question. There are three types of question system, they are the course-related question, open-source question and industry-related

question. Only the Python and big data analysis students and instructors can view, ask and answer industry problems. On the other side, any user can ask and answer a course-related or open-source question. If the question is not related to the course or material then the admin will not approve the question. Else, the repeated question will be redirected to the previous answer. This diagram is mentioned in Figure 2.2.

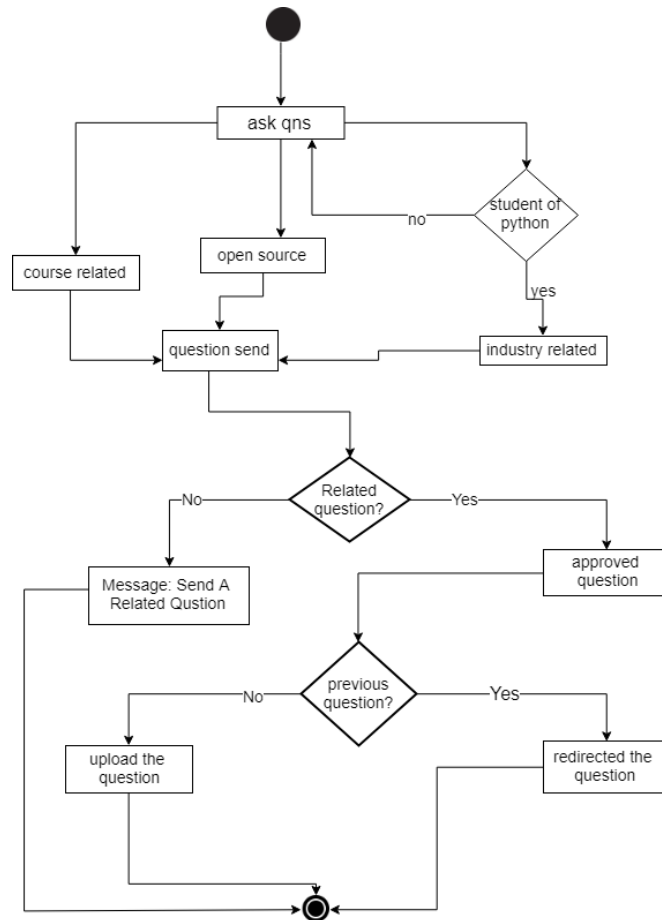


Figure 2.2: Activity Diagram of Question and Answer

Documentation

In our project, the student and the instructor can store their files, projects, course materials. In course, the instructor provides course material and students can search those files. If the search key does not match “not found message” will be displayed. This diagram is mentioned in Figure 2.3.

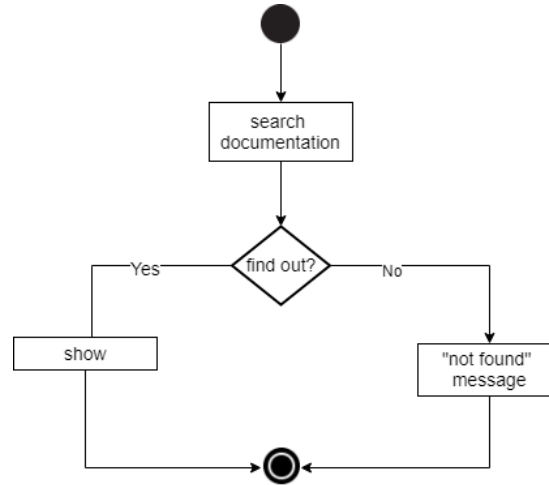


Figure 2.3: Activity Diagram of Documentation

2.1.2 Entity Relationship Diagram

A schema contains schema objects, which could be tables, columns, data types, views, stored procedures, relationships, primary keys, foreign keys, etc. A database schema can be represented in a visual diagram, which shows the database objects and their relationship with each other. The Entity-Relationship Diagram is mentioned in Figure 2.4. There are ten entities in the schema diagram. They are student, instructor, admin, notice, course, batch, questions, submit_assignment, upload_assignment, answer.

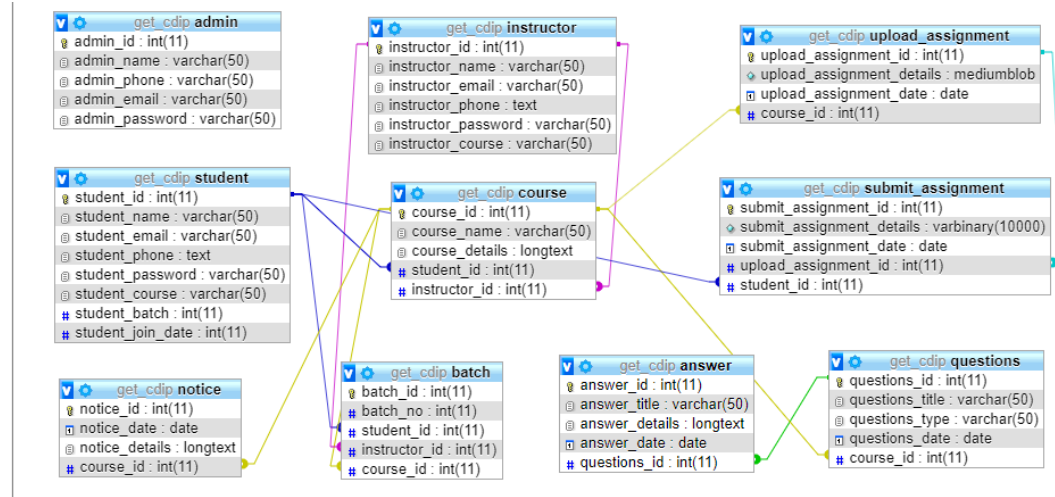


Figure 2.4: Entity Relationship Diagram

There is a many to one connection between Student and Instructor. In “student” table student_id is a primary key which is also a foreign key in the “instructor” table cause under an instructor there are many students. Here is another connection between “student” and “course” table, student_id is the foreign key in the “course” table cause a course has many students. “Instructor” table and “course” table has a one to one connection and instructor_id is the foreign key in the “course” table. The “admin” table is connected to the “course” table with one to one connection. The “notice” table has a many to one connection with the “course” table, course_id is a foreign key in the “notice” table cause a course has much more notification for students. “questions” table also has many to one connection with the “course” table and the course_id is foreign in “questions” table cause a student may have many questions for a particular course. The “questions” table has a one to many connections with the “answer” table, for one question may have many answers. The “upload_assignment” table and the “course” table have many to one connection because Instructor uploads a lot of assignments for a course. Here, course_id is the foreign key in the “upload_assignment” table. For an assignment, there are many submission cause students have to submit their assignments. Here is a one to many connections between “upload_assignment” tablet and “submit_assignment” table. So, upload_assignment_id is the foreign key to “submit_assignment” table. There is a many to one connection between the “course” and “instructor” table. In the “course” table, course_id is a primary key which is also a foreign key in the “batch” table cause a course has so many batches.

2.1.3 Use Case Diagram

A use case diagram is a graphic depiction of the interactions among the elements of a system. A use case is a methodology used in system analysis to identify, clarify and organize system requirements. In our project, there are three types of users which are student, instructor, admin and the use cases are Log in, Upload & Submit Assignment, Upload document, Live chat, Ask questions and solve (course-related/open source/industry). This diagram is mentioned in Figure 2.5.

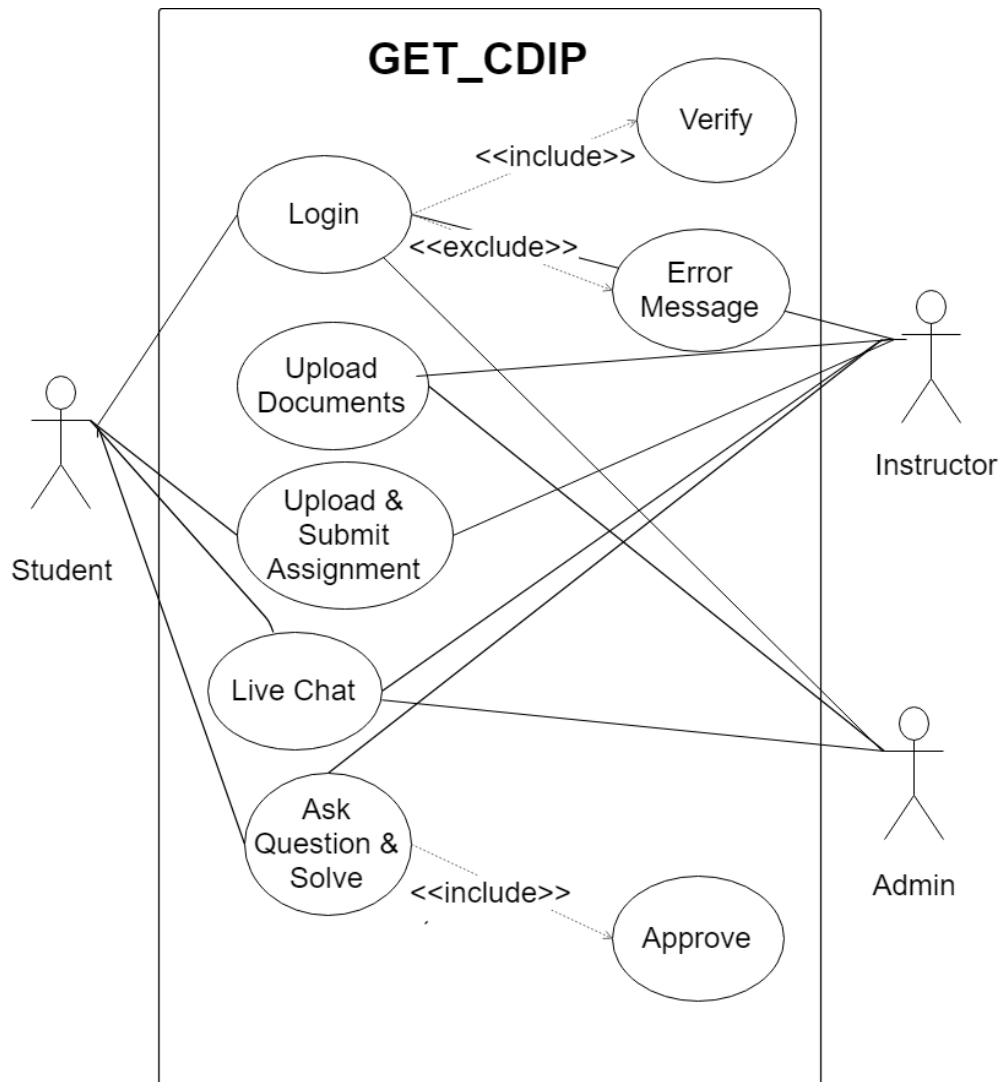


Figure 2.5: Use Case Diagram

2.2 Software Requirement Specification (SRS)

Purpose: The purpose of this document is to serve as a guide to designers, developers, and testers who are responsible for the engineering of the “GET_CDIP” project. It should give engineers all of the information necessary to design, develop and test the software. The document shows the path of all functionality of this project.

Scope: This document contains a complete description of the functionality of the “GET_CDIP” project. It consists of use cases, functional requirements and nonfunc-

2.2 Software Requirement Specification (SRS)

tional requirements, which, taken together, form a complete description of the software.

System Overview: The project is to accomplish all the valid works related to the CDIP. The main purpose is to simplify the task for both students and instructors regarding all kinds of work of CDIP so that students may not use so many websites to solve his or her issues they face. Basically, “GET_CDIP” will focus on to decrease the number of problems to maintain many types of software during course time.

Submit Assignment:

In this Table 2.1, a student can submit an assignment solution within due time. One student can not see the other student’s submission copy. Before submitting an assignment a student has to log in first.

Table 2.1: Submit Assignment Use Case

Name	UC-1: Submit Assignment
Summary	Students have to submit their assignment solutions within due time. One cannot see the submission of others.
Rationale	Students of CDIP now use “Trello” for assignment submission. Here, anyone can see other submitted files. The new system will only show the name of students who already have submitted assignments.
Users	Students.
Preconditions	A user has to log in his/her account.
Basic Course of Events	1. Click the “Assignment” option. 2. Upload or drag and drop the submission file. 3. Click the “Okay” button.
Alternative paths	The student has to submit his/her assignment through email to the instructor.
Post Conditions	The instructor will check the assignments.

Upload Assignment and Document:

Table 2.2 represents that instructors upload assignments continuously and the student can see it with a list from his/her course related account. Mainly, Practice problems and documentation will help the students to develop their basic. If the instructor can’t upload files through this system then he/she can use google services or contact with

2.2 Software Requirement Specification (SRS)

Table 2.2: Upload Assignment and Document Use Case

Name	UC-2: Upload Assignment and Document.
Summary	Instructor have to upload assignment every week.
Rationale	Practice problem and documentation will help the student.
Users	Students and Instructor.
Preconditions	User has to be a instructor and log in his/her account.
Basic Course of Events	1. Click the “Upload” option. 2. Upload or drag and drop the assignment file. 3. Click the “upload” button.
Alternative paths	Teacher can use google class room service or manually serve files.
Post Conditions	The student will check the assignments.

CDIP management. After upload, students will check those assignments.

LOGIN:

Table 2.3 represents the students, instructors, and admin should be login first to use the “GET_CDIP” system. For login purposes, the user has to give his/her user name and password.

Table 2.3: Login Use Case

Name	UC-3: Login
Summary	Every user should be login for this system.
Rationale	Every user must be authorized.
Users	Students, instructors and admin.
Preconditions	User should be registered.
Basic Course of Events	1. User click the “login” option. 2. Write user name and password. 3. Click the “login” button.
Alternative paths	Direct contact with CDIP office.
Post Conditions	User can access any features.

Live Chat:

In Table 2.4 Students and instructors can contact with each other. Students can ask course-related questions through the live chatting system. Students can send any type of file through the chatting system. The student must have a valid reason to contact

2.2 Software Requirement Specification (SRS)

the instructor. Using this system student should be registered first and then they have to log in. If he/she could not use this system then he/she has to contact instructor via mail or phone.

Table 2.4: Live Chat Use Case

Name	UC-4: Live Chat
Summary	The instructor and students can be contacted through this website in any necessary situation, without a personal emailing system or meeting in person.
Rationale	Student can ask their problem through live chatting system and instructor will be notified.
Users	Students and Instructors.
Preconditions	1. Student should be registered. 2. Student and Instructor have to log in first. 3. The student must have a valid reason to contact the instructor.
Basic Course of events	4. User click the “Message” option. 5. Ask question or upload file. 6. Click the “send” option.
Alternative paths	Contact with mentor via email or in person.
Post Conditions	Students can contact with their mentors and solve issues.

Ask Question and Solve:

Table 2.5 represents that every course has some question answers content. Admin should approve the questions. Students and instructors can ask questions in this section. They can also provide solutions if they want to give answers. But in Industry question and solve purposes, only python and big data analysis students can ask questions and selected numbers of instructors can answer those questions. Here, we want to create a shared platform where everyone can share knowledge and develop their skills. If the student could not able to use this feature, he/she can search it on google or contact the instructor.

2.2 Software Requirement Specification (SRS)

Table 2.5: Ask Question and Solve Use Case

Name	UC-5: Ask Questions and Solve
Summary	Each and every course have question answer content. Student or instructor can ask questions and also answer the questions. Admins have to approve the question.
Rationale	We want to create a shared platform through this system where anyone can share his/her knowledge. From this feature, a student or instructor can help each other and enrich their knowledge.
Users	Students, Instructors and Admin.
Preconditions	Student have to ask valid questions.
Basic Course of events	1. Click to “QUESTION” button to see the questions. 2. Ask questions.
Alternative paths	1. Search questions in google. 2. Ask question via live chatting option.
Post Conditions	Users can get solution of their problems/questions.

Functional Requirement

1. Contact with Instructor

Sometimes student faces some difficulties then they need the help of course-related instructors so that we have to implement the live chat system. The requirement is mentioned in Table 2.6.

Table 2.6: Contact with Instructor (Functional Requirement)

Name	F-1: Contact with Instructor
Summary	Sometimes students face immediate problems, then they needed instant solution, for this purpose, they can ask questions to their instructor through live chat. Instructors can reply easily.
Rationale	We want to create a shared platform through this system. Where anyone can share his/her knowledge. From this feature, a student or instructor can help each other and enrich their knowledge.
Requirements	Mentors will response within 24 hours of notification.
References	UC-4: Contact With Instructor.

2. Assignment Submit

Table 2.7 represents that it is a functional requirement. So we have to implement the

2.2 Software Requirement Specification (SRS)

assignment submit section, which is already described in the submit section.

Table 2.7: Assignment Submit (Functional Requirement)

Name	F-2: Assignment Submit
Summary	When students show the update of assignment, they upload their solutions within due dates. Instructors upload assignments continuously and set due date on it and close submit option from there after due date over.
Rationale	Industry Students of CDIP now use “Trello” for assignment submission. Here, anyone can see others submitted files. The new system will only show the name of students who already have submitted assignments.
Requirements	Students have to submit the solutions within due dates and upon submission it will be added in the queue instantly.
References	UC-1: Assignment submit.

3. Ask Questions and Solve

In every course related option Students have to ask valid questions. Admin should approve the questions. This requirement is mentioned in Table 2.8.

Table 2.8: Ask Question and Solve (Functional Requirement)

Name	F-3: Ask Question and Solve.
Summary	Each and every course have question answer content. Student or instructor can ask questions and also answer the questions. Admins have to approve the question.
Rationale	In case of Mentors’ supervision students have to rush to them in person, while most of the times Mentors are busy taking classes or unavailable in the university. Time management is also difficult in such cases. If mentors can access online, these issues can be resolved very easily.
Requirements	Student have to ask valid questions.
References	UC-5: Ask Question.

Non Functional Requirement

1. Integrity for Probationary Consultant

Table 2.9 show us that a conversation between the student and instructor should be secured so that students can share his problem easily, and without any kind of hesitation.

Table 2.9: Integrity for Probationary Consultant (Non-Functional Requirement)

Name	NF-1: Integrity for Probationary Consultant.
Summary	The consulting conversation between the student and the consultant must be secured.
Rationale	Students would feel hesitant to speak up their problems to the consultant. By providing this privacy, they would feel secure and share their problems without any hesitation.
Requirements	Probationary students can choose upcoming courses by thinking thoroughly.
References	UC-4, F-1.

2. Performance

In Table 2.10, Every feature completed with best efforts and all features will work swiftly with no lag.

Table 2.10: Performance (Non-Functional Requirement)

Name	NF-2: Performance
Summary	All the feature must function swiftly with no lag.
Rationale	If feature performance is not robust enough, it takes a long time to respond, students will eventually go to university to fulfill their requirements.
Requirements	High processor speed with large server capacity, system performance will be impressive enough to serve the whole university.
References	All.

2.3 Literature Review

A literature review is a type of review article. A literature review is a scholarly paper, which includes the current knowledge including substantive findings, as well as theoretical and methodological contributions to a particular topic. Literature reviews are a basis for research in nearly every academic field. To reach the current situation

of the online support platform system, we reviewed some relevant papers. Here, we summaries those papers and find out the merits and scope of them.

2.3.1 Student Oriented planning of e-learning content for moodle.

Valentina Caputi, et. al. [1] introduced a way to automatically plan student-oriented learning content in Moodle. According to the student background and learning objects or goals, this paper is offering personalized content. Analyze student's learning activities, learning contents, preconditions and then find plans for each student. Show the planned path for both student and teacher in Moodle. By using integrating AI (Artificial intelligence) planning techniques that personalize learning paths in Moodle. Maintains Standard Planning Definition Language (PDDL) formation. The main advantage of this paper is using Artificial intelligence for course organization. Build communications with mentors. In there using algorithms that can save the time of a student or a teacher. This paper initially can not give paths for course suggestions. Have to study the data about student's feedback. Courses should be related to this path selection algorithm. In our project every course independent, Here we need a suggestion for which courses needed which type of questions answer solution. It studies question type and suggests. That type of course. It helps a student to find out the solution they need.

2.3.2 Prototyping A Learning Management System for Higher Education

Raafat George Saad, et. al. [2] presents a five-year development initiative that seeks to implement a learning management system clearly differentiated from the CMS domain. Here, they presented an Efficient Learning Management System (ELMS) which was designed in-house and which was used to run two fully online courses in a higher education setup. The ELMS was a prototype used in the real-time, real-life model. It is clear from the results that the ELMS can accommodate different pedagogical designs and can be used to not only measure student learning but also to understand their behavior. The ELMS is designed for scalability, and recyclability of content and components. Students and instructors can easily collaborate themselves. Everything in this paper is very clear to understand. In the "usage" part this document shows the

statistics of questionnaires and pre-test which is very helpful for us. But there is no open platform to ask questions. On our website, we will make an open platform for all to ask questions so that everyone can share knowledge.

2.3.3 Answering Questions about Unanswered Questions of Stack Overflow.

Muhammad Asaduzzaman, et. al. [3] giving services to developers and engineers. In this platform, there are a huge number of questions have been asked. Community members can also edit and vote on any kind of question. But in the last two years, the number of unanswered questions is increasing. In this paper, they are trying to find why a large number of unanswered questions on this platform. Engineers and developers can ask questions about whatever they can want. There are some questions that are long term being unanswered.

In our project, we have been giving options about the course-related questions, so every question will be answered.

2.3.4 The role of new technologies in the learning process: Moodle as a teaching tool in Physics

Teresa Martin Blas, et. al.[4] introduced the total overview of an undergraduate online course for a course (Physics). They have implemented this in the Moodle platform. This process develops into the face-to-face enhanced course. In this system students and teachers, both are helped and that has virtual space where they can share knowledge through different kinds of supervised, chats, forums. This course helps students to reinforce their ability and knowledge. Students get virtual space so that they don't miss any topic for major issues. This system has only one course. In our project, there are nine professional courses so that students can develop their profession.

2.3.5 Learning Analytics for Smart Classroom in Higher Education

Vikas Rao Naidu, et. al. [5] presented a smart classroom is providing the latest tools and technologies that are based on the internet and used for the higher education sector. Students and faculty members are using this smart classroom. Various kinds of web-based tools are using for teaching and learning experiences. To provide appropriate

2nd April 2015 content to the students, based on their level of understanding, this smart classroom technology could be helpful. This research paper highlights such an environment that provides a strong base for learning analytics for the enhanced learning environment in higher education. The benefit of smart classroom technology can be used in Higher Education for better teaching and learning. Used for only learning analytics based on higher education on behalf of the smart classroom. In our project, we will implement the question-answer part, live chatting option to communicate and store documentation.

2.3.6 Automated Course Management System

Ashik Mostafa Alvi, et. al. [6] summarized the design of an online automated course management system (ACMS) which is developed for North South University. The paper has some core modules. These are the Notification module, Message module, File Sharing module, Announcement module, Quiz module, Subject Overview module, Attendance module, Assignment module, Class Calendar/ Event module, Grade module. The purpose of the paper is automated classroom creation methodology, Integration of all essential classroom management modules and the Establishment of easier communication between instructors and students. Students can use online classroom, They submit the assignment online. They can file sharing facility. Students can contact with instructors. There is no question/answer system in this project. In our project, We can implement the question/answer feature.

2.3.7 Effective E-Learning through Moodle

Dr. Dharmendra Chourishi, et. al. [7] describe a process of education in electronic form through the Internet network or the Intranet with the use of a management system for education. Moodle is an acronym for Modular Object-Oriented Dynamic Learning Environment. Moodle is license-free open-source software for e-learning. The teacher creates content in various multimedia forms for both learning and assessment. These contents could be in Text, Images, Video, Audio and Links to other repositories, Questionnaires for evaluation in various forms, etc. Students can easily access those contents. Moodle has updates install from time to time and so it is continually being modified and enhanced. It is an open-source platform, anyone can develop it. Since

Moodle is an open-source system all of the modules of this system are shared. So we will protect all the sensitive data cause we have to do a company project.

2.4 Case Study

The case study is a research method involving an up-close, in-depth and detailed examination of a subject of study [8]. Here, we made a case study on reviewed papers. We create Table 2.11 and Table 2.12 to differentiating those papers based on their work process.

Table 2.11: Case Study

SL NO.	Paper Title	Module	System Application	Record Process	User Accessibility	Data-base System	API
01	Learning Analytics for Smart Classrooms in Higher Education	1.Student 2.Instructor	Web-based	Sign up and use	Admin enables to access the smart classroom with the registered student	None	API not used
02	Open Source E-Learning System in E-learning and Moodle	1.Student 2.Instructor	Open-source	Sign up and store	Admin only	Centralized	API not used
03	Answering Questions about Unanswered Questions of Stack Overflow	1.Engineers 2.Developers 3.Admin	Web-based	Sign up and store	Admin only	None	API not used

Table 2.12: Case Study

SL NO.	Paper Title	Module	System Application	Record Process	User Accessibility	Data-base System	API
04	Automated Course Management System	1.Admin 2.Teacher 3.Student	Web application	Sign up and record	Can view info, chatting and submit the assignment	Centralized	API not used
05	The Role of New Technologies in the Learning process: Moodle is a Technique Tool in Physics (1. Teresa Martin Blas 2. Ana Seranndo Fernandez)	1. Teacher 2. Student	Web-based	Track from the previous database	Can collect all the documents	None	API not used
06	Prototyping a learning Management System for Higher Education	1. Administrators 2. Professors 3. Students 4. TA	Web application	Sign up and record	Can view, download, submit document	None	API used
07	Effective E-Learning through Moodle	1. Administrators 2. Teachers 3. Students	Web application	Open Source	an administrator enables access through user name and password, then the user can access	None	API not used

Chapter 3

Methodology

The methodology is the systematic, theoretical analysis of the methods applied to a field of study or work. Project Management Methodology is an exactly defined combination of logically related practices, methods and processes that determine how best to plan, develop, control and deliver a project throughout the continuous implementation process until successful completion and consummation. In this chapter, we describe the process of the work and software tools of our project [9] [10].

3.1 Way to Process the Work

In this section, we mainly represent the project SDLC framework. The software development life cycle (SDLC) is a framework defining tasks performed at each step in the software development process. SDLC is a structure followed by a development team within the software organization. It consists of a detailed plan describing how to develop, maintain and replace specific software. There is usually a cycle in SDLC. It starts with planning, then analysis, design, implementation, maintenance [11].

3.1.1 Planning

This is the first phase of our project. In this phase, we identify the needs and prototyping a system. The decision is based on the Project Decision Report as a result of undertaken activities at this period. We selected this project after discuss our mentor and teammates. We are making an online support platform system that will be helped

for the students of CDIP. And we decided some feature assignment submit, question answer, chatting with instructors, etc.

3.1.2 Analysis

This is the second phase of our project. In this phase, we made a case study means compared our project with another similar type of project and find out our unique features. Then we summarized some journal papers that related to our project. After that, we made a literature review and find out their merit list, demerit list with solve and scope with our project.

3.1.3 Design

This is the third phase of our project. In this phase, we made a Use Case Diagram with description form. This is a graphic portrayal of the interactions among the elements of a system. It is used in system analysis to recognize, clarify and organize system requirements. Then we have done the Activity Diagram for each feature. This is another important diagram in UML to describe the dynamic futurity of the system. The activity diagram is similar to a flowchart to narrate the drift from one activity to another activity. The activity can be represented as an act of the system. After that, we designed the Entity-Relationship Diagram, also known as ERD, ER Diagram or ER model. It is a type of structural diagram for use in database design. An ERD contains different signs and connectors that visualize two important information. There are two major entities that are within the system scope and the inter-relationships among these entities. Then we completed wire-frame design in Adobe XD.

3.1.4 Implementation

This is the fourth and main phase of our project. We are working on the AGILE methodology. The Agile methodology was developed as a response to growing discomfiture with other highly structured which is inflexible methodologies. This approach is designed to compromise change and the need to produce software faster. Agile values individuals and their relationships and interactions over tools. It features customer assistance throughout the development process. It recomposes to change instead of approximate a set-in-stone plan. And it focuses on introducing working software, rather

than the documentation.

Otherwise, we are using the Laravel framework of PHP. It is a web application framework with an expressive, elegant syntax. We wish development must be an enjoyable, creative experience to be truly complementary. Laravel endeavors to take the misery out of development by the cut off common tasks used in the majority of web projects, such as authentication, routing, sessions and caching.

3.1.5 Maintenance

After completing the implementation phase, this phase starts. Maintenance of software can include software upgrades, repairs and fixes of the software if it breaks. After completing our project if CDIP needs any updates, we will do it. [12]

3.2 Software Tools

We are using Laravel 5.8 (PHP FRAMEWORK) Object-Oriented Programming for back-end coding and in front-end, we are using Bootstrap. For data migration, we use the MySQL database. The UI (User Interface) design is user-friendly and responsive. For responsive design, user can use it from any kind of internet-connected devices. The colour combination will be amicable for the user's view.

3.2.1 HTML5

ISO defines the standard character sets for different languages. HTML standard is ISO-8859.

3.2.2 CSS3

The CSS specifications are maintained by the World Wide Web Consortium (W3C). Internet media type (MIME type) is registered for use with CSS by RFC 2318 (March 1998). The W3C operates a free CSS validation service for CSS documents.

3.2.3 JavaScript

As a multi-paradigm language, JavaScript supports event-driven, functional and imperative (including object-oriented and prototype-based) programming styles.

3.2.4 Bootstrap 4

Bootstrap is an open-source front-end framework for designing responsive websites. Its framework is built on HTML, CSS and JavaScript. Bootstrap approach to better, faster and stronger web development. It's a powerful front-end framework for faster and easier web development tools. It's released under the MIT license and It's copyright 2018 Twitter.

3.2.5 AJAX

Ajax is a set of web development techniques using many web technologies on the client-side to create asynchronous web applications. With Ajax, web applications can send and retrieve data from a server asynchronously (in the background) without interfering with the display and behaviour of the existing page. By decoupling the data interchange layer from the presentation layer, Ajax allows web pages, by extension, web applications, to change content dynamically without the need to reload the entire page.

3.2.6 Laravel 5.8

Laravel is a framework of PHP. It is a free, open-source PHP web framework, created by Taylor Otwell and intended for the development of web applications following the modelviewcontroller (MVC) architectural pattern and based on Symfony. The source code of Laravel is hosted on GitHub and licensed under the terms of MIT License.

3.2.7 MySQL

MySQL is an open-source RDBMS (Relational Database Management System) platform. All modern database systems like SQL, MySQL, Oracle, Microsoft Access are based on RDBMS. It's called Relational Database Management System because it is based on the relational model. Nowadays, MySQL is one of the topmost database servers in the world [13]. We add the google trend statistics in Figure 3.1.

It started in 1994-95, 1st version released in 1996. This database system is popular for high performances, speed, small in size, multi-user support, portability and easy to use. Moreover, MySQL runs on more than twenty platforms (Linux, Windows, macOS, Solaris, etc.). For this reason, MySQL holds up its market value [14].

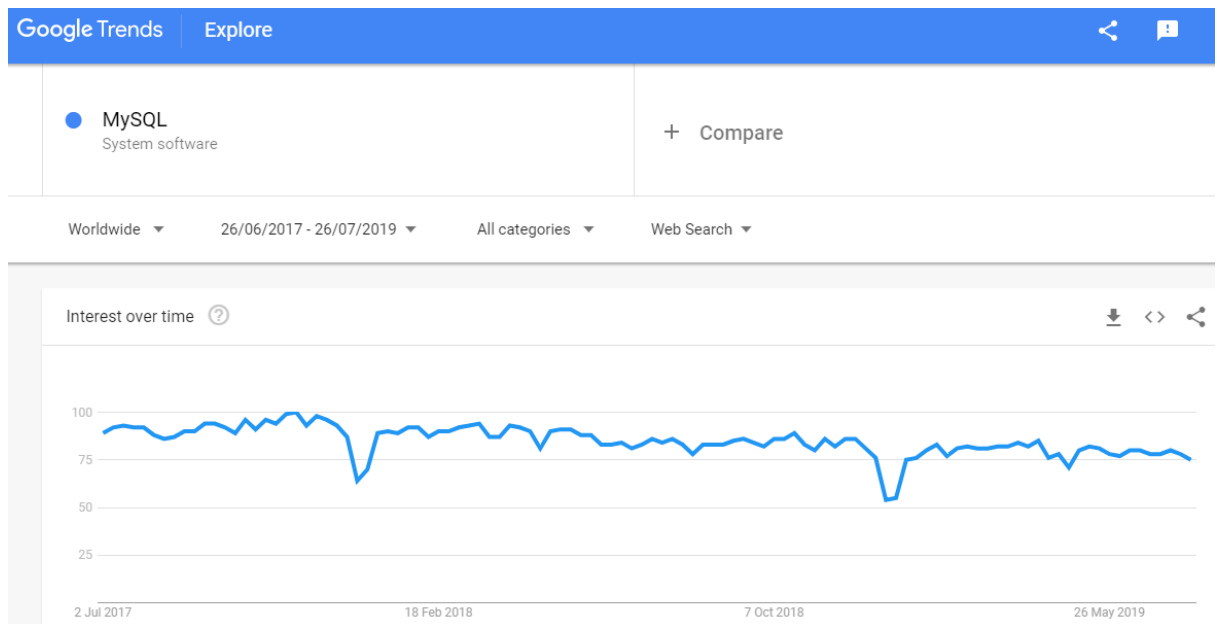


Figure 3.1: Google Trend Statistics

3.2.7.1 Storage capacity

The data storage size is also flexible for the user. InnoDB size limits are given below

1. Max number of tables: 4 G .
2. Max size of a table: 32TB .
3. Columns per table: 1000 .
4. Max row size: $n \times 4$ GB .
5. 8 kB if stored on the same page .
6. $n \times 4$ GB with n BLOBs .
7. Max key length: 3500 .
8. Maximum table space size: 64 TB .
9. Max number of concurrent trxs: 1023 .

The data storage system is also depends on operation system. This is mentioned in Table 3.1.

Table 3.1: Data Storage System

Operating System	File-size Limit
Win32 w/ FAT/FAT32	2GB/4GB
Win32 w/ NTFS	2TB (possibly larger)
Linux 2.2-Intel 32-bit	2GB (LFS: 4GB)
Linux 2.4+	4TB
Solaris 9/10	16TB
MacOS X w/ HFS+	2TB
NetWare w/NSS file system	8TB

3.2.7.2 Concern

However, handling large data in MySQL is very important [15]. We have to optimize MySQL queries for speed and performance. For this reason, we will concern those subjects [16].

1. Index all columns.
2. Avoid like expressions with leading wildcards.
3. Take advantage of MySQL full-text searches.
4. Optimize database schema.
5. Normalize tables.
6. Use optimal data types.
7. Avoid null values.
8. Optimize joins.

9. MySQL query caching.

From all this information we can assure that MySQL database is a reliable platform for us. If we need to migrate the database in any NoSQL (MongoDB) platform it is easy to change. Basically, we write a program that reads everything from MySQL one element at a time and then inserts it into MongoDB [17].

3.2.8 Tawk.to

Tawk.to is free live chat software to monitor and chat with visitors on our website or from a free customizable page. Tawk.to is live chat support and messaging application that focuses on successful communication between businesses and their customers. The platform allows us to reach our customers directly from our website, mobile application or a customized page.

3.2.9 PNG Format

PNG is a file format for image. PNG means Portable Network Graphics. It's international standard: ISO/IEC 15948, IETF RFC 2083. It's Developed by PNG Development Group.

Chapter 4

Project Execution and Description

To give the website an aesthetic shape, we have approached to initiate and develop our back-end work with Laravel 5.8 framework as it serves a very strong open resource backup. In front-end design, we use HTML5, CSS3, JavaScript, Bootstrap 4, Ajax for a better interface. Here, We present a friendly user manual for every page.

1. Public Page
2. Login page
3. Admin
 - (a) Home page
 - (b) Profile
 - (c) Add New
 - i. Course Create
 - ii. Batch Create
 - iii. Instructor Create
 - (d) Assignment
 - (e) Problem Solution
 - (f) Course Materials

4. Instructor

- (a) Home page
- (b) Assignment
- (c) Document
- (d) Question and Answer
- (e) Profile

5. Student

- (a) Home page
- (b) Profile
- (c) Profile Edit
- (d) Problem Share
- (e) Document
- (f) Assignment Submission
- (g) Assignment List
- (h) Student Registration

4.1 Public page

The public page displays details information about “GET_CDIP”. In the navigation bar, it contains Home, About, Blog, Team, Contact us, Log-in/Sign-up. Instructor, Student and Admin can sign in with their id and password. Student can create their profile by fill-up the registration form. Under the navigation bar, there is a slider. Slider represents the advertising of running courses. Students who already have completed CDIP courses their opinion are in the about section. About section also contains a short description of every course. Many informative articles are in the blog section. The team section contains the identity of the CDIP committee. This page is added in Figure 4.1.

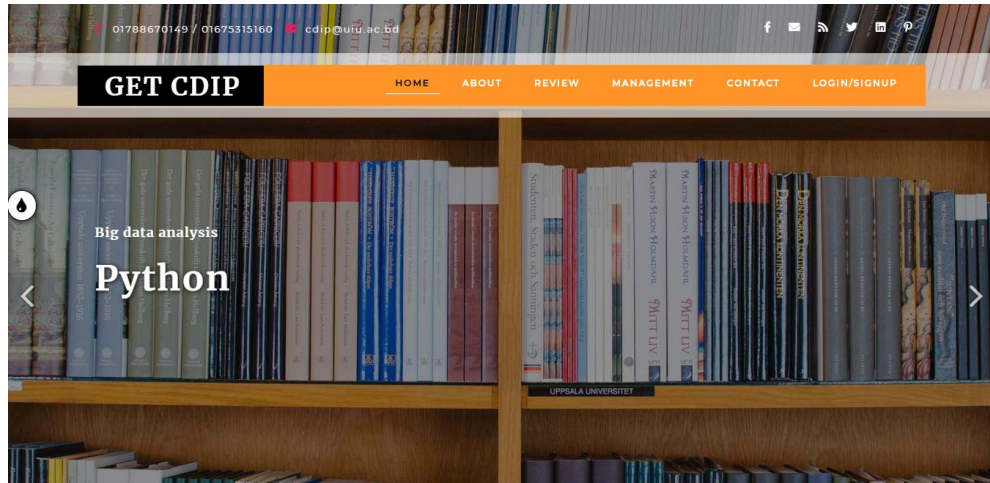


Figure 4.1: Public Page

4.2 Log in

This is our login page for all users. Users can log in through their valid id and password. If they forget their password then they can use the forgot password option. A temporary password has been given through email. In Figure 4.2, we add this page.

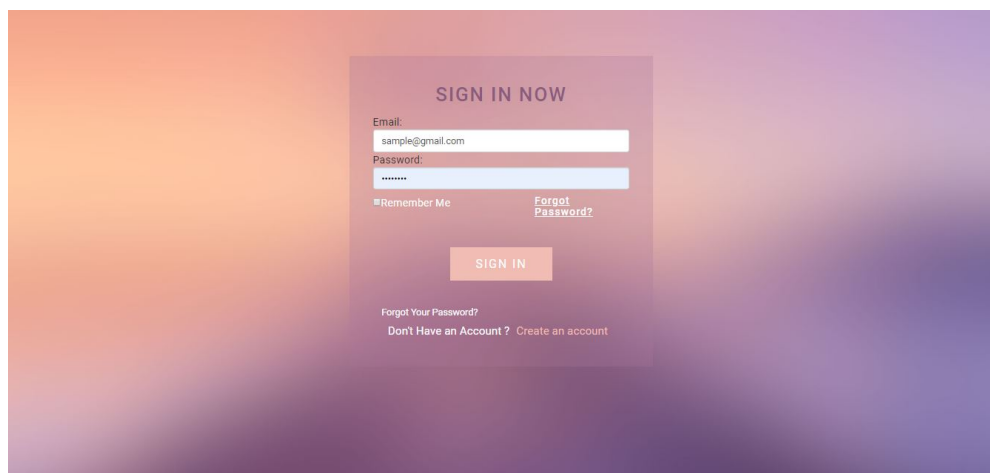


Figure 4.2: Log in for All User

4.3 Admin

4.3.1 Home page

After the successful login, Admin arrived here. On the left side of this page, there are five activities for Admin. They are Profile, Add New, Assignment Control, Problem and Solution and Maintain Course Material. In the front view, Admin can see the total visitors, users, instructor and complete projects which are changing dynamically. In Figure 4.3, we add this page.

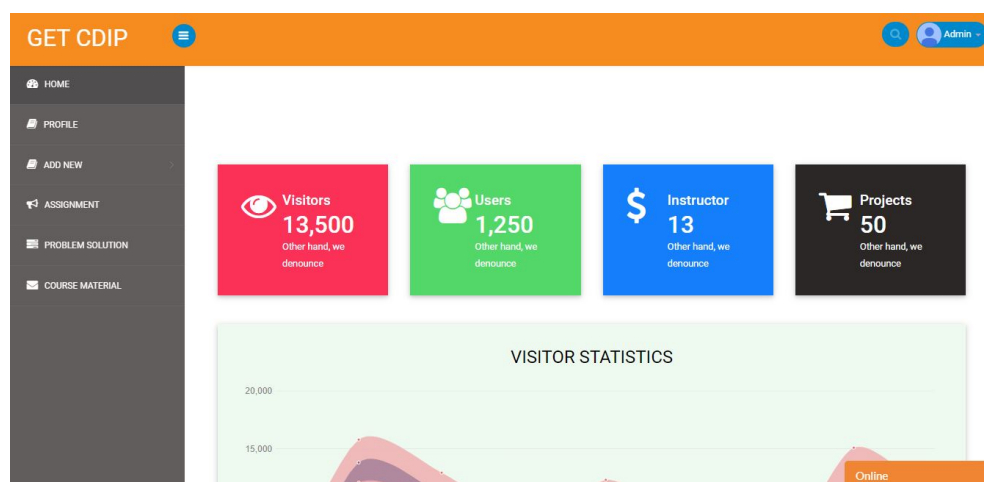


Figure 4.3: Home page for Admin

4.3.2 Profile

Admin can change his/her profile information and upload a profile picture. He/She can see the details information about himself/herself here. When Admin wants to change his/her profile picture, he/she have to click on the “Change Photo” button. Then he/she selects the PNG or JPG format picture and press “Ok” button for upload it. Although this information is secured from everyone. Admin can also contact with the instructor and the student through the “Tawk.to” live chat application. For this system, Admin can send any urgent message to the Instructor or Student. The admin profile pages are referred to Figure 4.4 and Figure 4.5.

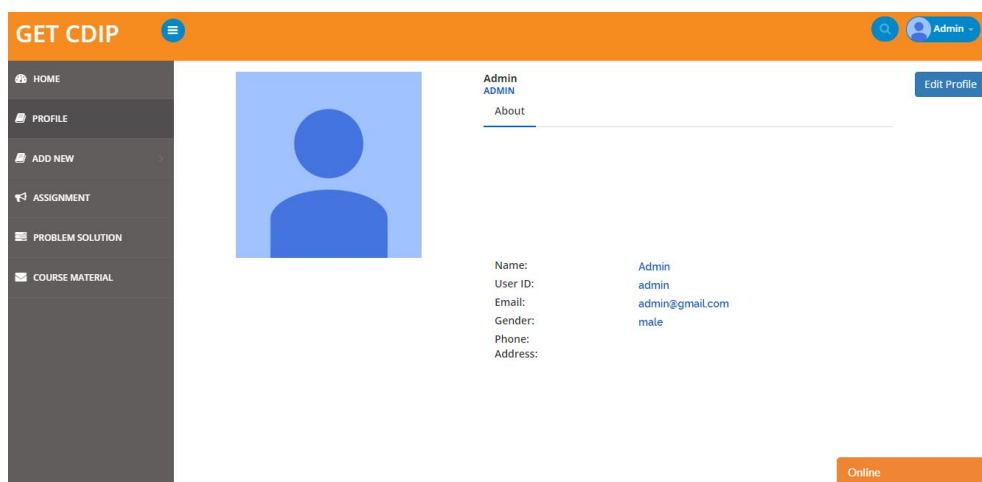


Figure 4.4: Profile Page for Admin

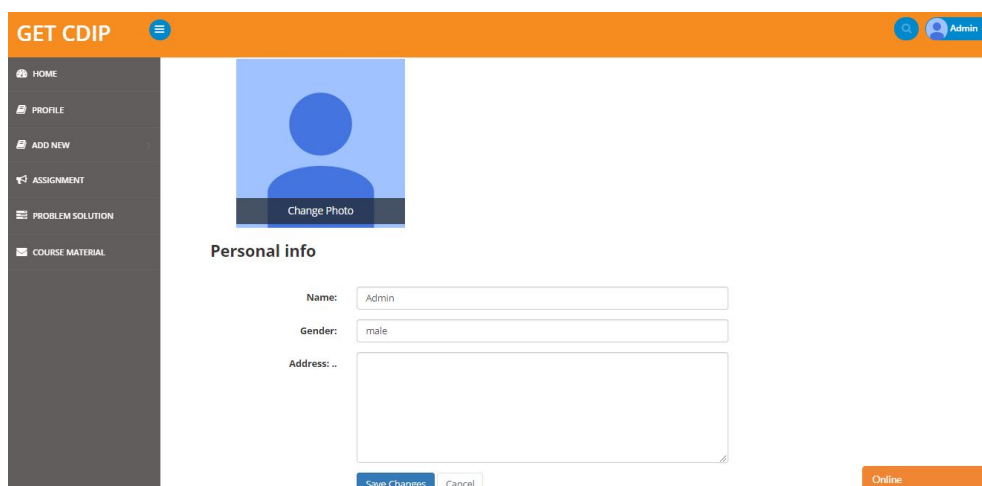


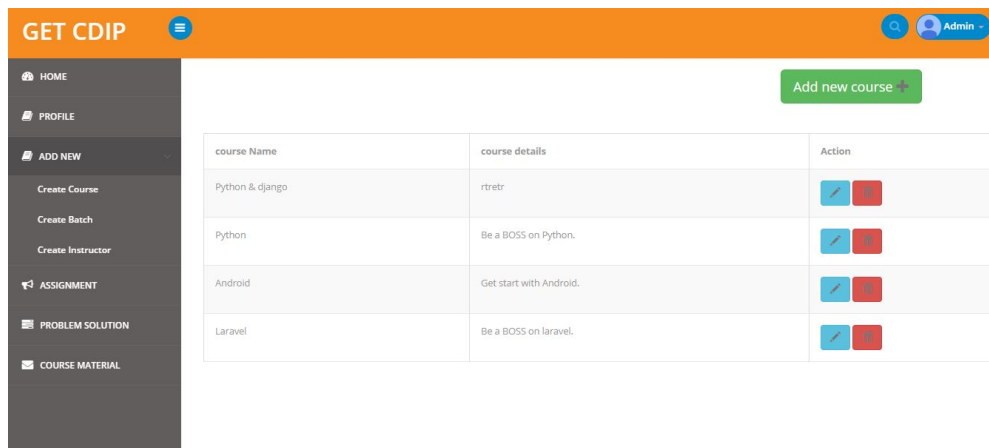
Figure 4.5: Edit Profile page for Admin

4.3.3 Add New

For creating a new profile of Instructor or new course and batch, we add a menu navigation option named “Add New”. So, Add New has three subsections which are creating a course, batch and instructor. The Admin can create all of this to maintain the hole system.

4.3.3.1 Create Course

After clicking the create course button Admin can see the course list. If he/she wants to add a new course he/she has to click the right side “Add New Course” button. After clicking the add new course button Admin can see a pop-up modal that contains two text boxes for course name and course details. If the Admin fill-up the two text box and submit it then a new course will be created. Admin can edit or delete the course by clicking action buttons. The course create pages are mentioned in Figure 4.6 and Figure 4.7.











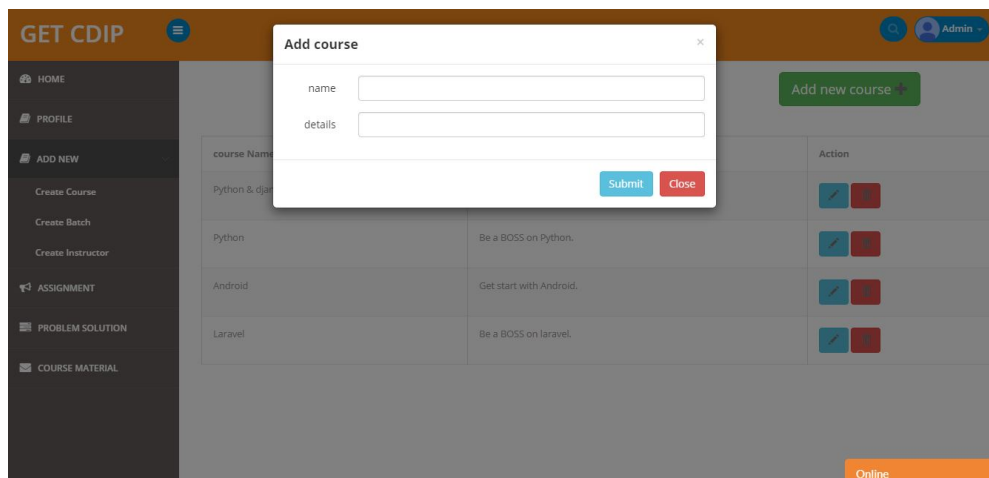
course Name	course details	Action
Python & django	rtretr	 
Python	Be a BOSS on Python.	 
Android	Get start with Android.	 
Laravel	Be a BOSS on laravel.	 

Figure 4.6: Course list



name

details

Submit
Close









course Name	course details	Action
Python & django	rtretr	 
Python	Be a BOSS on Python.	 
Android	Get start with Android.	 
Laravel	Be a BOSS on laravel.	 

Figure 4.7: Create Course by Admin

4.3.3.2 Create Batch

After clicking the create batch button Admin has to select a specific course and click show batch. If he/she wants to add a new batch he/she has to click the right side “Add New Batch” button. After clicking the add new batch button Admin can see a pop-up modal that contains two text box for batch name and batch details. If the Admin fill-up the two text box and submit it then a new batch will be created for that course. Admin can edit or delete the batch by clicking action buttons. The batch create pages are referred to Figure 4.8, Figure 4.9 and Figure 4.10.

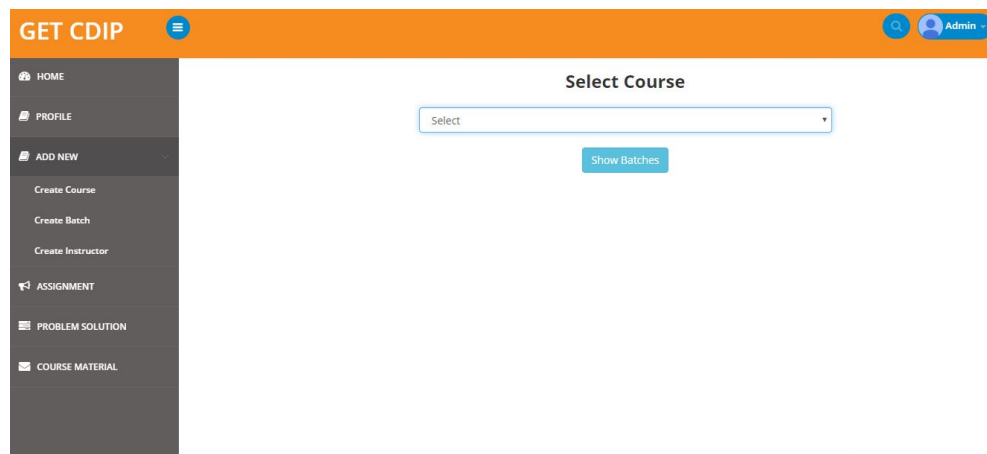


Figure 4.8: Select Course

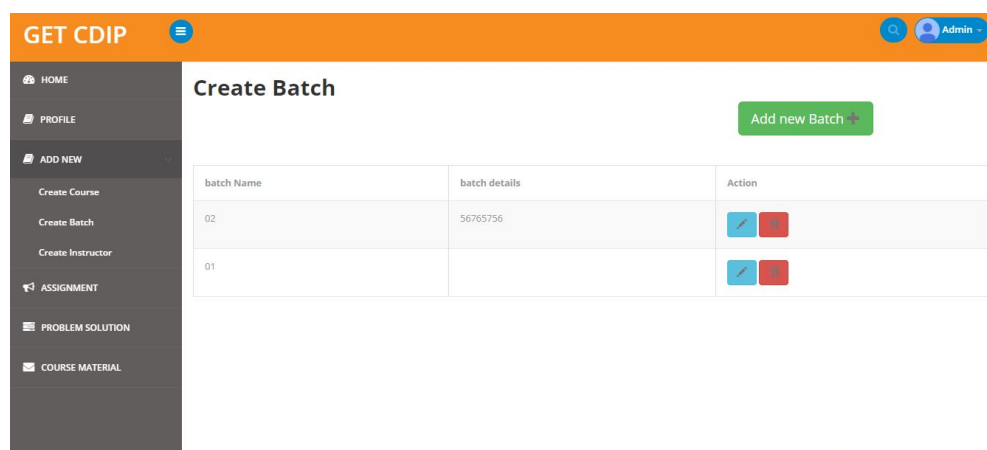


Figure 4.9: Batch List

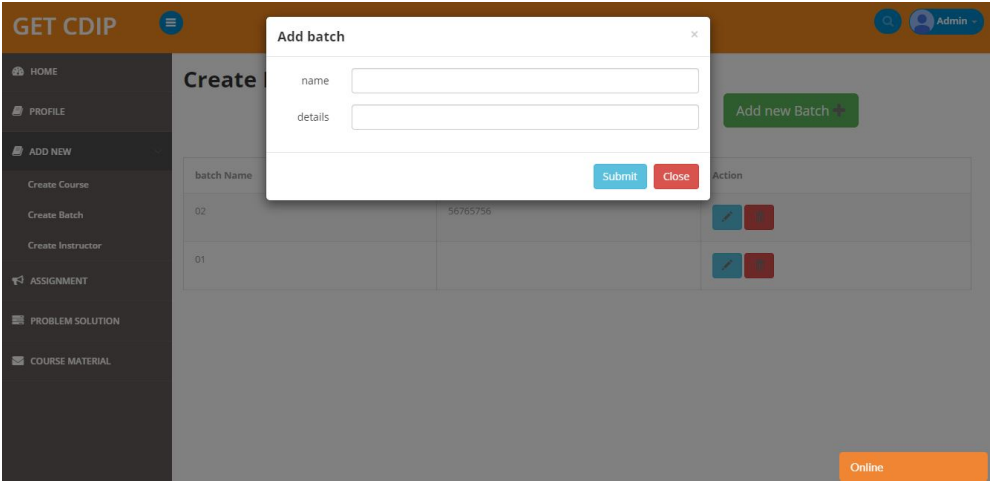


Figure 4.10: Create New Batch

4.3.3.3 Create Instructor

After clicking the create instructor button Admin can see the instructor list. If he/she wants to add a new instructor profile, he/she has to click the right side to “Add New Instructor” button. A new pop-up window will come out. Here Admin fill up all the information for the instructor, Mainly Admin creates a role for the instructor. Admin can edit or delete the instructor profile by clicking action buttons. The instructor create pages are mentioned in Figure 4.11 and Figure 4.12.

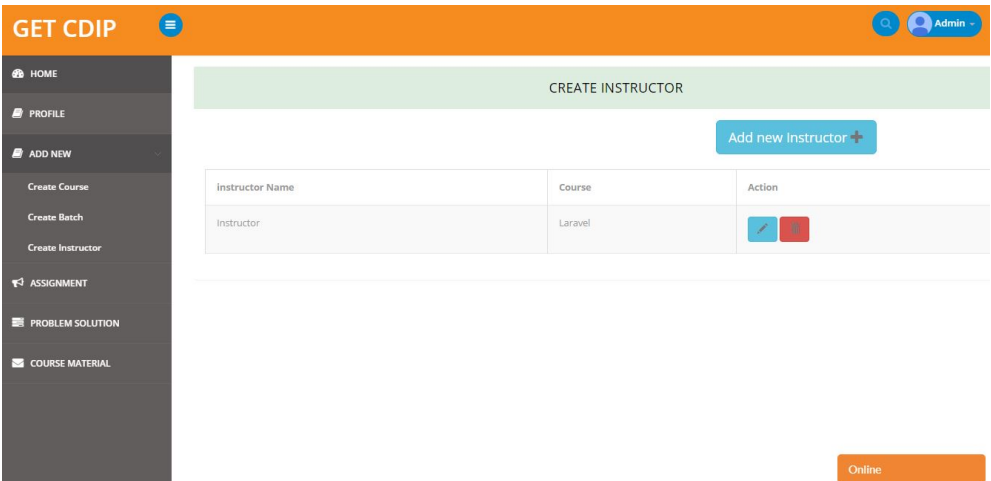


Figure 4.11: Instructor List

Figure 4.12: Create New Instructor

4.3.4 Assignment

By selecting a course and batch Admin can view all the assignments and submission. Admin can see who will provide the assignment and those who submit the problem's solution. The assignments list is always maintained by the queue and organized by date. He/She can also download any assignment. The assignment pages are referred to Figure 4.13, Figure 4.14 and Figure 4.15.

Figure 4.13: Select Course and Batch

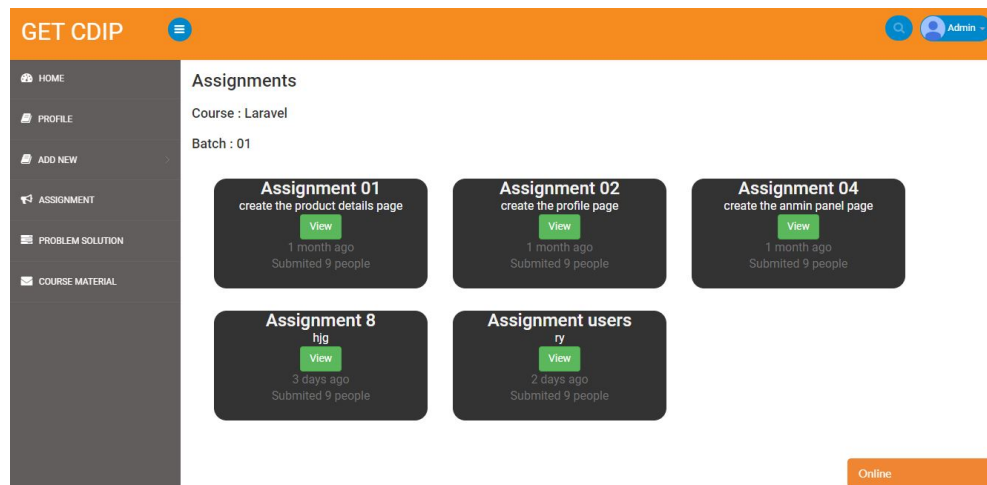


Figure 4.14: Assignments List

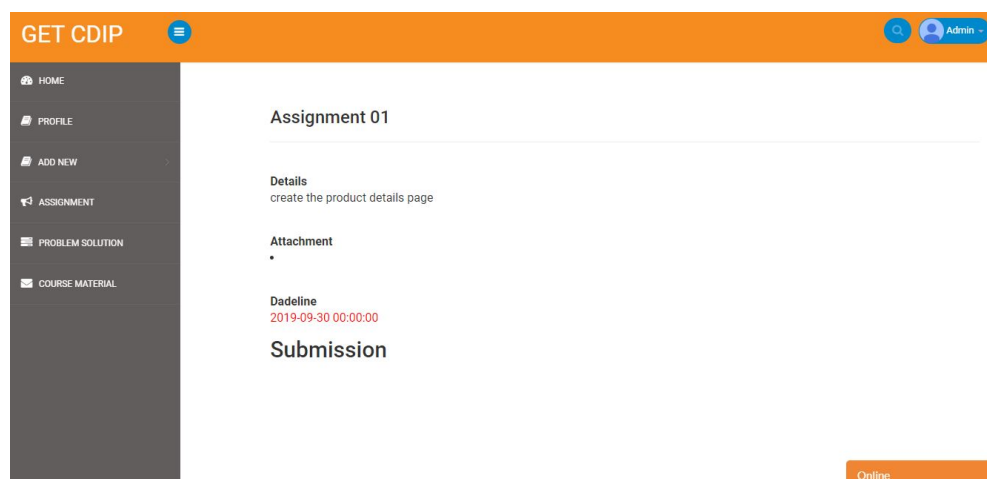


Figure 4.15: View Assignment

4.3.5 Problem Solution

By selecting a course and batch Admin can see all the problems and solutions. Admin can delete the unnecessary problem or comment from the post option. He/She can also comment in that post. He/She can also refer to the problem to any Instructor if necessary. Admin can also share problem here. In Figure 4.16 we add this page.

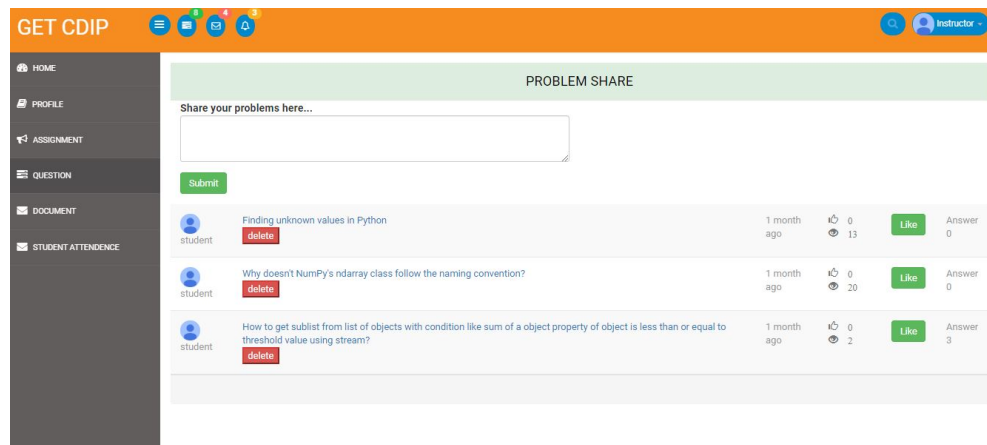


Figure 4.16: Problem Solving

4.3.6 Course Materials

First Admin have to select a course and a batch. Then he/she can see all the course materials. Admin has access all over the system to monitor every user. He/She can update, delete and add materials. Here he/she can add any type of file like PPT, PDF, DOC, ZIP, JPG, PNG etc. The course materials pages are mentioned in Figure 4.17 and Figure 4.18.

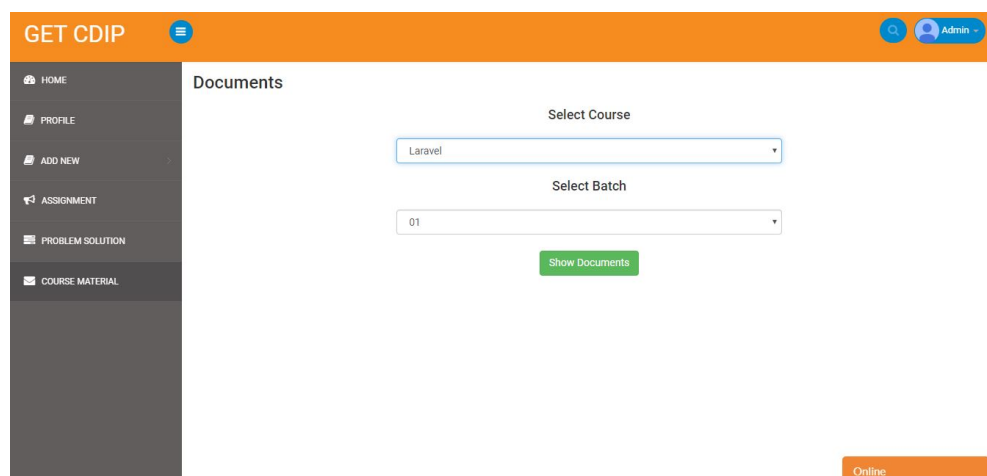


Figure 4.17: Select Course and Batch

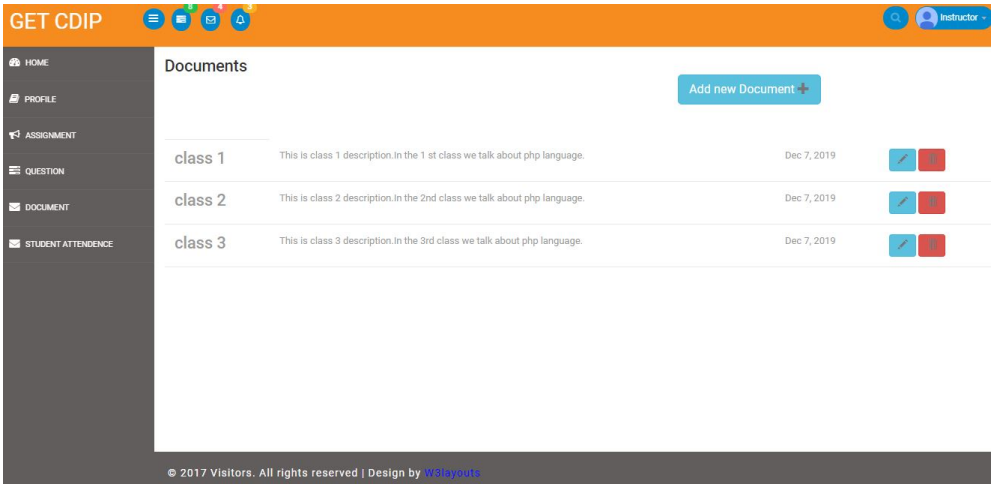


Figure 4.18: Course Materials

4.4 Instructor

4.4.1 Home Page

After the successful login, Instructor arrived here. On the left side of this page, there are five activities for Instructor. They are Home, Profile, Assignment Control, Question and Maintain Course Material. In the front view, Instructor can see the total visitors, users, instructor and complete projects which are changing dynamically. In Figure 4.19 we add this page.

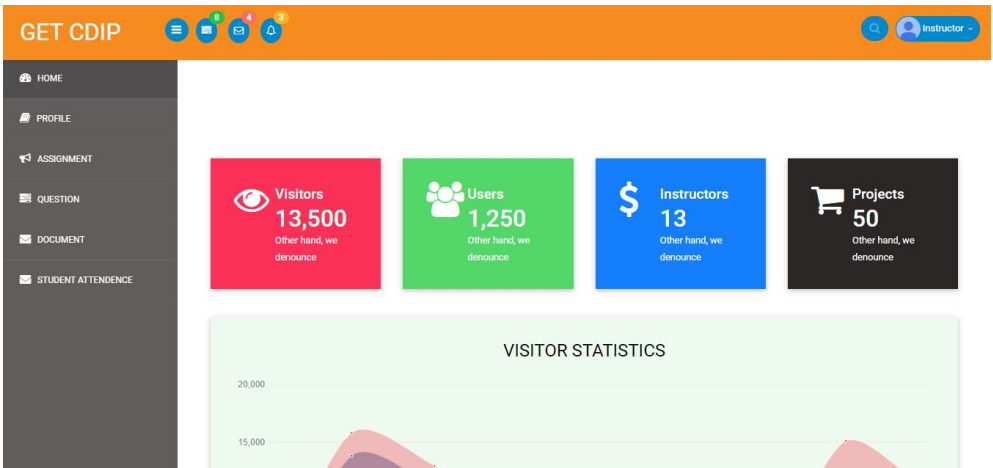


Figure 4.19: Home page for Instructor

4.4.2 Assignment

At first, the Instructor can choose a batch. Then he/she can create a new assignment and see the assignment list. It has a due date to submit the assignment. If the due date is over Instructor increase the date otherwise student can not submit. When students submit the assignment, then the Instructor can check and comment there. The assignment pages for Instructor are mentioned in Figure 4.20, Figure 4.21, Figure 4.22 and Figure 4.23.

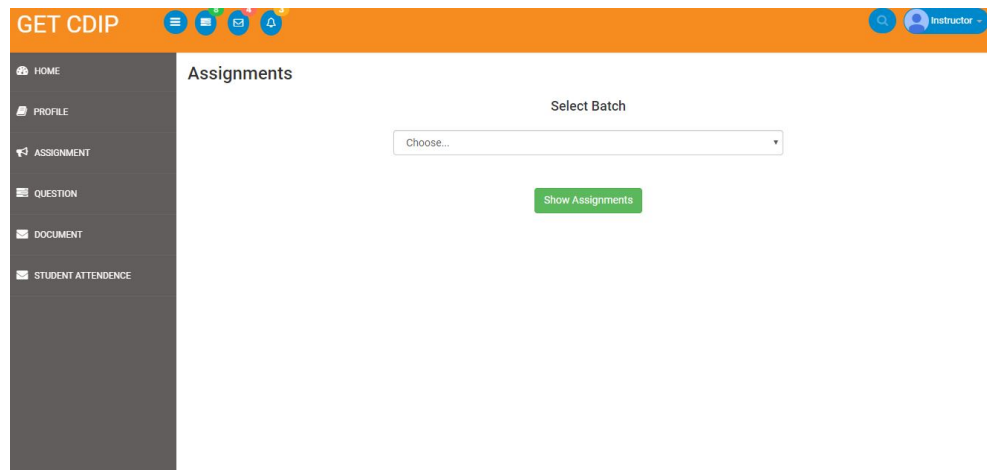


Figure 4.20: Select Batch to Show Assignment List

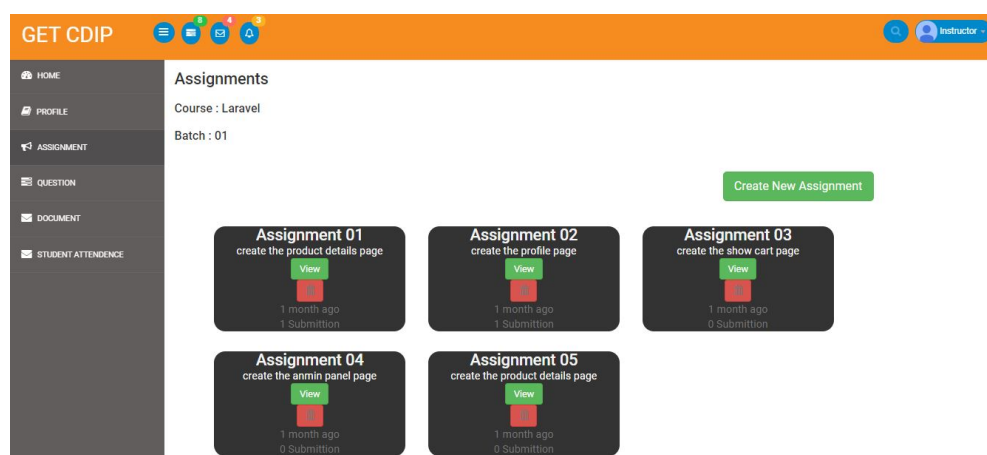


Figure 4.21: Assignment List

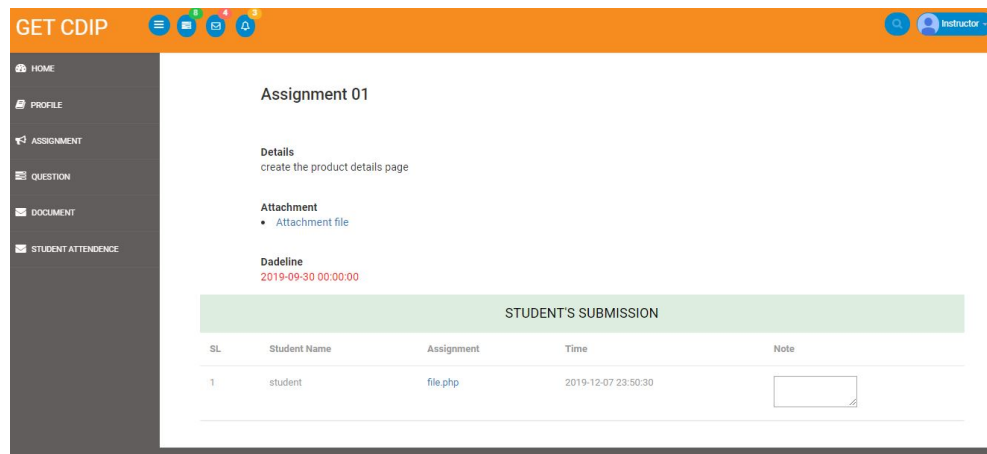


Figure 4.22: View Assignment Submission

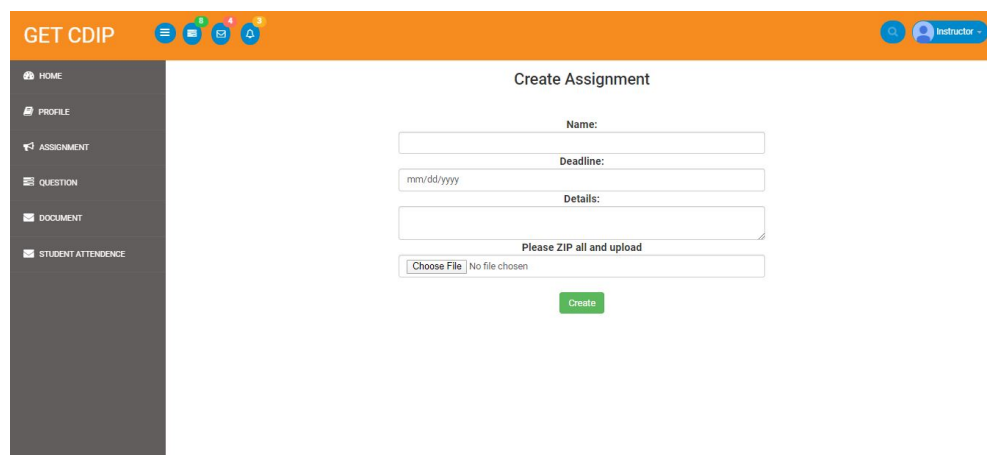


Figure 4.23: Create New Assignment

4.4.3 Document

After finishing class, the Instructor can provide document like class lectures, videos, lecture slides, links, etc. for the students. The Instructor must add a description of the lecture. Here he/she can also update, delete the document because he/she can upload the wrong file mistakenly. The document pages are mentioned in Figure 4.24 and Figure 4.25.

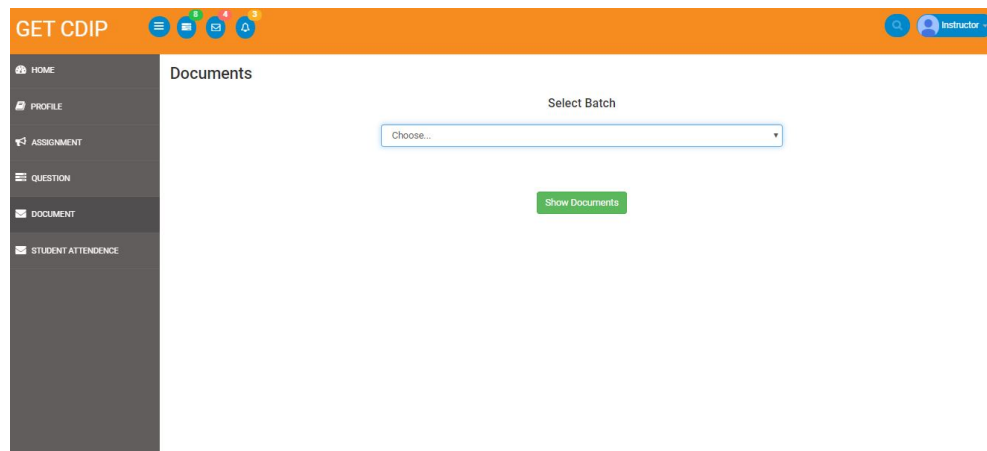


Figure 4.24: Select Batch

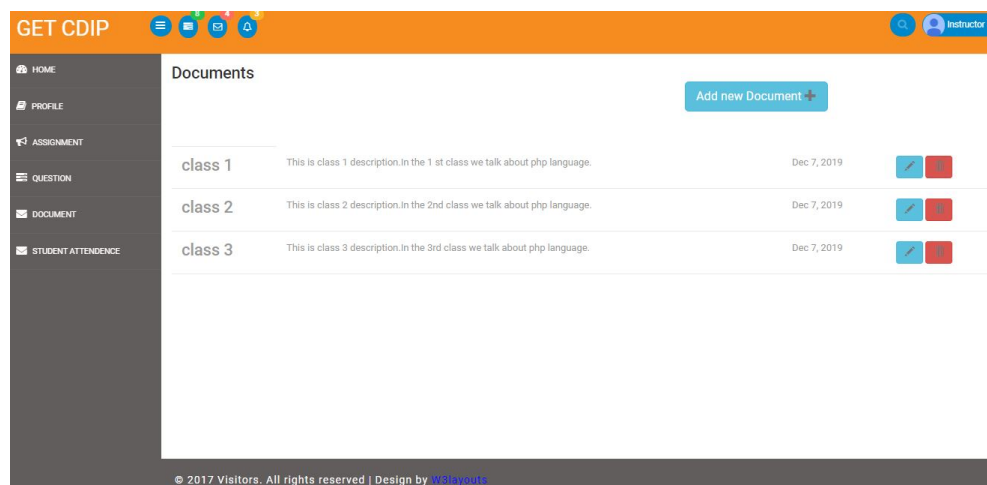


Figure 4.25: Document List

4.4.4 Question and Answer

When a student is facing a problem in assignment or self-study, then they post their problem on this site and the instructor or student can solve their problem. If other students solved that problem, the instructor can check this. The instructor can also delete questions and answers. The question and answer pages are mentioned in Figure 4.26 and Figure 4.27.

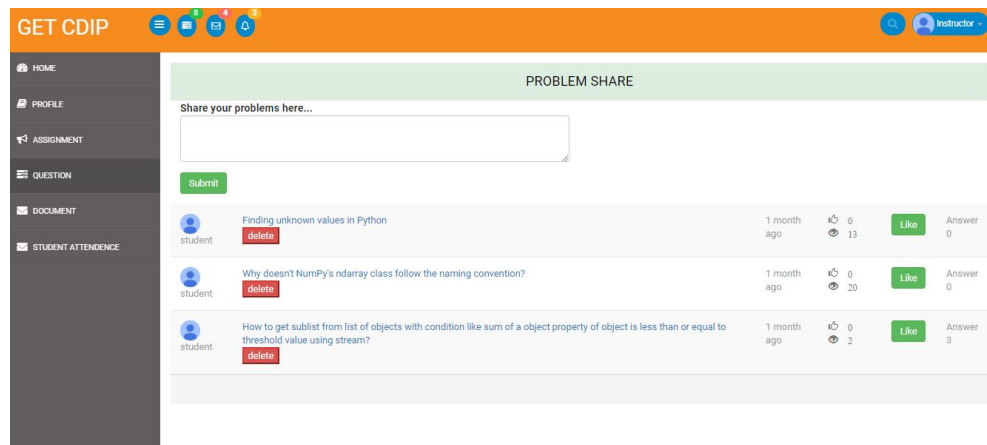


Figure 4.26: Question List

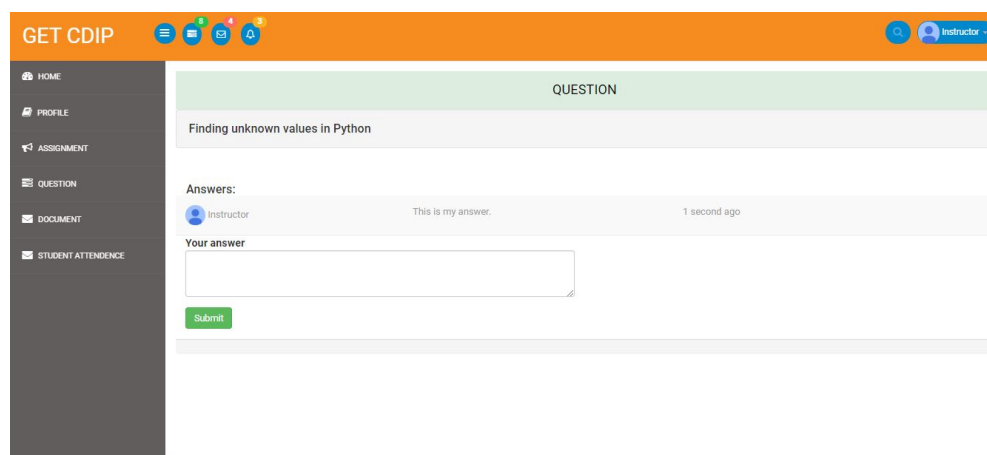


Figure 4.27: Answer System for Instructor

4.4.5 Profile

Instructor can change his/her profile information and upload a profile picture. He/She can see the details information about himself/herself here. When Instructor wants to change his/her profile picture, he/she have to click on the “Change Photo” button. Then he/she selects the PNG or JPG format picture and press “Ok” button for upload it. Instructor can also contact with the Admin and the student through the “Tawk.to” live chat application. For this system, Instructor can send any urgent message to the Admin or Student. The profile pages for the Instructor are mentioned in Figure 4.28 and Figure 4.29.

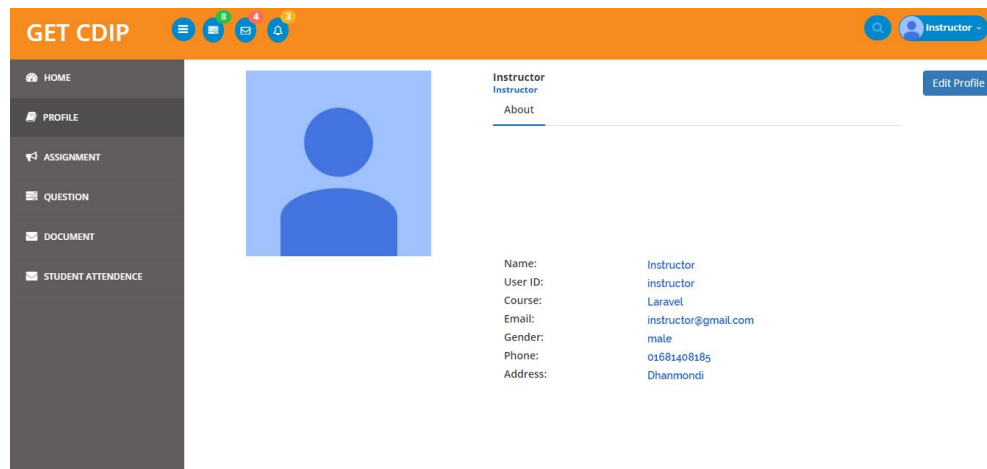


Figure 4.28: View Profile for Instructor

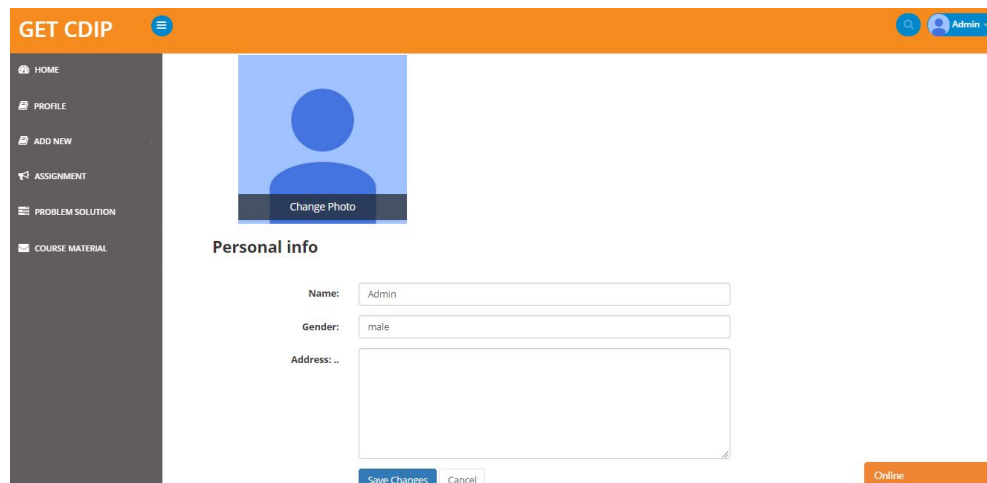


Figure 4.29: Edit Profile for Instructor

4.5 Student

4.5.1 Home Page

After successful login students can see their home page. In the right upper corner students can logout. On the left side, they get many options to navigate the page. The options are Home, Profile, Assignment Management, Problem Share and Course Material. In Figure 4.30 we add this page.

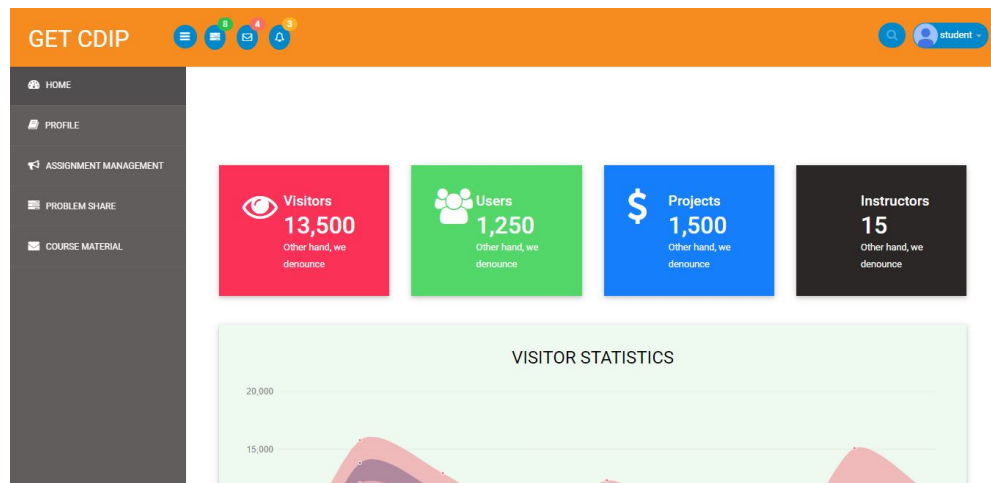


Figure 4.30: Home Page for Student

4.5.2 Profile

In the profile page, students can see their profile and check their given information. In Figure 4.31 we add the page.

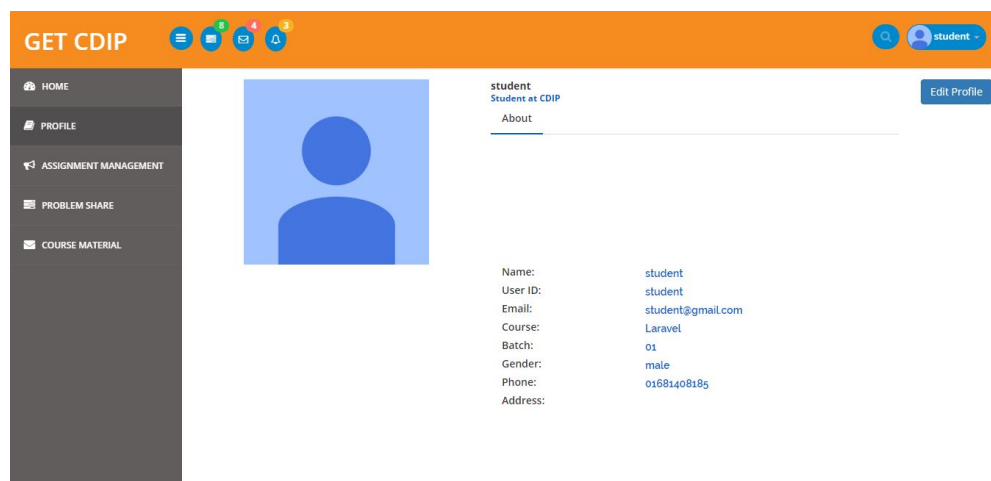


Figure 4.31: View profile for Student

4.5.3 Edit Profile

By using this page students can edit their personal information and add or change their picture. This page is mentioned in Figure 4.32.

Figure 4.32: Edit Profile for Student

4.5.4 Problem Share

Students can ask course-related questions and edit or delete their questions. They can like others replies and also check how many views of this question. This page is mentioned in Figure 4.33.

Figure 4.33: Question and Answer Field for Students

4.5.5 Document

From this page, students can get class lectures, tutorials and any type of instructions from their Instructor. This page is referred to Figure 4.34.

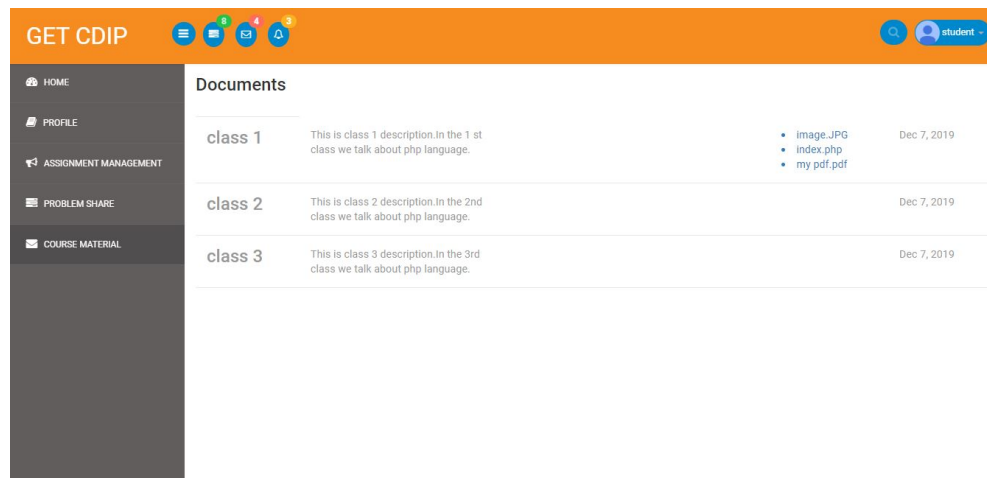


Figure 4.34: View Documents

4.5.6 Assignment Submission

On this page, students can submit their assignments with zip format and describe the details. This page is mentioned in Figure 4.35.

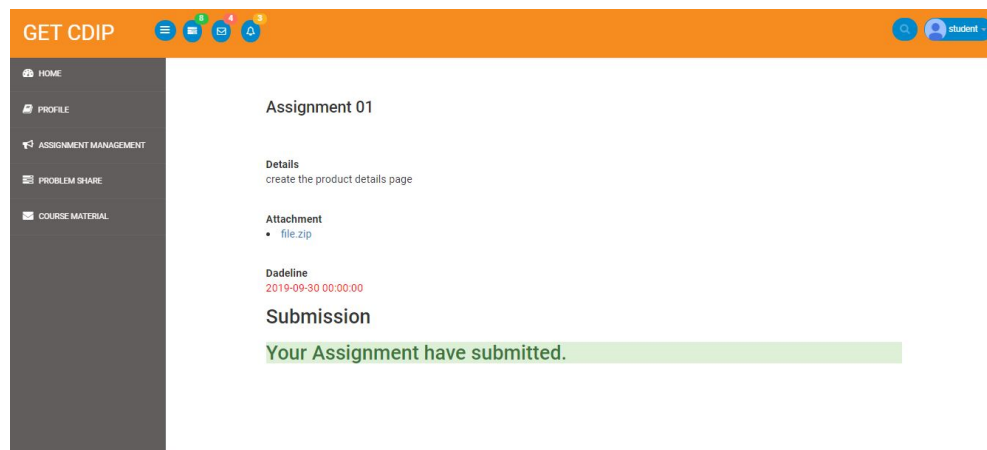


Figure 4.35: Assignment Submission

4.5.7 Assignment List

The instructor uploads the assignments on this page and students get those assignments in a list from here. Student can download those file Instructor provide. This page is referred to Figure 4.36.

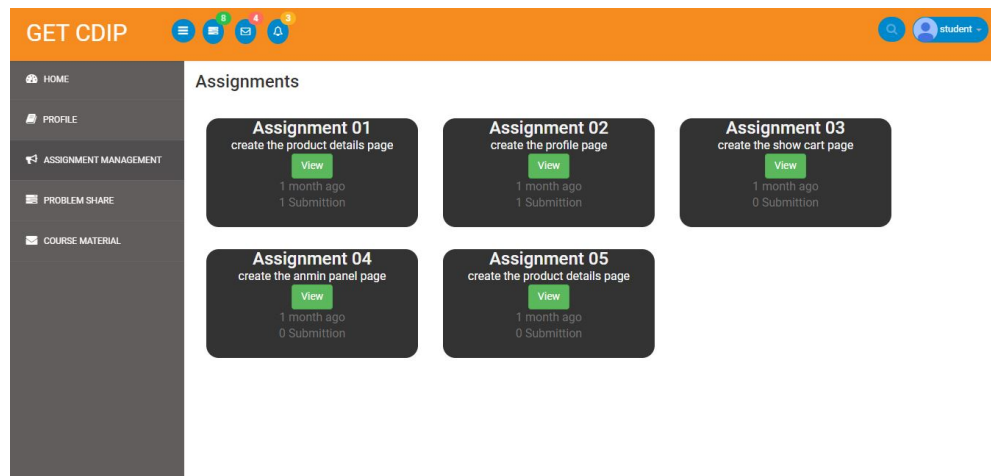


Figure 4.36: View Assignment

4.5.8 Student Registration

In this page in figure 4.2, the Student can register themselves by giving their valid information. Such as Name, Id and email. Students also have to select his batch number and Course to register in “GET_CDIP”. This page is referred to Figure 4.37.

 The screenshot shows a registration form titled 'REGISTER NOW' on a purple gradient background. The form contains the following fields:

- User ID: A text input field.
- Name: A text input field.
- E-Mail Address: A text input field.
- Password: A text input field.
- Confirm Password: A text input field.
- Phone: A text input field.
- Gender: A dropdown menu with 'Male' selected.
- Photo: A file upload area with a 'Choose File' button and the text 'No file chosen'.
- Address: A large text area.
- Course: A dropdown menu with 'Choose...' selected.
- Batch: A dropdown menu with 'Choose...' selected.

 Below the form fields is a checkbox labeled 'I agree to the Terms of Service and Privacy Policy'. At the bottom of the form is a 'SUBMIT' button. Below the button, the text 'Already Registered. Login' is displayed.

Figure 4.37: Student Registration Form

Chapter 5

Impacts, Challenges and Difficulties

5.1 Impacts

5.1.1 Economic Impacts

The teacher and student can communicate with this system, so the cost and time will be saved. If the student will interest with this system, the economy of CDIP will grow up.

5.1.2 Environmental

There is no environmental impact for using this web application.

5.1.3 Ethical constraints

Harmful activities are not used here. Like no terrorist activities will be helped anyways. All users are treated equitably. Data will be safe and never shared with the third party.

5.1.4 Social

The communication system will make a great advantage for both students and teachers when friendly communication created. CDIP can provide more expert students through this system. Bangladesh's software market will be enriched by them.

5.1.5 Political Impacts

No laws will be broken down.

5.1.6 Sustainability

It will be sustainable software, cause we use modern technology and updated version. There will be no age limitation, anyone from any age can use this system.

5.1.7 Health Impact

No health problem will occur for using this software. UI and UX design will be comfortable for the user. The colour combination will be safe for the users eyes.

5.2 Challenges and Difficulties

5.2.1 Client Communication Problem

We had less communication with our clients. When we showed our project update then their requirement would be more features so that we were facing so many difficulties to do that. Sometimes it was difficult to collect proper information from the client. Again we collected the information.

5.2.2 Development Purpose

We, all were new on the Laravel framework. Sometimes we did not know the easier way so that it needed more time. Then we learned the easier options, again we change the coding pattern using an easier way. Otherwise, each and every member's way of work is different so that marching was so difficult and needed more time.

5.2.3 Database Management

It was difficult to design schema without proper information so that our database modify after client opinion.

5.2.4 Design maintain

It was difficult to merge frontend design with backend. Implement more frontend design to connect with backend.

5.2.5 Security

When we did the authentication code, its more aware of our concentration. Because there are three types of users with different features. Out of CDIP members can't access there.

Chapter 6

Project Planning

6.1 Gantt Chart

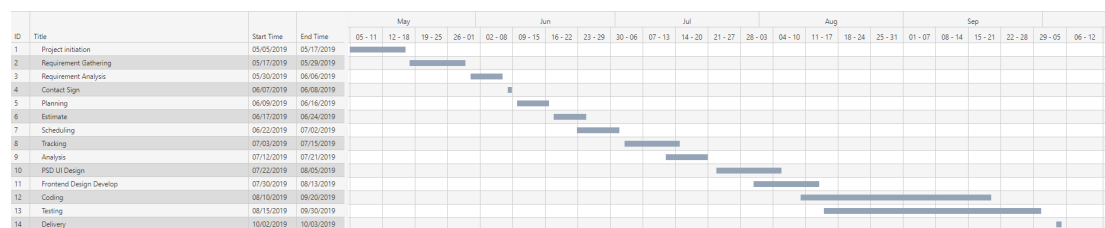


Figure 6.1: Gantt chart of our Capstone project

In the beginning, the Center for Development of IT Professionals (CDIP) expressed their problem which they suffered a long time. Our honorable mentor Suman Ahmmed sir who is Director of CDIP allowed us to work with this problem. We gathered requirements then analyzed this which was taking three weeks. Then we made a contacted sign with CDIP to complete this project for them. We followed the Software Development Life Cycle (SDLC) to complete our project. SDLC has seven phases - planning, analysis, design, implementation, testing integration, and maintenance. We add the SDLC life cycle picture in Figure 6.2.

At first, we were planning our work than estimated and scheduled this which was taking 3 weeks. After that, we analyzed our project planning, which was need 2 weeks. Then we started to design. We designed the whole system in the PSD format for demo. Then we started frontend design (UI) using HTML, CSS, Bootstrap. Then we were starting to implement our project with a PHP framework which is Laravel. In the meantime,

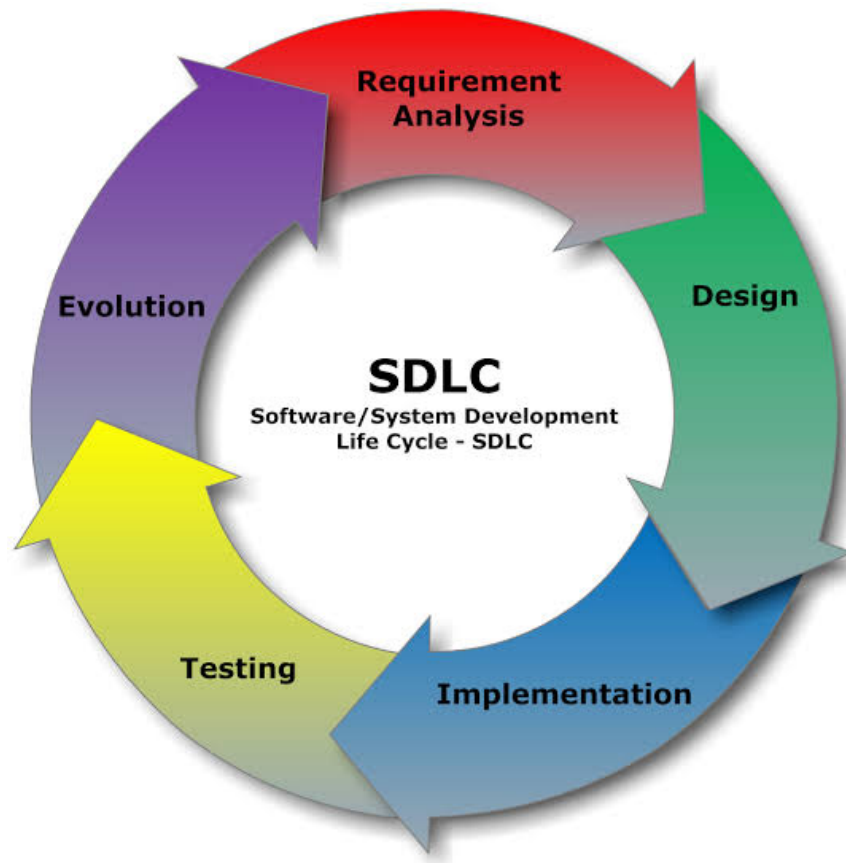


Figure 6.2: SDLC

we kept tracing all of our work so that we can ensure that everything is completely done. We always set a meeting with our client every two weeks later and kept them updated about our progress. In several times we needed to change UI design for client requirement so it has been taken a long time. After finishing every single feature we test it. And when all the features have been done, we marched them. At last, we test the software several times and fixed bugs. Now the product is fully ready. The Gantt Chart is mentioned in Figure 6.1.

6.2 SWOT-Analysis

6.2.1 Strength

CDIP student contacts with their course teacher any time anywhere. Ask course-related questions on this platform. The teacher can monitor their student by assignment submission and project submission option. Communication between CDIP and student is more frequent.

6.2.2 Weakness

The CDIP student management System is a new site. In the beginning, users take time to use the new system.

6.2.3 Opportunity

There is a huge opportunity for us now. It will be the basic online support platform system that can use for other training academies. So we can sell this product for other purposes.

6.2.4 Threat

There are some threats also. If the user interface is not user-friendly then users will not use this system.

Chapter 7

Conclusions and Future Work

7.1 Conclusions

Most of the worlds top institutions are using their own management system to support its users. An idea has been introduced in this paper to solve course or industry-related problems by creating a community. We also emphasize security and privacy issues for this platform. We try to present an efficient online support platform system. Throughout our project design and development epoch, we have conducted to submit a better platform. We have trust that our participation here as a web application developer will not only improve our career but also will enlarge our ability to make forward-thinking everywhere. At last, we hope that in real life this project will help CDIP to reach its goal.

7.2 Future Work

This is our first version of our project. There are many scopes and possibilities in our project within the near future. Here are some of those-

1. Make a news feed for job-related circular.
2. Make automated classrooms with an online class lecture for students.
3. Make a mobile app for this system.
4. Make online attendance for students.

Bibliography

- [1] V. Caputi, “Student-oriented planning of e-learning content,” <https://www.sciencedirect.com/science/article/pii/S108480451500065X>, 2015. 16
- [2] R. G. Saad, “Prototyping a learning management system for higher education,” <https://pdfs.semanticscholar.org/107e/acb27fcf491f9d3833d435a2d9e6c976742d.pdf>, 2008. 16
- [3] M. Asaduzzaman, “Answering questions about unanswered questions of stack overflow,” https://www.cs.usask.ca/~croy/papers/2013/Asaduzzaman_MSR2013_SOChallenge.pdf, 2013. 17
- [4] A. S. F. Teresa Martin Blas, “The role of new technologies in the learning process: Moodle as a teaching tool in physics,” <https://www.sciencedirect.com/science/article/pii/S036013150800095X>, 2008. 17
- [5] V. R. Naidu, “Learning analytics for smart classroom,” <http://ijaedu.ocerintjournals.org/en/download/article-file/341763>, 2017. 17
- [6] A. M. Alvi, “Automated course management system,” <https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=8356369>, 2017. 18
- [7] D. D. Chourishi, “Effective e-learning through moodle,” https://www.researchgate.net/publication/265974790_Effective_E-Learning_through_Moodle, 2012. 18
- [8] https://en.wikipedia.org/wiki/Case_study. 19
- [9] <https://en.wikipedia.org/wiki/Methodology>. 21
- [10] <https://mymanagementguide.com/basics/project-methodology-definition/>. 21

BIBLIOGRAPHY

- [11] <https://www.techopedia.com/definition/22193/software-development-life-cycle-sdlc>.
21
- [12] <https://study.com/academy/lesson/maintenance-phase-in-sdlc.html>. 23
- [13] <https://insights.stackoverflow.com/survey/2019#technology--databases>. 24
- [14] <https://trends.google.com/trends/explore?date=2017-06-26%202019-07-26&q=%2Fm%2F04y3k>. 24
- [15] <https://stackoverflow.com/questions/39700330/handling-very-large-data-with-mysql>.
26
- [16] <https://dzone.com/articles/how-to-optimize-mysql-queries-for-speed-and-perfor>.
26
- [17] <https://stackoverflow.com/questions/6251548/converting-database-from-mysql-to-mongodb>.
27