OPTIONS TECHNIKA

(WEBSITE DEVELOPMENT)

A Project-II Report

Submitted in partial fulfillment of requirement of the

Degree of

BACHELOR OF TECHNOLOGY in COMPUTER SCIENCE & ENGINEERING

BY

Udit Jain

EN16CS301279

Under the Guidance of

Internal Guide:

Prof. Sachin Solanki

External Guide:

Mr. Nitesh Karmakar

Department of Computer Science & Engineering

Faculty of Engineering

MEDI-CAPS UNIVERSITY, INDORE- 453331

JAN-JUNE 2020

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Report Approval

The project work **"Options Technika"** is hereby approved as a creditable study of an engineering/computer application subject carried out and presented in a manner satisfactory to warrant its acceptance as prerequisite for the Degree for which it has been submitted.

It is to be understood that by this approval the undersigned do not endorse or approved any statement made, opinion expressed, or conclusion drawn there in; but approve the "Project Report" only for the purpose for which it has been submitted.

Internal Examiner

Name:

Designation

Affiliation

External Examiner

Name:

Designation

Affiliation

Declaration

I hereby declare that the project entitled **"Options Technika"** submitted in partial fulfillment for the award of the degree of Bachelor of Technology in 'Computer Science & Engineering' completed under the supervision of **Mr. Sachin Solanki, Assistant Professor, Computer Science & Engineering Dept.** Faculty of Engineering, Medi-Caps University, Indore is an authentic work.

Further, I/we declare that the content of this Project work, in full or in parts, have neither been taken from any other source nor have been submitted to any other Institute or University for the award of any degree or diploma.

_____

Udit Jain
EN16CS301279

Date: _____

Certificate

We, **Prof. Sachin Solanki** and **Mr. Nitesh Karmakar** certify that the project entitled **"Options Technika (website development)"** submitted in partial fulfillment for the award of the degree of Bachelor of Technology by **Udit Jain** is the record carried out by him under our guidance and that the work has not formed the basis of award of any other degree elsewhere.

_____ _____

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Computer Science & Engineering
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_____

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I would also like to thank to my team, Siddharth Bhawsar and Yash Jain who extended their kind support and help towards the completion of this project.

It is their help and support, due to which we became able to complete the design and technical report.

Without their support this report would not have been possible.

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Abstract

As technology advances internet is becoming ever popular. Website has become an essential part. Often website of any organization is used as major requirements to rate it. Thus having a website is essential for any major organization.

As Options Technika needs to have a useful and stunning website to showcase the department and use as a medium to interact with interns, students, faculties and counsellors. Options Technika has 4 collaborators i.e. IBM, MAAC, Aviation and Learning. There was no such specific website for managing all the 4 parts under a single website so being an intern over there it was assigned to us to create such website. Assigning job to interns, assignment to students and to check the performance can be the major advantages of a website. On this project we will develop a website for the Options Technika. On this report almost every details that is necessary has been discussed. Every possible disclosures has been made to cover maximum areas of the project.

This report can be amended and changes can be made upon request from the stakeholders. The work will be done by a team with a supervisor from faculty member. A formal training phase is included in the project to train faculty members and office staffs on how to handle the website. Overall a useful website can be really helpful for the department.

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CHAPTER-1

INTRODUCTION

1.1 INTRODUCTION

As technology advances internet is becoming ever popular. Website has become an essential part. Often website of any organization is used as major requirements to rate it. Thus having a website is essential for any major organization. As Options Technika needs to have a useful and stunning website to showcase the department and use as a medium to interact with interns, students, faculties and counsellors. Options Technika has 4 collaborators i.e. IBM, MAAC, Aptech Aviation and Aptech Learning. There was no such specific website for managing all the 4 parts under a single website so being an intern over there it was assigned to us to create such website.

The targeted audience i.e. students, faculties as well as counsellors for the organization. The students, once enrolled, can access their profile, courses for which they have enrolled, assignment status, and notes provided to them by the respective faculty. In addition to this, students will also be able to see the projects that they have submitted and in general, their overall performance.

The faculties will be able to access and upload books as per their need. They will also be able to update the class schedules which can be accessed by the students to know the class time table. They also have the authority to upload assignment questions for the students and update students' attendance. The faculty can generate final report of the student as per the counsellor. Using the portal, the counsellor can have a status of the students' record and know the progress of each student towards enrolment.

Assigning job to interns, assignment to students and to check the performance can be the major advantages of a website. On this project we will develop a website for the Options Technika. On this report almost every details that is necessary has been discussed. Every possible disclosures has been made to cover maximum areas of the project.

1.2 OBJECTIVE

The major aim of our organization is to ensure that the use of technology enhances the effective operations of the school of education. Furthermore, it will help reach the customers and target audience, establish themselves in the online space and ultimately increase their revenues.

You can simply go to google, type the name and location and this website comes up. This website gives all information of who the interior designer is, his contact and location, his clients as well as services he provides. Basically, an information website gives basic information about the company. This will lead to an environment that will help people know about the organization and also will lead to an interactive platform wherein the target audience can put up their queries which will be answered by the organization.

Some other objectives of the website include:

1. **Getting more Sales:** This objective will be based on the type of website. This will help convert visitors into leads and then those leads into sales.

2. **Brand building:** Nowadays building a brand is a requirement for long-term as only then one can establish oneself in any industry. Building a brand also helps in acquiring new prospects and making existing ones loyal. This will help ensure that the visitors are having a good time on the website

1.3 SIGNIFICANCE

The students, once enrolled, can access their profile, courses for which they have enrolled, assignment status, and notes provided to them by the respective faculty. In addition to this, students will also be able to see the projects that they have submitted and in general, their overall performance. The faculties will be able to access and upload projects as per their need. They will also be able to update the class schedules which can be accessed by the students to know the class time table. They also have the authority to upload assignment questions for the students and update students' attendance. The faculty can generate final report of the student as per the counsellor. Using the portal, the counsellor can have a status of the students' record and know the progress of each student towards enrollment.

1.4 INTENDED AUDIENCE

The targeted audience i.e. students, faculties as well as counselors for the organization. The students, once enrolled, can access their profile, courses for which they have enrolled and assignment status. The faculties will be able to access and upload assignments and projects as per their need. Using the portal, the counselor can have a status of the students' record and know the progress of each student towards enrollment.

1.5 PROBLEM DOMAIN

- No such specific platform available.
- We need a specific website which should have all the details of all four collaborations of the organisation.
- The website should have the feature of handling all the enquiries related to the courses provided by the organisation.
- This website should provide a way to share the assignments and projects easily from faculty's portal to student's portal.

1.6 SOLUTION DOMAIN

This system will maintain a course registration database which will allows the student-

- To view the course catalogue provided by the organization.
- To register for the courses.
- To enquire about the course.

1.7 SOURCE OF DATA

Entire data which we have used in our website development is provided by the company itself. Many photos are provided by the company, some of them are used in the "Homepage" of our website in the Carousal. And some photos are used in "Our Team" page with a short description of the Faculty and Counsellor which is looking very attractive.

Along with this organization has provided us the list of courses with details and some of the confidential data like the details of all the students and their fee status.

1.8 ORGANISATION / INTRODUCTION ABOUT THE INDUSTRY

- The International Business Machines corporation is an american multinational information technology company headquartered in armong, New York, with operations in over 170 countries. IBM produces and sells computer hardware, middleware and software, and provides hosting and consulting services in areas ranging from mainframe computers to nanotechnology.
- The IBM Innovation Center for Education co-creates technology- and business-based undergraduate and graduate degrees in collaboration with leading universities and engineering colleges around the globe. By working with educators and other tech industry leaders, we prepare students to excel in the latest technology industry developments, including: AI, Blockchain, Cybersecurity tools, Cloud and Hybrid Multiclouds.

1.9 CHAPTER SCHEME

The organization of the project report is as follows:

Chapter-2 presents the system requirement analysis that was adopted with the tools used and the functionality of the project.

Chapter-3 presents the system analysis to be done with the information flow described through ER diagram.

Chapter-4 presents the interface designs that were built by us in the project.

Chapter-5 presents the objectives, scope, principles, methods and the outcomes of testing that was performed.

Chapter-6 presents the projects that were assigned and a glimpse of the work performed.

Chapter-7 presents the limitations of the major project.

Chapter-8 presents the future scope.

Chapter-9 presents the learning that I achieved in this internship.

Chapter-10 presents the conclusion.

Chapter-11 presents the bibliography.

Chapter-12 presents the appendices where we get a glimpse of the website developed.

CHAPTER-2

SYSTEM REQUIREMENT ANALYSIS

2.1 INFORMATION GATHERING

Requirements analysis is the tasks that an analyst performs to structure and organize requirements, specify and model requirements and designs, validate and verify information, identify solution options that meet business needs, and estimate the potential value that could be realized for a solution option. Here are the main activities involved in requirement analysis:

- Identify customer's needs.
- Evaluate system for feasibility.
- Allocate functions to system elements.

The most important phase of the SDLC is the requirement gathering and analysis phase because this is when the project team begins to understand what the customer wants from the project. During this phase, the customer states the expectations of the project including who will use the product, how the customer will use the product, and the specific information included with any special customer requirements related to the software. The customer meets with business managers and analysts to provide the requirements. It's important for the project team to understand the needs of the customer because this information is critical to developing the product the customer requests. After the customer provides requirements for the product, the project manager and members of the project team begin to analyze the requirements. The business managers analyze each requirement to ensure the requirement can be included in the software without causing breaks or problems with system functionality.

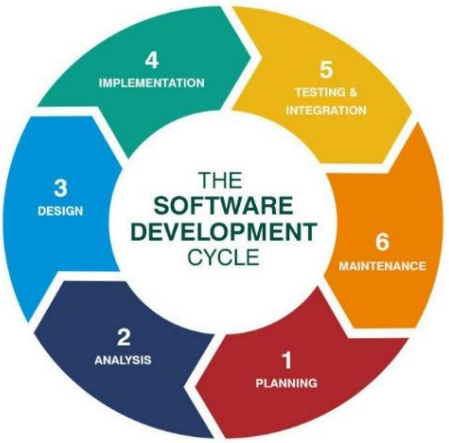

FIGURE 2.1 SDLC DIAGRAM

2.2 SYSTEM FEASIBILITY

A feasibility study is an assessment of the practicality of a proposed project or system. A feasibility study aims to objectively and rationally uncover the strengths and weaknesses of an existing business or proposed venture, opportunities and threats present in the natural environment, the resources required to carry through, and ultimately the prospects for success. In its simplest terms, the two criteria to judge feasibility are cost required and value to be attained.

2.2.1 OPERATIONAL FEASIBILITY

The proposed system is user friendly and fully GUI. The user is easily able to understand what inputs are required from his end without any confusion.

From these it's clear that the project Options Technika is operational feasible.

2.2.2 TECHNICAL FEASIBILITY

This includes study of function, performance and any other factor that affects usability. The system however has only been tested on the localhost. Hence any system error arising due to portability issues has not yet been accounted for. Project Options Technika is a complete web based application.

The main technologies and tools that are associated with Options Technika are:

- Django
- Python
- JS
- SQLite
- Bootstrap
- CSS
- HTML

From these it's clear that the project Options Technika is technically feasible.

2.2.3 ECONOMICAL FEASIBILITY

Economics is a pivotal aspect of any organization. The cost of the project has initially been borne by the developers, but as more Students join us; we are sure that the capital invested will soon return back to it is investors along with handsome profits.

From these it's clear that the project Options Technika is financially feasible.

2.3 WORK PROCEDURE

In this project we adopted the AGILE PHASE that is used for short term projects and reverse iteration is possible. The agile phase needs to be done in some steps as given below:

1. **PROJECT PLANNING:**

   It is a piece of venture the board, that identifies with the utilization of timetables in this manner report progress inside the task condition. It very well may be done physically or by the utilization of task the board programming.

   While doing the project planning of "Options Technika", our team decides the task and it's timeline in which that task should be completed.

2. **PROJECT ANALYSIS:**

   Utilizing it we can assess the financial or building practicality of street venture extends by performing lifecycle examination of upkeep and improvement impacts together with evaluations of street client costs.

3. **REQUIREMENT GATHERING:**

   It is the act of inquiring about and finding the prerequisites of a framework from clients, clients, and different partners. This is likewise in some cases alluded to as "necessity gathering".

4. **DATABASE:**

   It is a sorted out assortment of information, for the most part put away and got to electronically from a PC framework. Where databases are increasingly perplexing they are frequently evolved utilizing formal plan and demonstrating strategies.

   In our project we have used 'SQLite' to store and retrieve data.

5. **DESIGNING:**

Design is a plan of an object or system or for the implementation of an activity or process, or specification in the form of a prototype, product or process.

Here we decided the front-end design of our project according to the clients need.

6. **DEVELOPMENT:**

Programming advancement is a procedure that incorporates all that is included between the origination of the ideal programming through to the last indication of the product, once in a while in an arranged and organized procedure. It incorporates inquire about, new turn of events, prototyping, change, reuse, re-designing, support, or whatever other exercises that bring about programming items.

7. **TESTING:**

It is a training to test sites or web applications for potential bugs. It is a finished testing of electronic applications before implementing it. An online framework should be checked totally from start to finish before it gets executed.

8. **LAUNCHING:**

A venture dispatch that prompts elite requests and discussion. It is tied in with tending to the correct things and having the genuine discussion in advance.

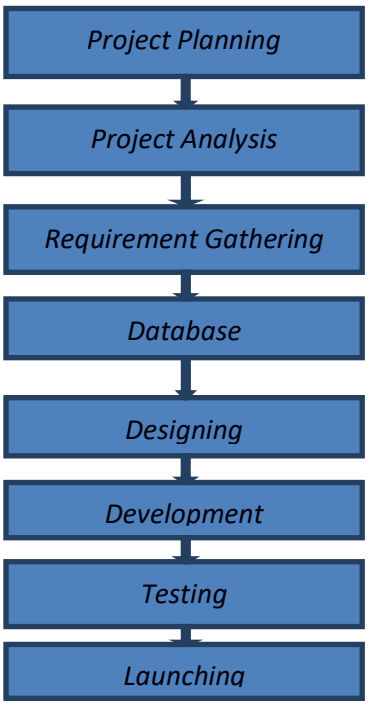

FIGURE 2.2 STEPS FOLLOWED

2.4 PLATFORM SPECIFICATION (DEVELOPMENT & DEPLOYMENT)

2.4.1 HARDWARE REQUIREMENT

- RAM:256 MB(Minimum)
- Processor:800MHz Intel Pentium III or equivalent
- Hard-Disk: 50MB or more.
- Internet access.

2.4.2 SOFTWARE REQUIREMENT

- Operating System: Linux OS (Ubuntu), Windows, Macintosh.
- Web Browser: Mozilla Firefox, Chrome, Microsoft Edge, IEs.
- Atom, Pycharm IDE.
- Relational Database Server, SQLite preferred.
- Sublime Text Editor
- Visual Studio Code

2.4.3 TECHNOLOGY USED

- HTML5
- CSS
- Bootstrap
- Javascript
- Python
- Django
- SQLite

2.5 FUNCTIONAL & NON-FUNCTIONAL REQUIREMENTS

2.5.1 FUNCTIONAL REQUIREMENTS

1. The application provides a dashboard, homepage, and course pages to counsellor, student, faculty build using HTML and Django framework.
2. The application enables the student to enquire about any courses that organisation provide.

3. Website Specific Variables

Following are the variables that are used in the project:

a) **HOME**: This tab will take the user to the home page and will be accessible throughout the website.

b) **ABOUT US**: Clicking on this tab, the user retrieves the page wherein he can explore about the company. In addition to this, the user can also learn about the courses offered and its details.

c) **CONTACT US**: Any doubts by the user, contact us is the tab to go for. Here there will be the address information as well as the contact numbers and email ids of various people in the company using which the user can contact and ask for queries.

d) **LOG IN**: All the enrolled users can access their personal portal by logging in to this website by entering their respective username and password.

e) **REGISTRATION:** The new users before accessing their portal have to get their registration done so as to get enrolled to the course.

f) **STUDENT PORTAL:** The students, once enrolled, can access their profile, courses for which they have enrolled, assignment status, and notes provided to them by the respective faculty. In addition to this, students will also be able to see the projects that they have submitted and in general, their overall performance.

g) **COUNSELLOR PORTAL:** Using the portal, the counsellor can have a status of the students' record and know the progress of each student towards enrolment.

h) **FACULTY PORTAL:** The faculty can Upload assignment, projects and Generate Final Report

i) **WALL OF FAME**: "Wall of Fame is currently under work. This will be included under Alumni section. It will match the face of the person and then display the related information from the database. This feature will update this website.

2.5.2 NON-FUNCTIONAL REQUIREMENTS

2.5.2.1 PERFORMANCE REQUIREMENTS:

1. The web server must be able to handle and support multiple instances of application.
2. The time between request and reply should be less in case of online help.
3. Minimum time should be taken by the application to display the web pages.
4. In case of power failure, the data should be stored in the state that was last saved by the user.

2.5.2.2 SAFETY REQUIREMENTS

1. A faculty/student can be able to view/update only his dashboard.
2. If there is extensive damage to a wide portion of the database due to catastrophic failure, such as a disk crash, the recovery method restores a past copy of the database that was backed up to archival storage (typically tape) and reconstructs a more current state by reapplying or redoing the operations of committed transactions from the backed up log, up to the time of failure.

2.5.2.3 SOFTWARE QUALITY ATTRIBUTES

There are various software quality attributes that are taken into consideration –

1. **Availability** – As Options Technika is a web based service provided to the users, it will be available as long as server is up.
2. **Maintainability** – All the list of available courses must be maintained properly.
3. **Usability** - The available faculties should satisfy a maximum number of student's needs.

2.6 FUNCTIONALITY

The "Home Page" consists of various tabs that can drive the user to switch between various webpages.

The "Login Button" when clicked, switches the console from home page to the login page, whereas the registration button will take the user to the next step towards registration. If the user is a student, he will be directed towards the student portal. If the user is a counsellor, the counsellor portal will pop up. For the faculty, the respective faculty portal will open.

The "Contact Us" button will take the user to the web page where he can know about the contact details of the company.

When clicked on "Aptech", the web page for Aptech will open where the welcome screen of the company will be displayed. Similarly, the same applies for "IBM".

CHAPTER-3

SYSTEM ANALYSIS

3.1 INFORMATION FLOW DIAGRAM

An information flow diagram or data flow diagram is a Unified Modeling Language (UML) representation that illustrates how information/data is being exchanged between system entities within a process. An information flow diagram assists user in understanding the entire flow of data from beginning to end.

3.1.1 ER DIAGRAM

The ER or (Entity Relational Model) is a high-level conceptual data model diagram. Entity-Relation model is based on the notion of real-world entities and the relationship between them. ER modeling helps you to analyze data requirements systematically to produce a well-designed database. An entity relationship model, also called an entity-relationship (ER) diagram, is a graphical representation of entities and their relationships to each other, typically used in computing in regard to the organization of data within databases or information systems. An entity is a piece of data-an object or concept about which data is stored.

Components of ER Diagram:

1. **Entity**

   Entities are represented by means of rectangles. Rectangles are named with the entity set they represent. In Fig.3.1 following are the entity:

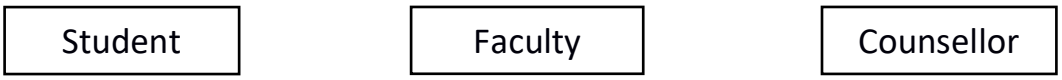

FIGURE 3.1 ERD ENTITIES

2. **Relationship**

   Relationships are represented by diamond-shaped box. Name of the relationship is written inside the diamond-box. All the entities (rectangles) participating in a relationship, are connected to it by a line. In Fig.3.1 following are the relationships:

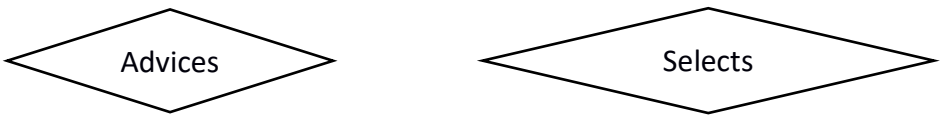

FIGURE 3.2 ERD RELATIONSHIPS

3. Attributes

Attributes are the properties of entities. Attributes are represented by means of ellipses. Every ellipse represents one attribute and is directly connected to its entity (rectangle).

In Fig.3.1 following are the some of the attributes:

FIGURE 3.3 ERD ATTRIBUTES

Below is the representation of our project Options Technika ER diagram-

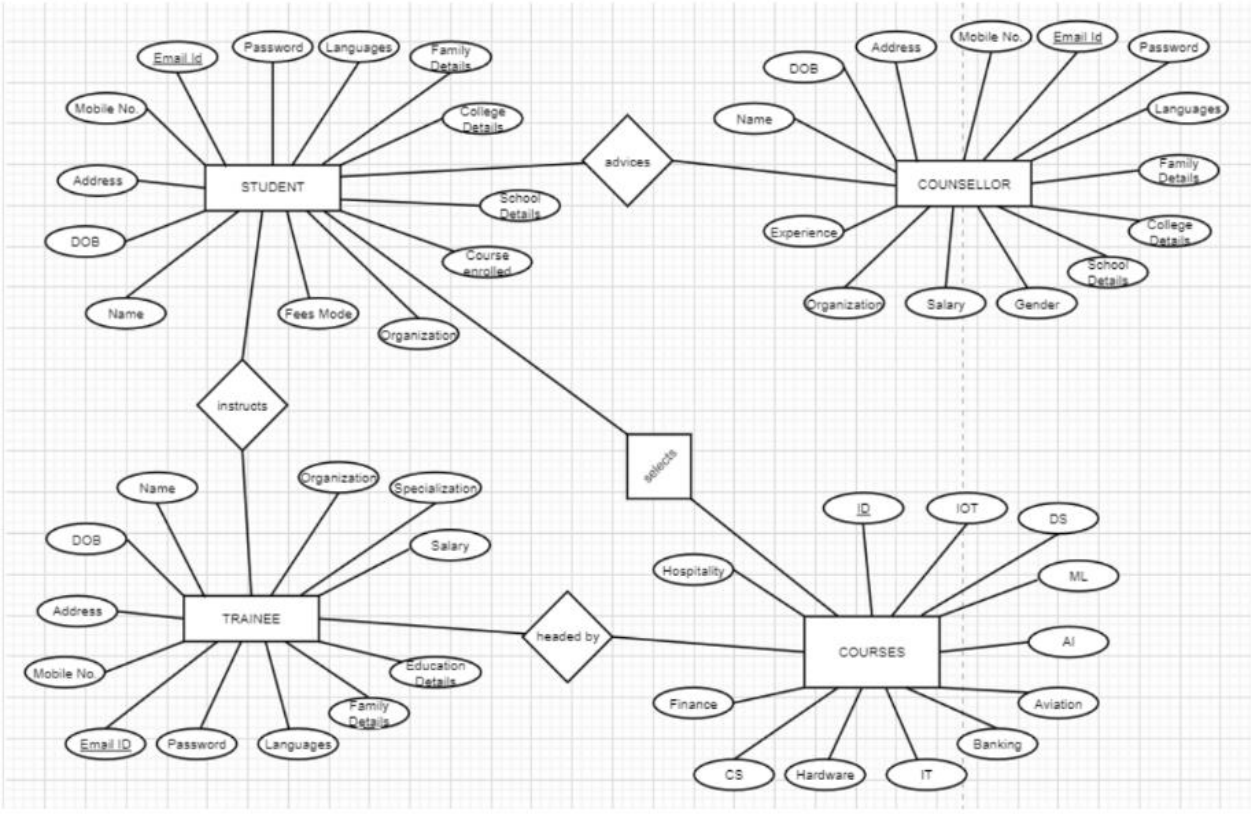

FIGURE 3.4 ER DIAGRAM

3.1.2 DATA-FLOW DIAGRAM

A data-flow diagram is a way of representing a flow of a data of a process or a system (usually an information system). The DFD also provides information about the outputs and inputs of each entity and the process itself. A data-flow diagram has no control flow, there are no decision rules and no loops.

Below is the representation of our project Options Technika DFD-

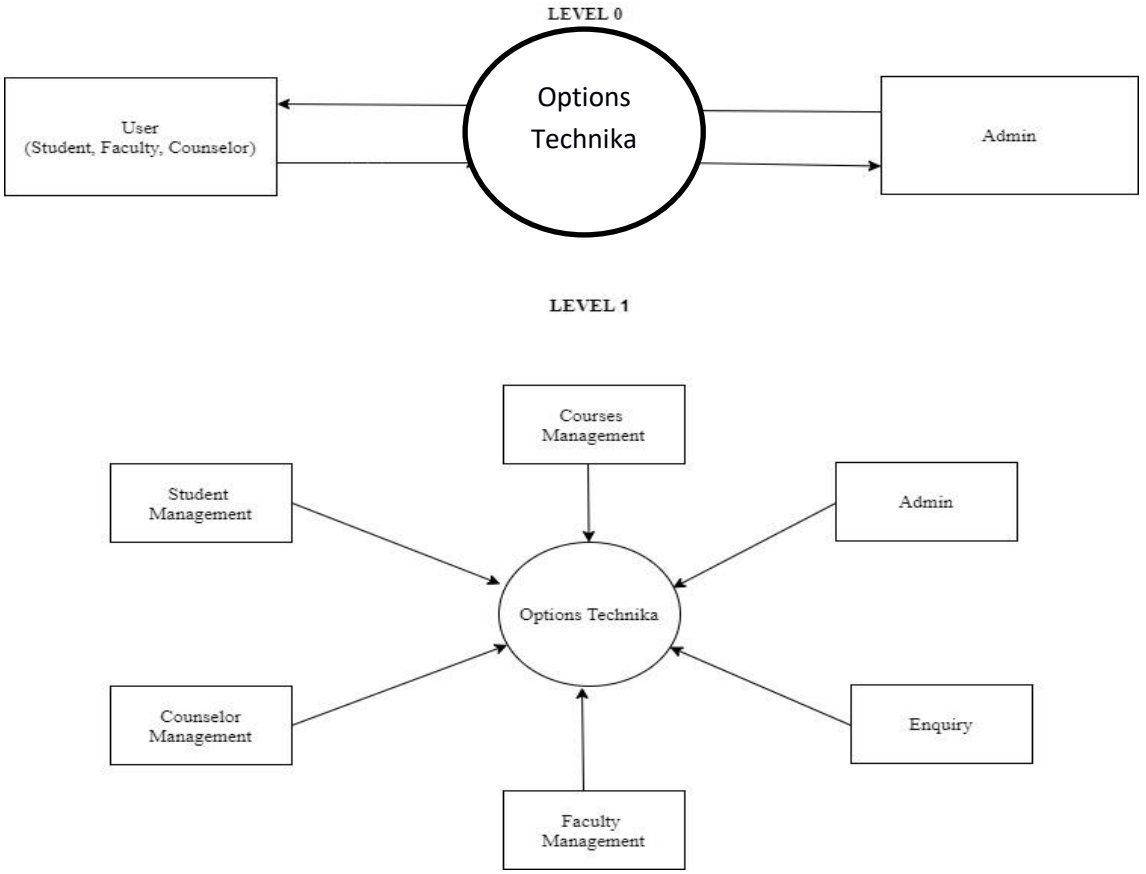

FIGURE 3.5 DFD

CHAPTER-4

DESIGN

This phase is the first step in moving from the problem domain to the solution domain. In other words, starting with what is needed, design takes us towards how to satisfy the needs. The design of system is the most critical factor affecting the quality of the software and has major impact on testing and maintenance. The output of this phase is the design document.

4.1 INTERFACE DESIGN

User interface design or UI design generally refers to the visual layout of the elements that a user might interact with in a website, or technological product. User interface design can dramatically affect the usability and user experience of an application. If a user interface design is too complex or not adapted to targeted users, the user may not be able to find the information or service they are looking for. In website design, this can affect conversion rates. The layout of a user interface design should also be clearly set out for users so that elements can be found in a logical position by the user. Options Technika project include many visual layout of a webpage. Options Technika user interface designs must not only be attractive to potential users, but must also be functional and created with users in mind. Some Interface code of Options Technika is given below:

4.1.1 LOGIN PAGE-

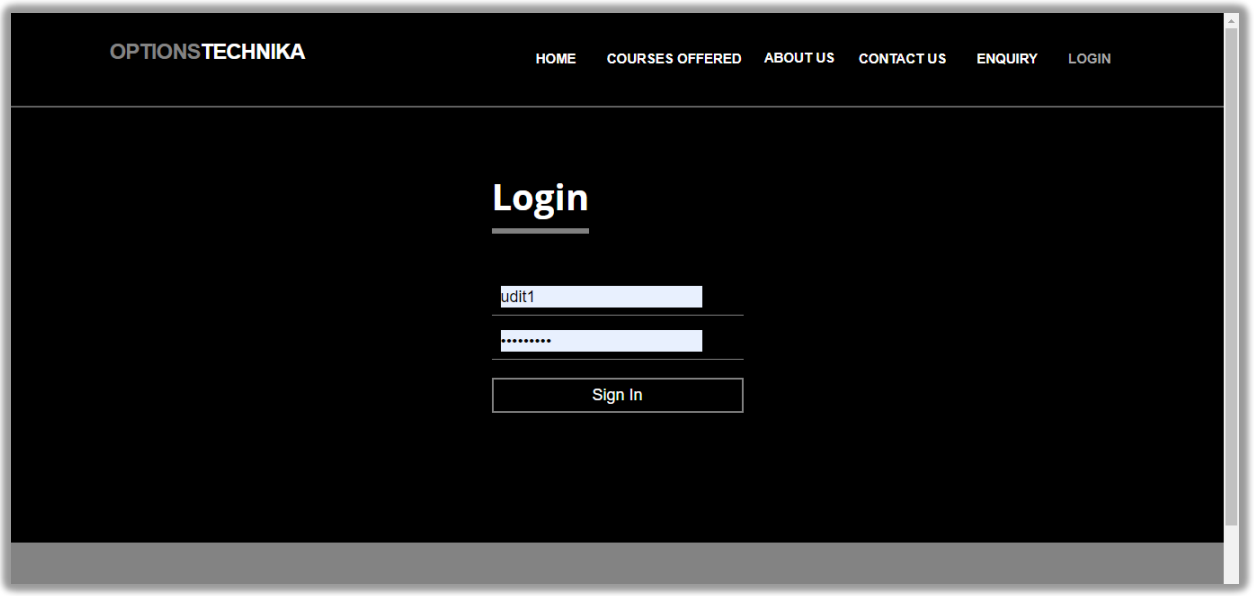

FIGURE 4.1 (A) INTERFACE DESIGN (LOGIN FORM)

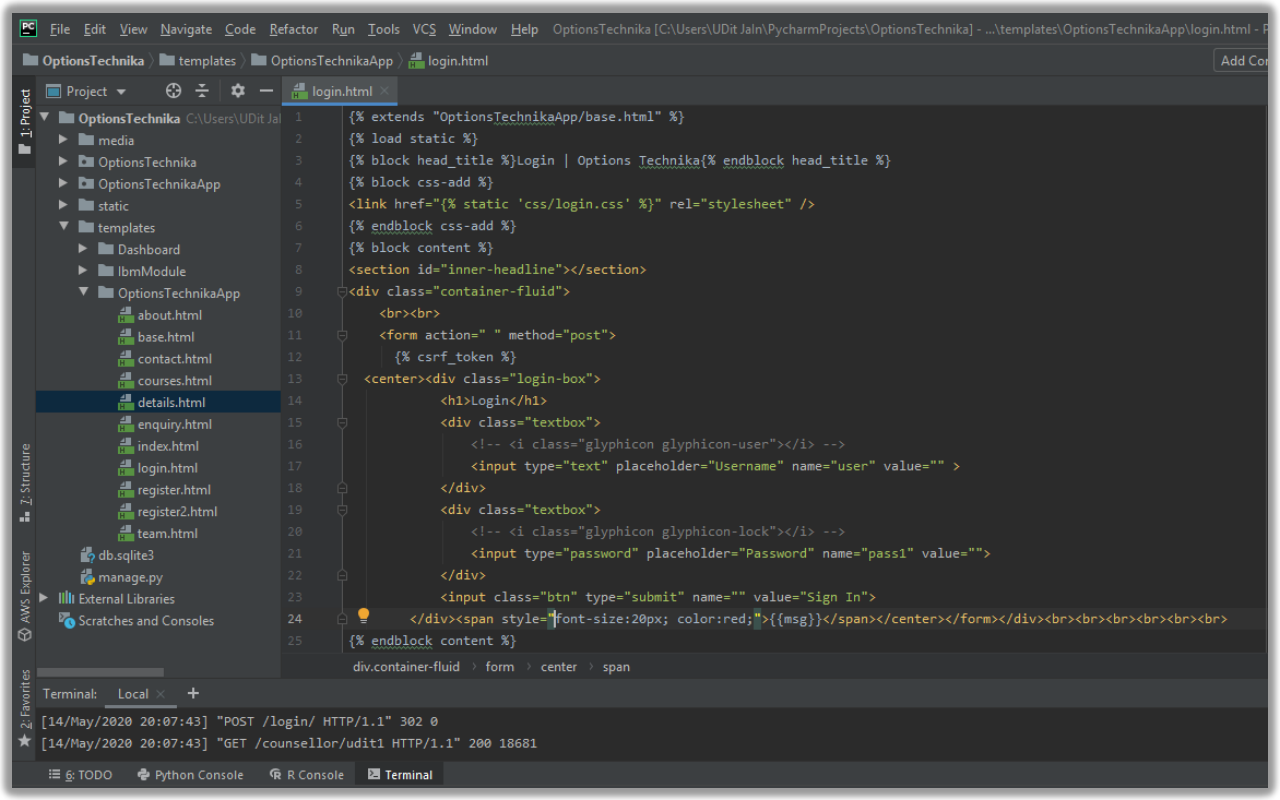

FIGURE 4.1 (B) INTERFACE CODE DESIGN (LOGIN FORM)

4.1.2 COUNSELLOR DASHBOARD-

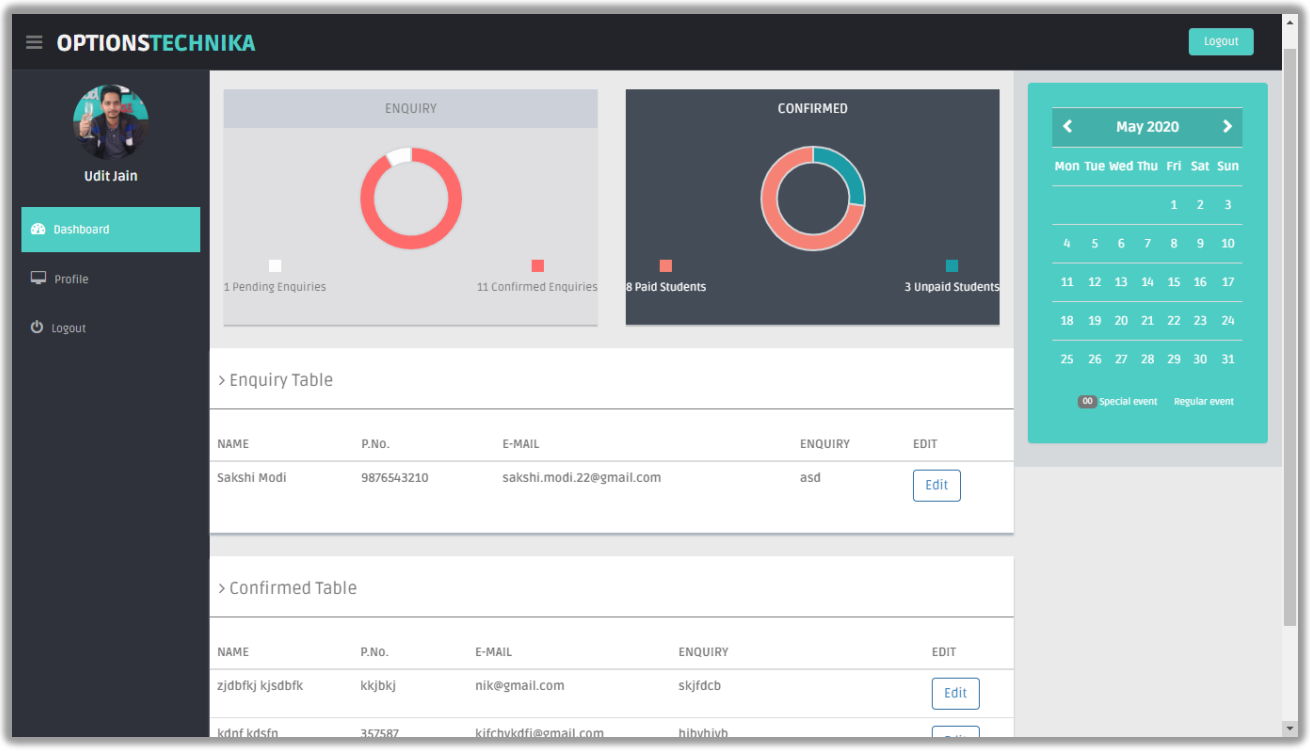

FIGURE 4.2 COUNSELLOR DASHBOARD

4.1.3 FACULTY DASHBOARD-

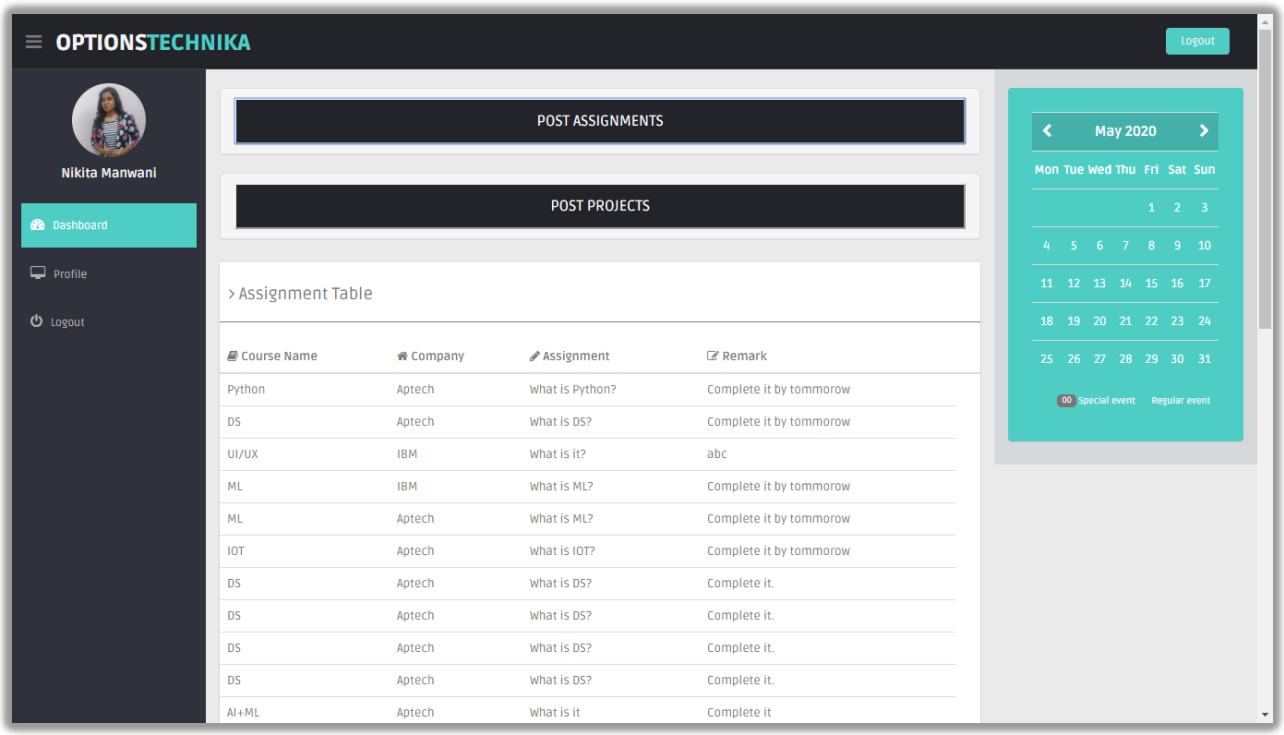

FIGURE 4.3 FACULTY DASHBOARD

4.1.4 STUDENT DASHBOARD-

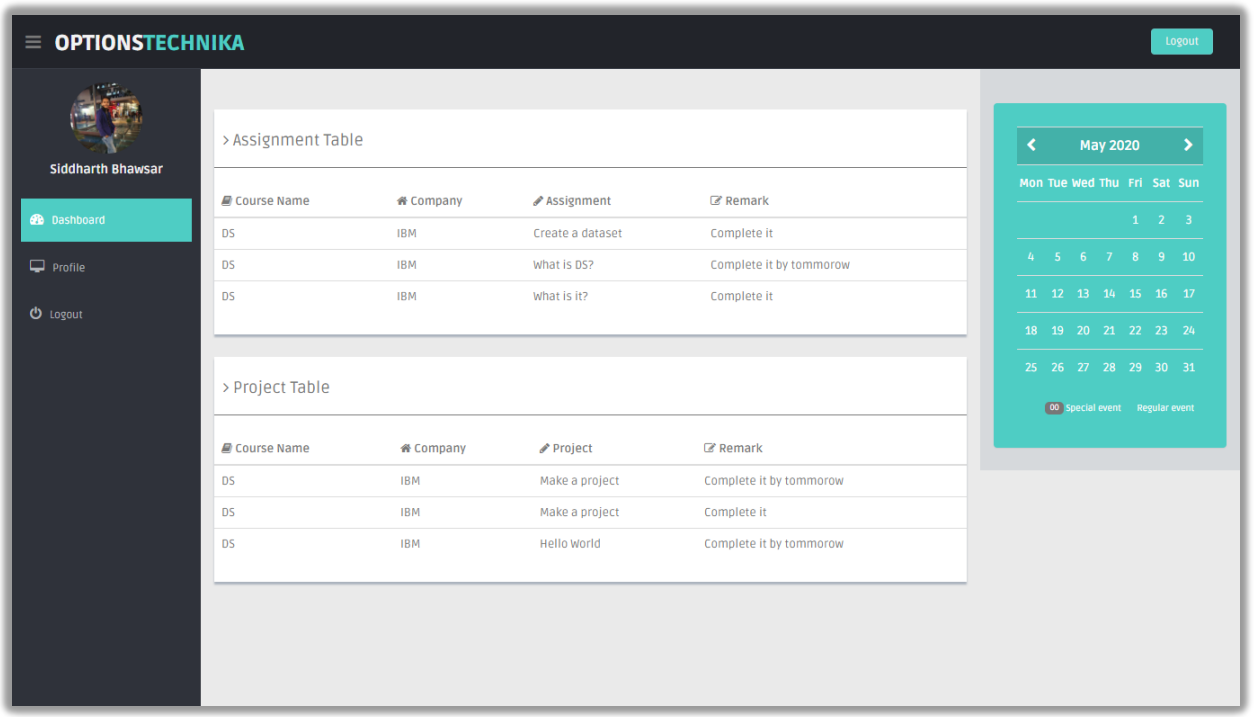

FIGURE 4.4 STUDENT DASHBOARD

4.1.5 ENQUIRY PAGE-

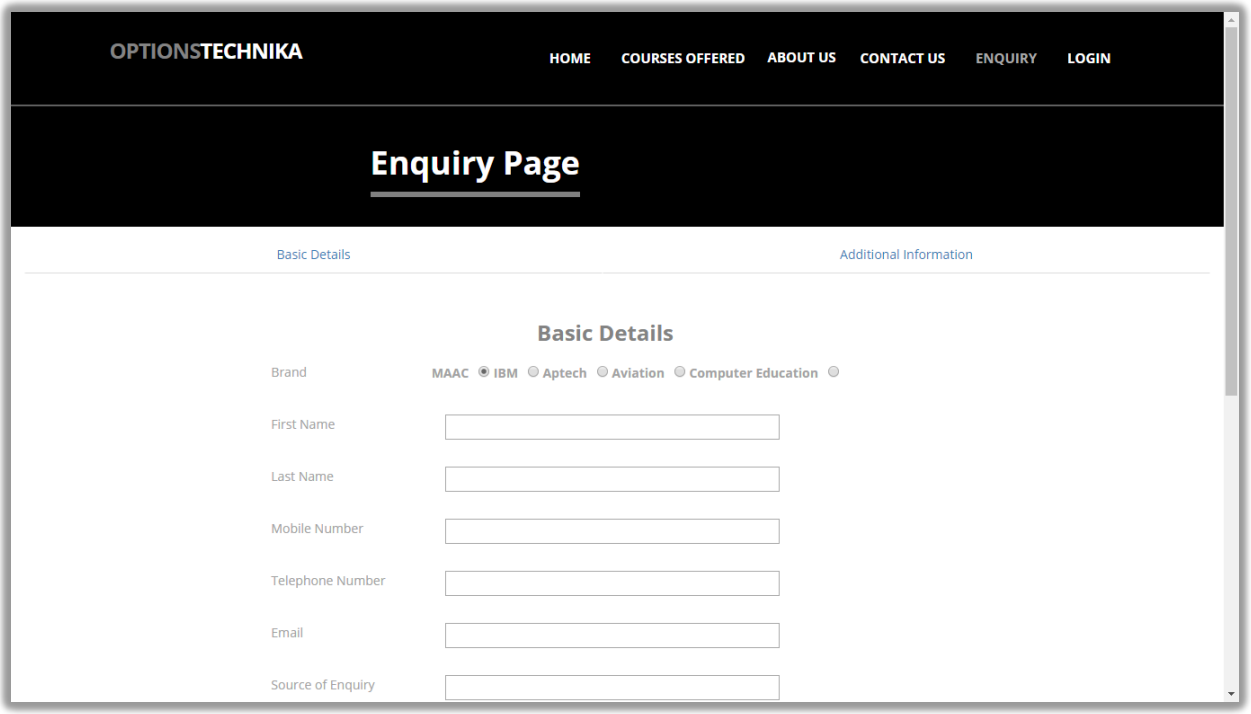

FIGURE 4.5 ENQUIRY PAGE

CHAPTER-5

TESTING

A simple scenario has been made since the main idea behind to cover and test all possible combinations of students or faculties in different modules, find the faults and fix them.

A crucial part of any software development lifecycle is testing. This involves carrying out certain procedures and operations to understand the limitations of the software. It is evident that with testing the constraints of the application that particular bugs and errors are picked up and documented through test cases. This will improve the overall standard and quality of the project and enhance the user experience.

Testing is the major quality control that can be used during software development. Its basic function is to detect the errors in the software. During requirement analysis and design, the output is a document that is usually textual and non-executable. After the coding phase, computer program is available that can be executed for testing purposes. This implies that testing not only has to uncover errors introduced during coding, but also errors introduced during previous phases. Thus the goal of the testing is to uncover requirement, design and coding errors in the program.

5.1 TESTING OBJECTIVE

- Testing is a process of executing a program with the intent of finding an error.
- A good test case is one that has a high probability of finding an undiscovered error.
- A successful test is one that uncovers an as-yet undiscovered error.

5.2 TESTING SCOPE

It can be further used for automatically recommending the faculties to the students according to interest of the student in a particular course(s) / subject(s).

5.3 TESTING PRINCIPLES

- All tests should be traceable to customer requirements.
- Tests should be planned long before testing begins.
- Testing should begin “in the small” and progress toward testing “in the large”.
- Exhaustive testing is not completely possible.
- To be most effective, testing should be conducted by an independent third party.

5.4 TESTING METHODS USED

5.4.1 UNIT TESTING

Unit testing focuses verification efforts on the smallest unit of software design of module. This is also known as “Module Testing”. Acceptance of package is used for computerization of module. Machine Utilization was prepared and approved by the project leader. In this testing step, each module is found to be working satisfactory as regards to the expected output from the module. The suggested changes were incorporated into the system. Here each module in the Machine Utilization has been tested.

‘Options Technika’ is also divided in 3 main modules/parts, which are:

1. Counsellor Module 2. Student Module 3. Faculty Module

These 3 modules are tested separately.

5.4.2 VALIDATION TESTING

At the culmination of integration testing, software is completely assembled as a package; interfacing errors have been uncovered and corrected, and a final series of software tests - Validation testing - may begin.

5.4.3 FUNCTIONALITY TESTING

This is used to check if your product is as per the specifications you intended for it as well as the functional requirements you charted out for it in your developmental documentation. Web based Testing Activities includes:

Tested all **links** are working correctly and it is made sure there are no broken links. Links to be checked will include -

- Outgoing links
- Internal links
- Anchor Links
- MailTo Links

Test Forms are working as expected. This will include-

- Scripting checks on the form are working as expected. For example- if a user does not fill a mandatory field in a form an error message is shown.
- Check default values are being populated.
- Once submitted, the data in the forms is submitted to a live database or is linked to a working email address.
- Forms are optimally formatted for better readability.

Test HTML and CSS to ensure that search engines can crawl your site easily. This will include:

- Checking for Syntax Errors is done.
- Readable Color Schemas are checked.
- Standard Compliance. Ensure standards such W3C are followed.

5.5 SAMPLE TEST DATA AND RESULT

TC01			
Iteration	**Expected Result**	**Actual Result**	**Status**
1	On signing in as a student, it should sign in as a student account.	On signing up as a student, it is signing in as a student account.	**PASS**
2	On signing in as a faculty, it should sign in as a faculty account.	On signing up as a faculty, it is signing in as a faculty account.	**PASS**

TABLE 5.1 TEST CASE 1

TC02			
ITERATION	**EXPECTED RESULT**	**ACTUAL RESULT**	**STATUS**
1	Logging in should check, whether the username is correct or not and provide access to it or denial warning message respectively	Logging in should check, whether the username is correct or not and provide access to it or denial warning message respectively	PASS

TABLE 5.2 TEST CASE 2

TC03			
Iteration	**Expected Result**	**Actual Result**	**Status**
1	Searching should show various faculty on Student Dashboard according to Student's City & choosen Subjects.	Searching is showing various faculty on Student Dashboard according to Student's City & choosen Subjects.	**PASS**

TABLE 5.3 TEST CASE 3

TC04			
Iteration	**Expected Result**	**Actual Result**	**Status**
1	While verifying user's Email, verification mail should be sent to correct user and that validate that user.	While verifying user's Email, verification mail is going to correct user and hence that user is verified automatically.	**PASS**

TABLE 5.4 TEST CASE 4

5.6 VALIDITY CHECKS ON INPUT DATA

Checks are performed on entering wrong Email ID, Password. Also checked by entering invalid phone numbers, first name, last name, email, password length, etc.

5.7 TESTED OUTCOMES

Nobody can login if information entered is wrong.

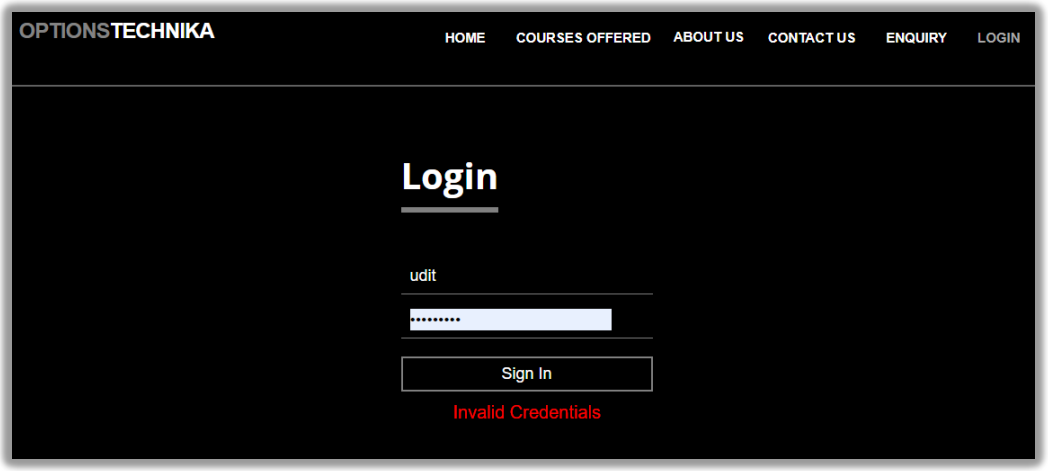

FIGURE 5.1 TEST CASE OUTCOME 1

It is mandatory to fill each and every text field in the form.

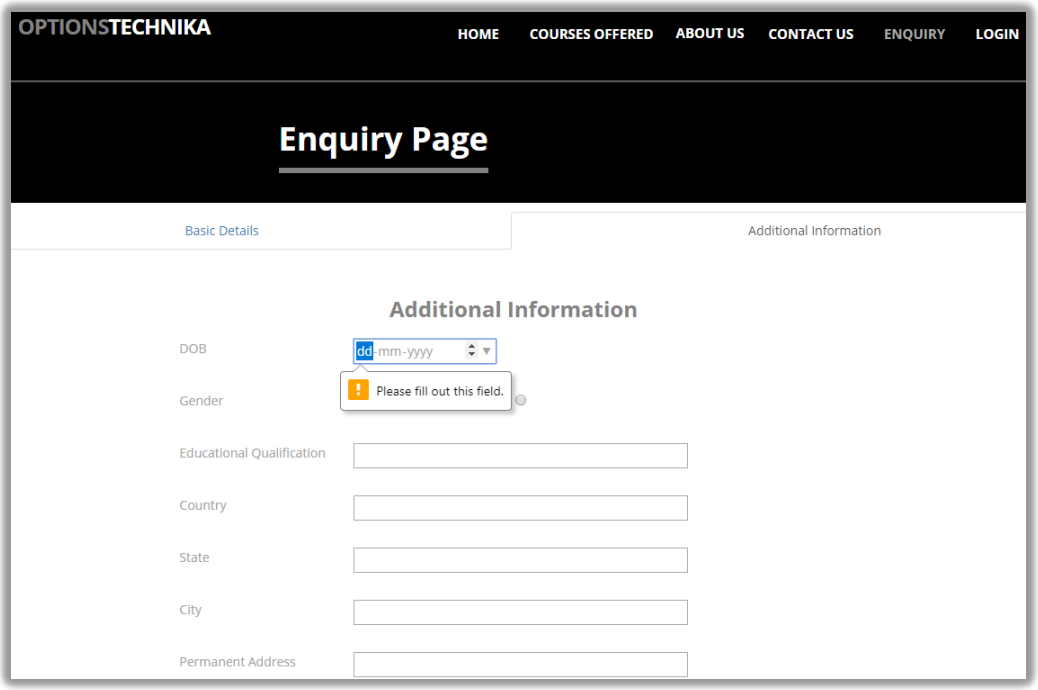

FIGURE 5.2 TEST CASE OUTCOME 2

CHAPTER-6

PROJECTS ASSIGNED

6.1 DESKTOP APPLICATION DEVELOPMENT

Library management system is all about organizing, managing the library and library-oriented tasks. It likewise includes database of sections like new books and the record of books that have been returned or given. The proprietor can without much of a stretch update, erase and embed information in the database with this undertaking. Coming up next are a portion of the highlights gave by this undertaking: Homepage for the individual which has various catches to explore to pages. The individual can include a book in the library and record can be appeared through this undertaking.

What is Tkinter Module?

- Tkinter is the Python interface to the Tk GUI toolkit shipped with Python.
- Geometry Management – pack(), grid(), place() methods.
- Tkinter Widgets – Button, Canvas, Checkbutton, Frame, Label, Listbox, Radiobutton, Text, Toplevel, etc.
- Standard attributes – Dimensions, Colors, Fonts, etc.

6.1.1 TOOLS & TECHNOLOGIES USED IN DEVELOPING LIBRARY MANAGEMENT SYSTEM

1. Python (IDE- PyCharm)
2. Tkinter (GUI Programming)
3. MySQL (Database)

6.1.2 SOME SNIPPETS OF THE WORK PERFORMED IN DESKTOP APPLICATION

FIGURE 6.1 LIBRARY MANAGEMENT (HOME PAGE)

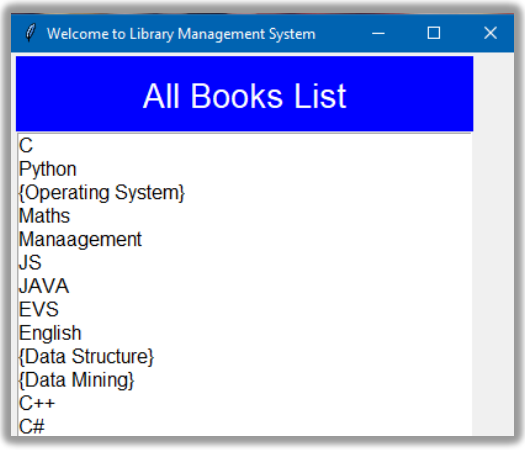

FIGURE 6.2 BOOKS LIST

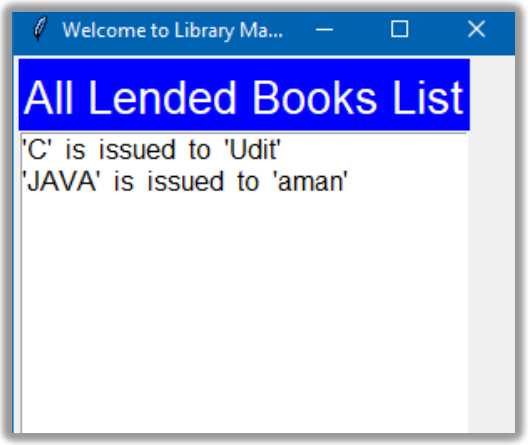

FIGURE 6.3 LENDED BOOKS

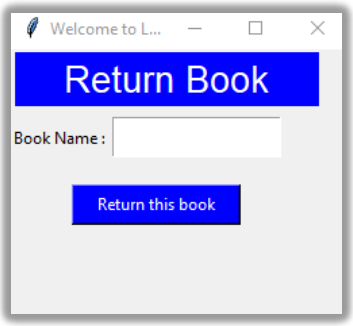

FIGURE 6.4
RETURN BOOK

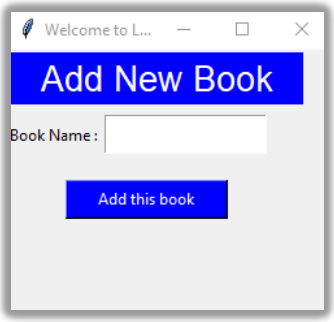

FIGURE 6.5
ADD BOOK

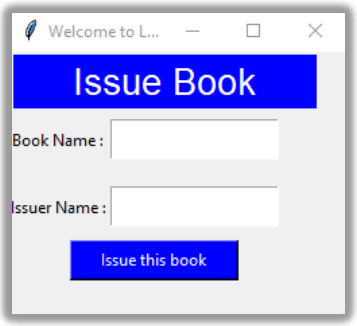

FIGURE 6.6
ISSUE BOOK

6.2 GAME DEVELOPMENT

A game called Simple Mario was made with Python as the core of all development. A straightforward Mario game was created with the utilization of py-game module. Pygame is a sort of python module intended for composing computer games. It has some substance like PC illustrations and sound libraries structured that works with python. The interactivity Graphics is sufficient and the controls are unreasonably straightforward for the players. Discussing the ongoing interaction, all the playing techniques are too straightforward you should simply avoid Mario from dying, by avoiding the green pipes and the channels. The player must be as fast as could reasonably be expected. At whatever point the player crashes or return as far as possible of the presentation screen, the game is over which takes the player to the welcome screen. The principle target of this game is to stay away from the impediments. A basic GUI is accommodated the simple ongoing interaction.

What is Pygame Module?

- Pygame is a set of Python modules designed for writing video games.
- Pygame allows you to create fully featured games and multimedia programs in the python language.
- Pygame is highly portable and runs on nearly every platform and operating system.

- Pygame itself has been downloaded millions of times.
- Pygame is free. Released under the LGPL licence, you can create open source, freeware, shareware, and commercial games with it.
- It consists of computer graphics and sound libraries designed to be used with the Python programming language.

6.2.1 TOOLS & TECHNOLOGIES USED IN DEVELOPING GAME-

1. Python (IDE- PyCharm)
2. Pygame Module

6.2.2 SOME SNIPPETS OF THE WORK PERFORMED IN GAME -

FIGURE 6.7 GAME DEVELOPMENT (HOME PAGE)

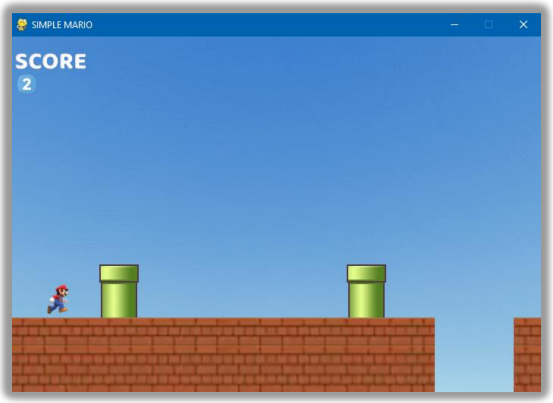

FIGURE 6.8 GAMING WINDOW 1

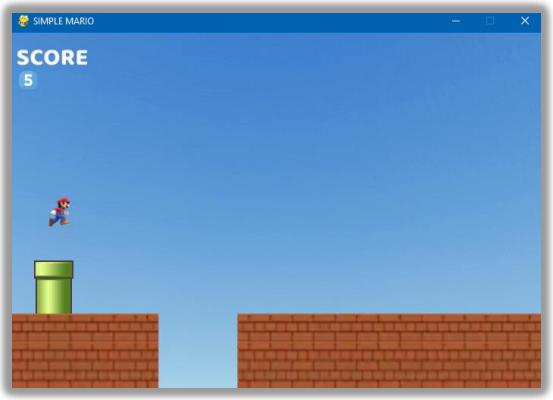

FIGURE 6.9 GAMING WINDOW 2

6.3 ASSIGNED TASK WORK IN OPTIONS TECHNIKA (WEBSITE DEVELOPMENT)

An official website for Options Technika was assigned. I performed the front-end part.

What is Django?

- Django is a high-level Python Web framework that encourages rapid development and clean, pragmatic design.
- Ridiculously fast - Django was designed to help developers take applications from concept to completion as quickly as possible.
- Reassuringly secure - Django takes security seriously and helps developers avoid many common security mistakes.
- Exceedingly scalable - Some of the busiest sites on the Web leverage Django's ability to quickly and flexibly scale.
- It's free and open source.

Django framework:

- The MVT (Model View Template) is a software design pattern. It is a collection of three important components Model View and Template. The Model helps to handle database. It is a data access layer which handles the data.
- The Template is a presentation layer which handles User Interface part completely. The View is used to execute the business logic and interact with a model to carry data and renders a template.
- Although Django follows MVC pattern but maintains it's own conventions. So, control is handled by the framework itself.
- There is no separate controller and complete application is based on Model View and Template. That's why it is called MVT application.
- See the following graph that shows the MVT based control flow:

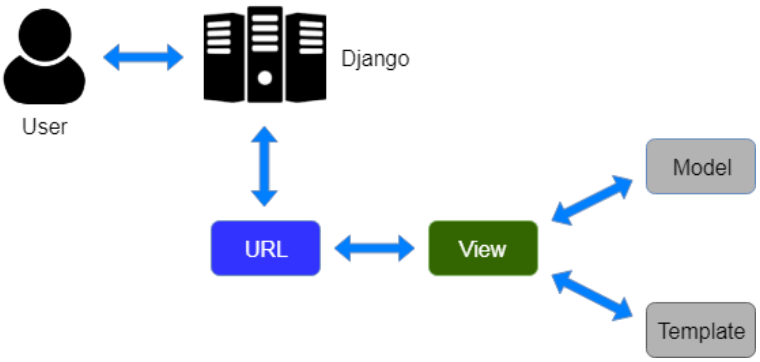

FIGURE 6.10 DJANGO MVT

1. Here, a user **requests** for a resource to the Django, Django works as a controller and check to the available resource in URL.
2. If URL maps, **a view is called** that interact with model and template, it renders a template.
3. Django responds back to the user and sends a template as a **response**.

6.3.1 SOME SNIPPETS OF THE WORK PERFORMED IN OPTIONS TECHNIKA (MY ROLE)

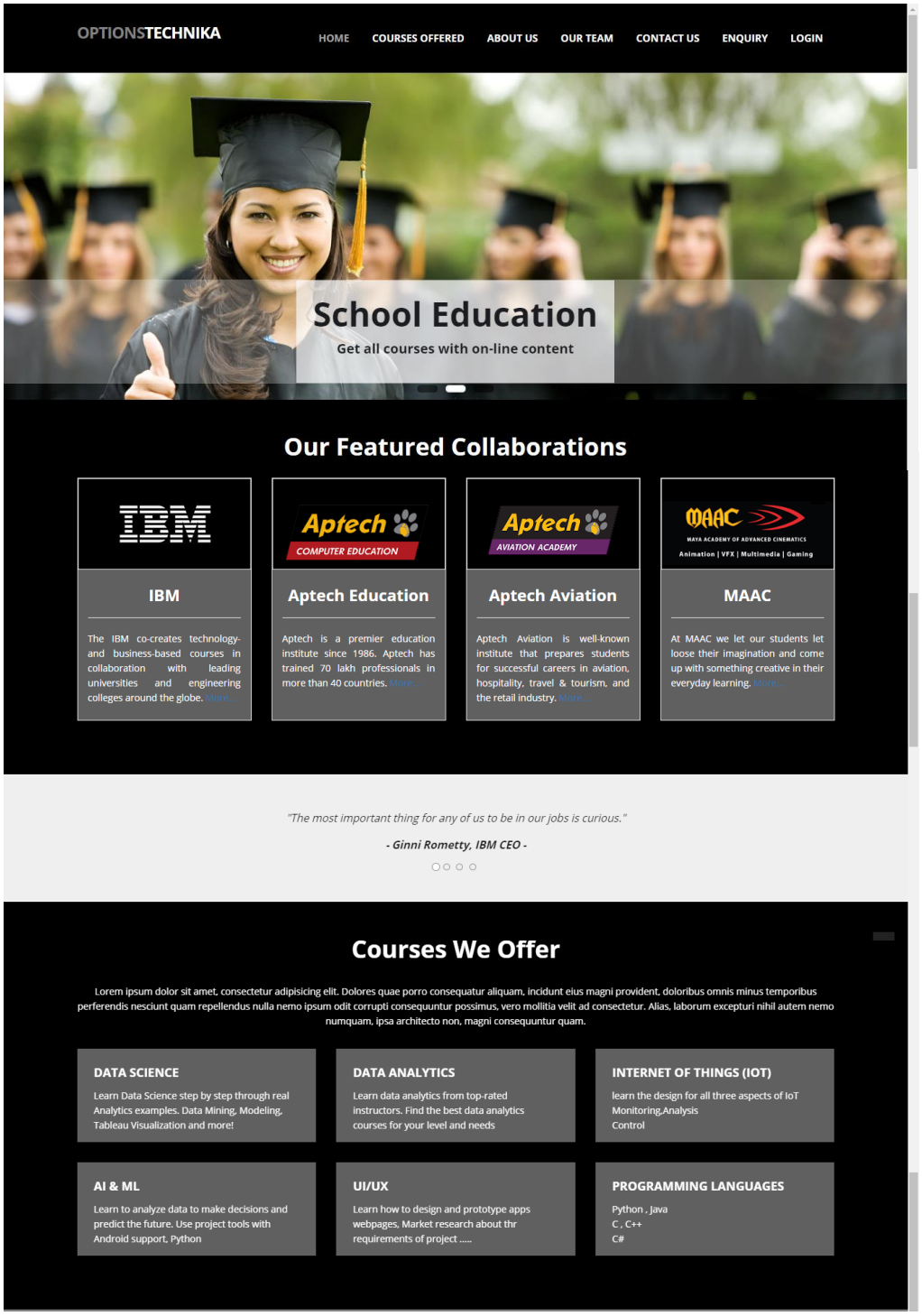

FIGURE 6.11 OPTIONS TECHNIKA (HOME PAGE)

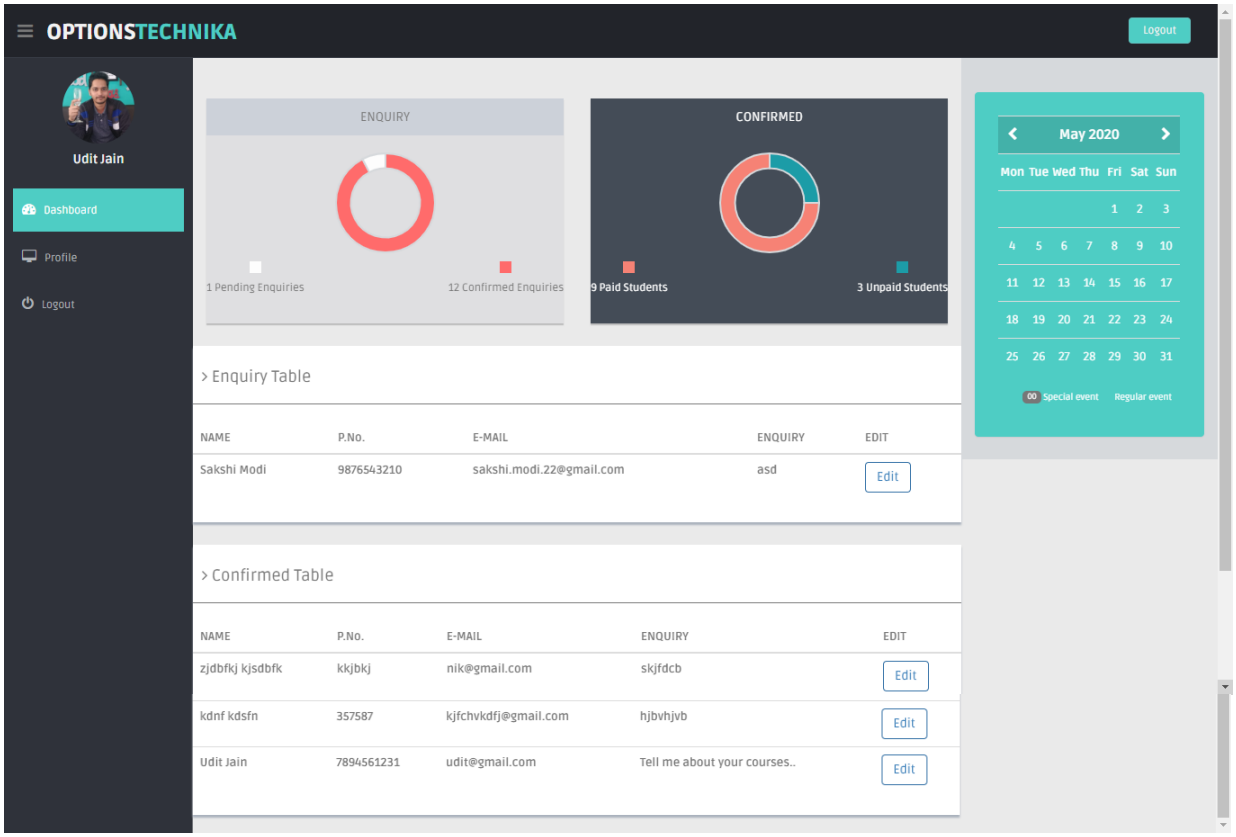

FIGURE 6.12 COUNSELLOR DASHBOARD

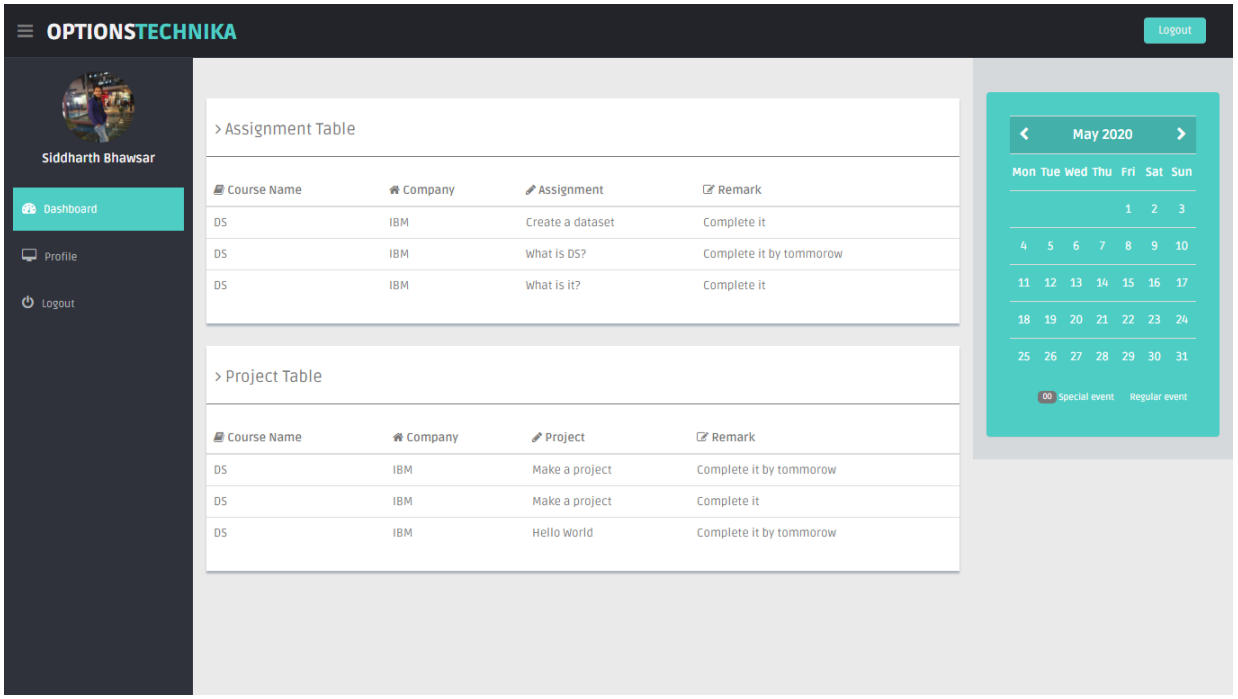

FIGURE 6.13 STUDENT DASHBOARD

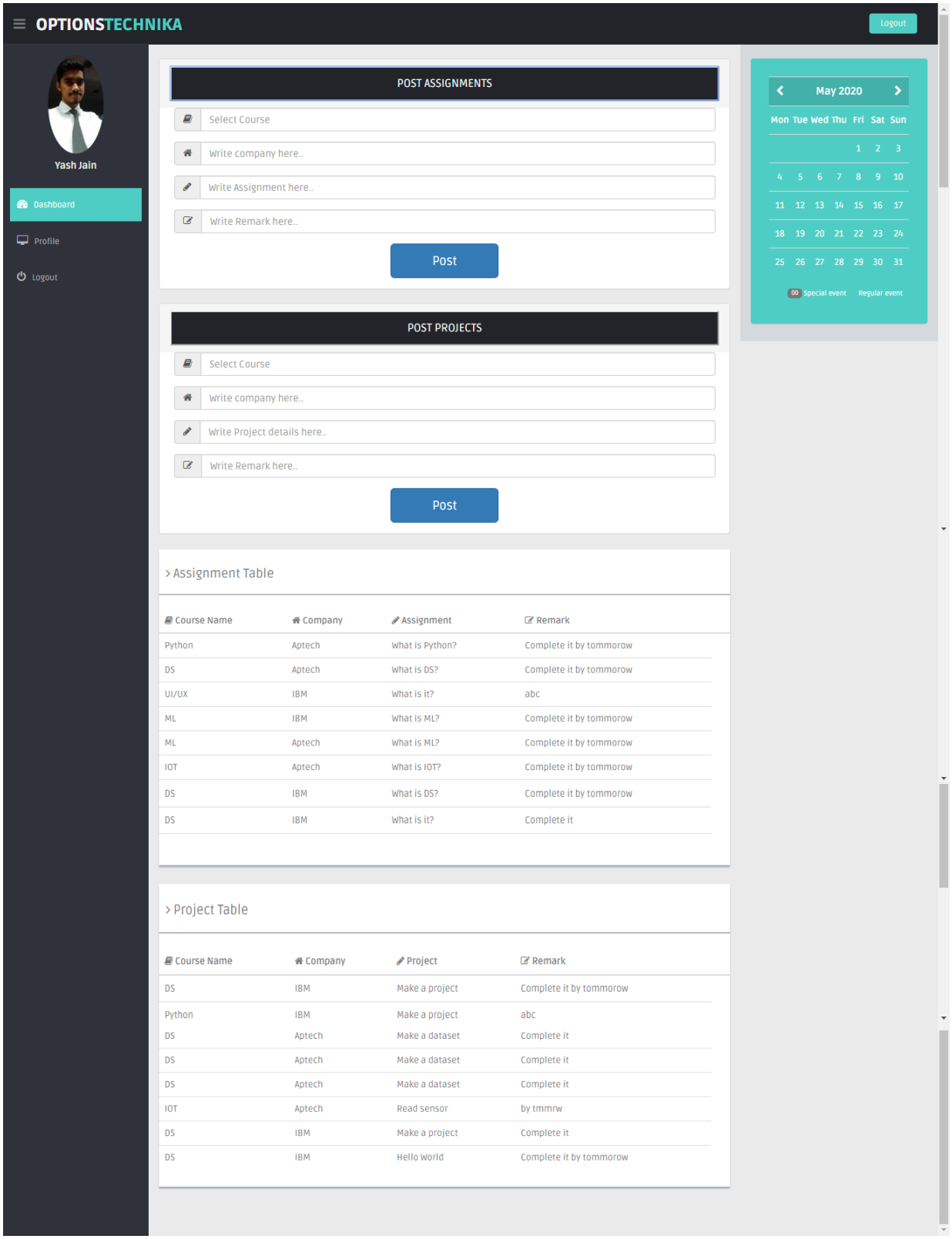

FIGURE 6.14 FACULTY DASHBOARD

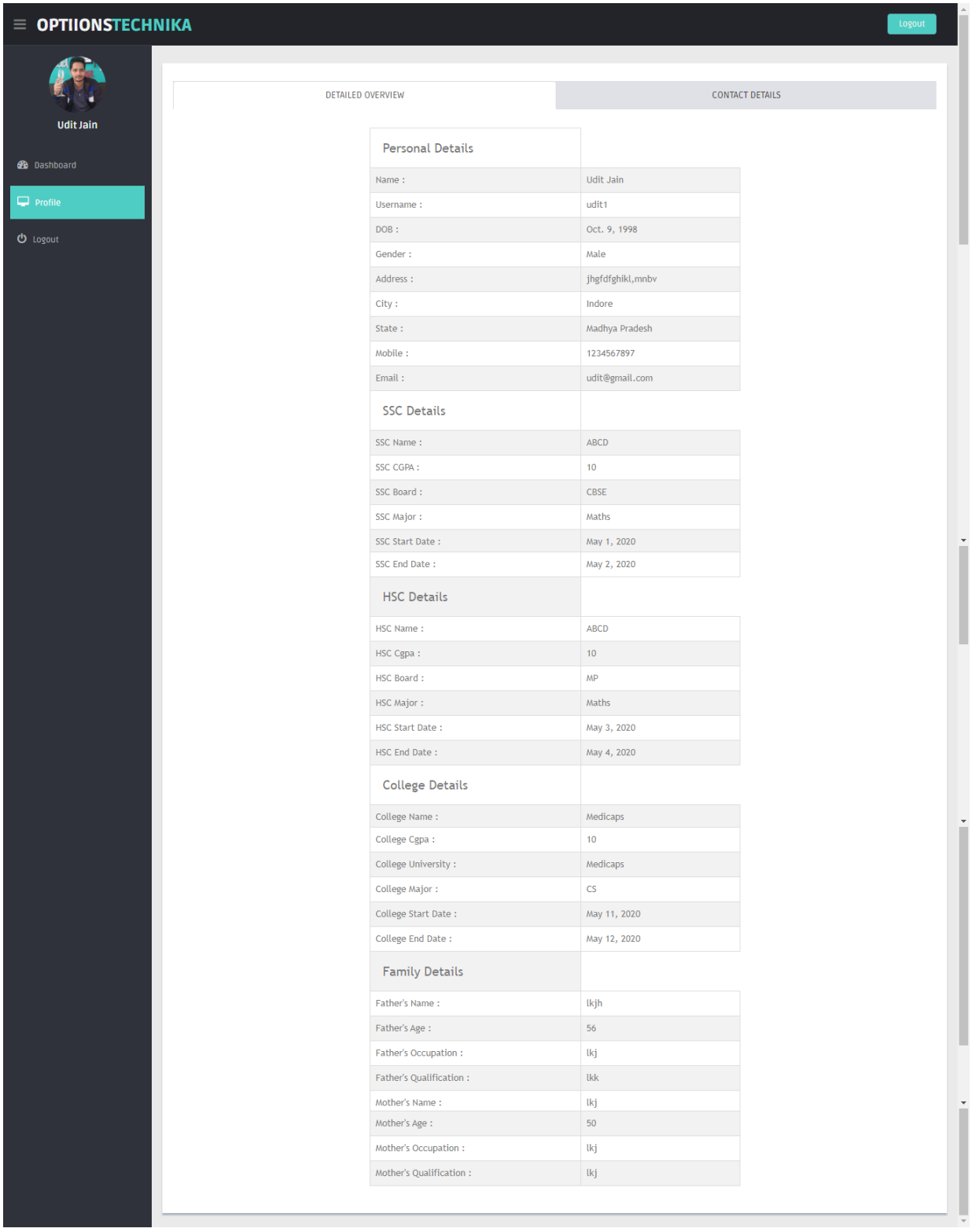

FIGURE 6.15 PROFILE PAGE

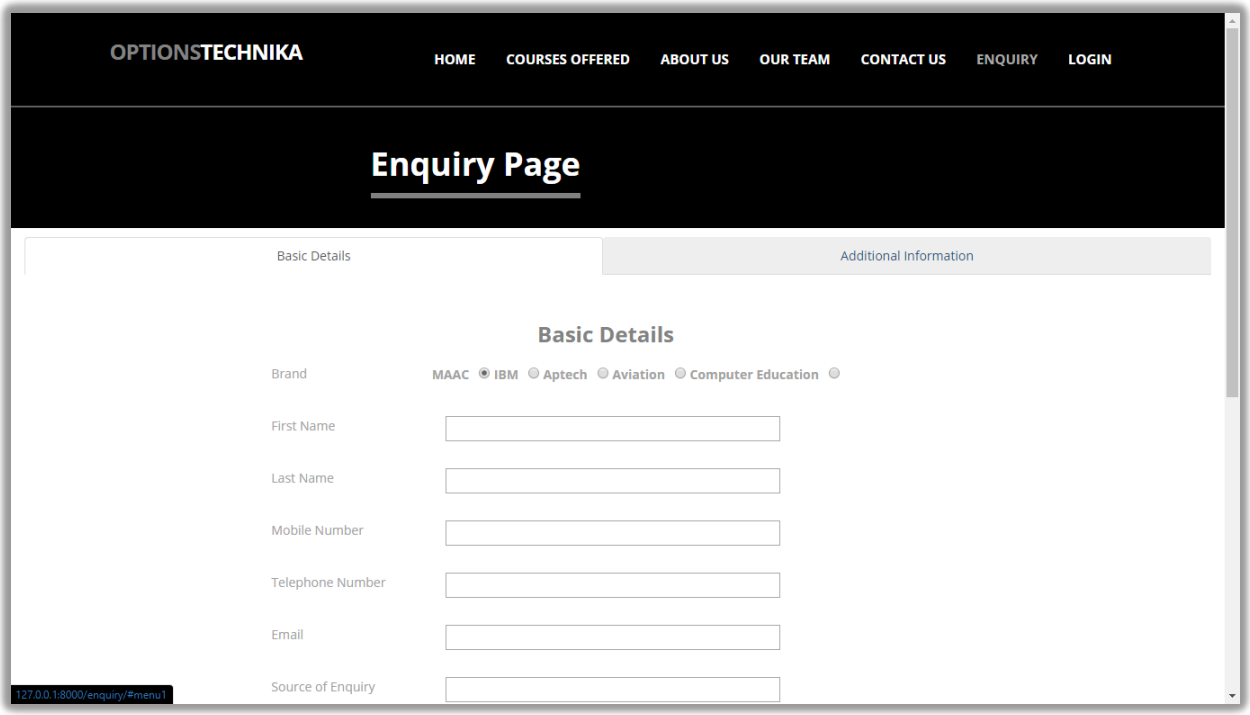

FIGURE 6.16 ENQUIRY PAGE

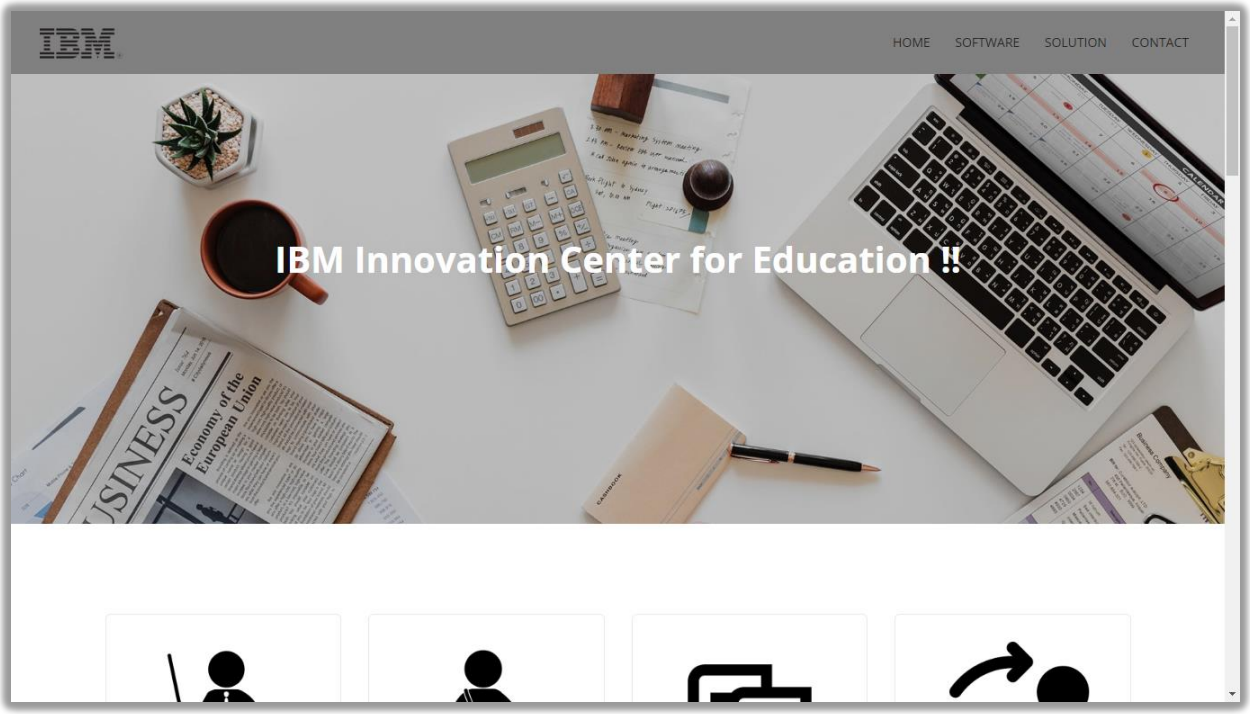

FIGURE 6.17 IBM HOME PAGE

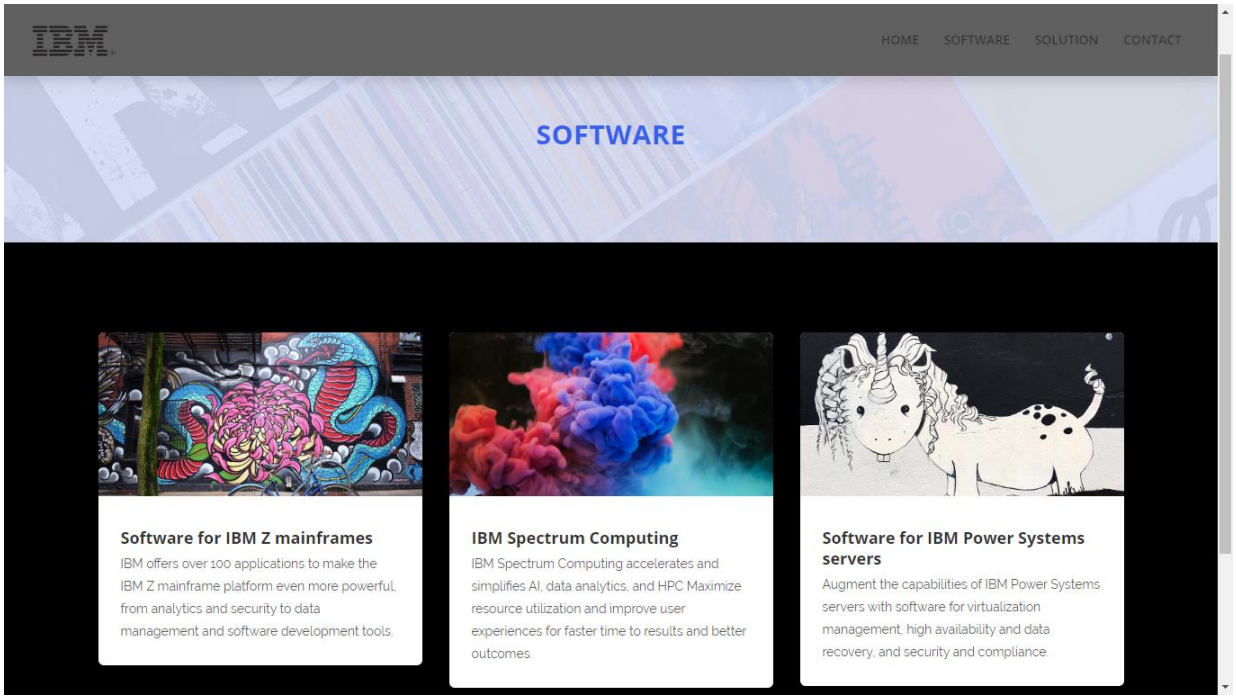

FIGURE 6.18 IBM SOFTWARE

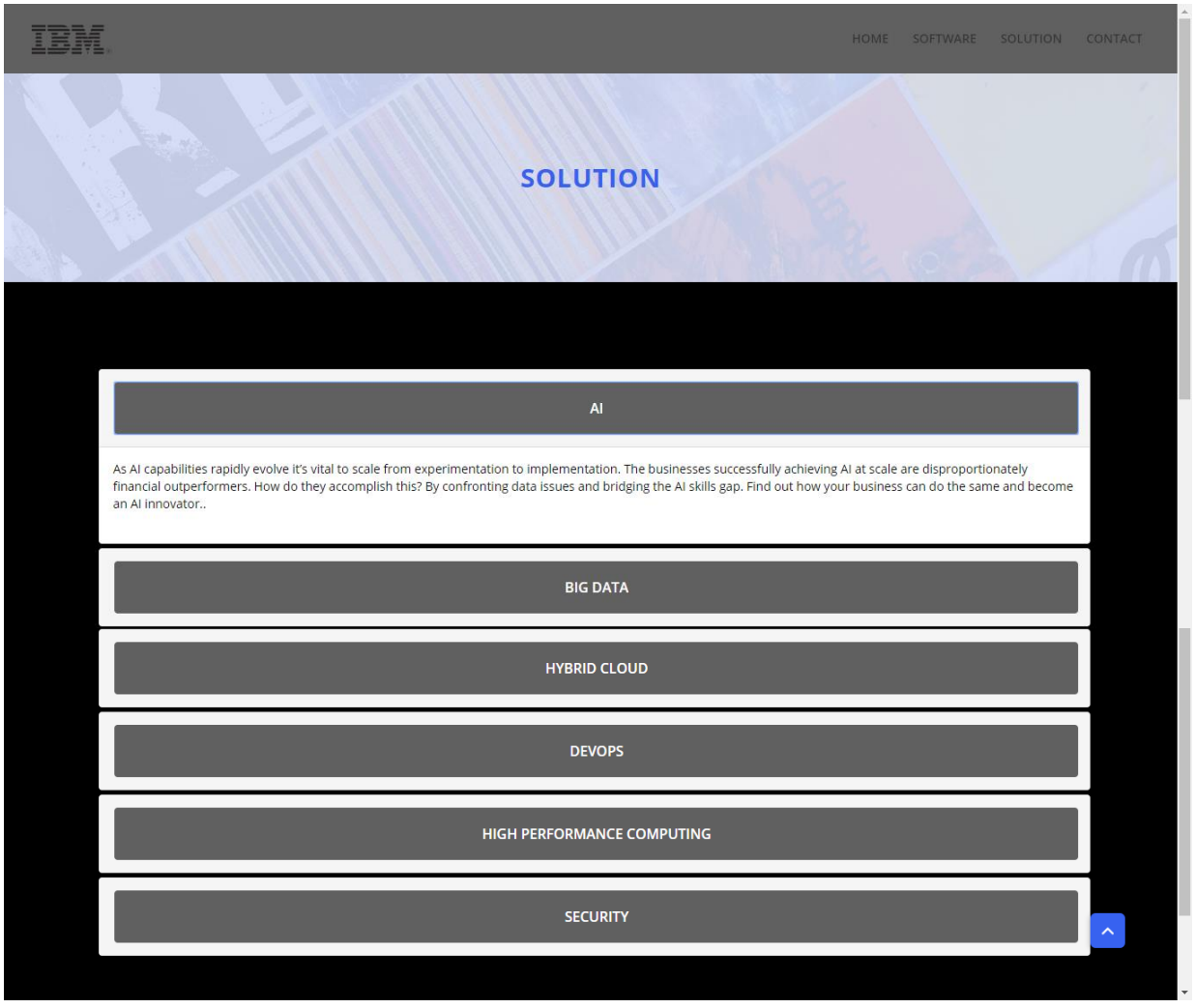

FIGURE 6.19 IBM SOLUTIONS

CHAPTER-7

LIMITATION

The provided solutions, while possessing obvious advantages, have some important limitations in terms of functionalities and use cases. We will discuss them below:

7.1 MOBILE WEB APPLICATION LIMITATIONS

- Small screen size – This makes it difficult or impossible to see text and graphics dependent on the standard size of a desktop computer screen.
- Lack of windows – On a desktop computer, the ability to open more than one window at a time allows for multi-tasking and for easy reverts to a previous page. Historically on mobile web, only one page can be displayed at a time, and pages can only be viewed in the sequence they were originally accessed.
- Lack of JavaScript and cookies – Most devices do not support client-side scripting and storage of cookies, which are now widely used in most Web sites to enhance user experience, facilitating the validation of data entered by the page visitor.
- Compressed pages – Many pages, in their conversion to mobile format, are squeezed into an order different from how they would customarily be viewed on a desktop computer.

The application is web-based and requires the internet for loading some font icons and images on the website. For every operation available on the website can only be accessed using internet. Thus, the application cannot be used without an active internet connection.

The SEO elements, Search Engine Optimization Elements are not integrated with the website yet.

7.2 BROWSER SUPPORT

Unfortunately, we do not all use one version of a browser because we are given a choice. Every browser reacts or show content in their own way. Some browser shows each and every type of design, while some have problem in showing it. But Options Technika will work perfectly with the latest versions of every well-known browser.

While not as fierce as battles of yore, input types are the cause of a new small-scale browser war. Despite the existence of standards, browser and device manufacturers have cherry-picked input feature support and taken different approaches to implementing these enhanced interactions.

CHAPTER-8

FUTURE SCOPE

8.1 FUTURE SCOPE

Due to time and technical limitations, not all aspects of Options Technika were possible to develop. In this section we discuss some of the aspects that are interesting to be researched further.

In this study, we mainly user-tested technical literate people. For future work, testing on people outside of the convenient sample size would be interesting, e.g. the elderly or non-technical people.

- Any student can give the test and get the result on the website itself.
- We can give more advance website for Options Technika including AI and ML.
- A payment method can be added.
- Can add new features as and when require.
- An online video courses will be provided for online study purpose.
- Online chatting can also be provided among faculties and students.
- Online video calling and screen sharing option can also be provided as our generation is moving towards better communication tools for doubt clearing, learning, etc.
- Optimization for small screens, mobile viewing experience can be improved.
- An android application can also be released, so that user count can increase.
- It can be further implemented in all of their offices which will make their work procedure more easy, simplified and effective.
- Chat-bot can also be integrated in the website for better handling of enquiries and doubts about the courses. It will make the task much easier, and hence our website will be more effective.
- Implement the backup mechanism for taking backup of codebase and database on regular basis on different servers.
- Create the master and slave database structure to reduce the overload of the database queries.
- We can create a separate module for accounting department.

The above mentioned points are the enhancements which can be done to increase the applicability and usage of this project. Here we can maintain the records of Students, Interns, Faculty and Counsellors. Enhancements can be done to maintain all the student, faculty and counsellor module.

Through the usage of AI and ML it can be made possible through online test to give proper individual attention to students and will also help the faculty to know the area in which the students are lacking and counsellors can get to know the performance graph of each faculty and can compare with other faculty if needed. So that faculties can be trained accordingly.

We have left all the options open so that if there is any other future requirement in the system by the user for the enhancement of the system then it is possible to implement them in the last we would like to thanks all the persons involved in the development of the system directly or indirectly. We hope that the project will serve its purpose for which it is develop there by underlining success of process.

CHAPTER-9

LEARNING AFTER TRAINING

9.1 LEARNING AFTER TRAINING

- During my internship, I really had learnt a lot of knowledge from my colleagues and some working experience from them. I am glad to become their intern because they really teach me a lot and when I got facing some problems, the willing to teach me how to solve it or help me to solve those errors.
- This internship really provides a lot of benefits for my future. I also had a chance to learn from them along with working, besides that, I also know more about working environment outside. Other than gain knowledge about the designing, I also learn more about teamwork from them. In this working environment, working as a team is essential for completing a project, so teamwork is very essential for working. Working is different from studying, in working environment; we need to have good communication skills cause while working, communicating between employees or clients is essential.
- I got an opportunity to learn a lot of extra knowledge from my colleagues during my internship, I really am thankful for it and thanks for them in teaching me and guiding in the entire internship duration. Additionally, I also thank my college to provide us with an opportunity so that we can learnt some knowledge and working experience before we steeping out for the real working environment.
- I have additionally learned the basic fundamentals of python, and numerous modules in python itself.
- I have likewise learned Pygame Module which is utilized to create staggering game which can run on Windows, Mac, Ubuntu, and so on.
- And furthermore learned Tkinter Module which is utilized to create Windows Application which can likewise be coordinated with MySQL.
- I gained knowledge of Django, MongoDB and hands-on pandas, numpy and scikitlearn as well.
- I learned how to manage things in a team, how to face new problems, how to complete work before deadlines and got little sneak peak of how things work in an organisation.

CHAPTER-10

CONCLUSION

10.1 CONCLUSION

To conclude, the aim was to set to get the hands on digital work and leaving out the paper work is achieved. Moreover, any person coming for enquiry can have a look and can provide his/her details through which further the counsellor can take the follow-up. The whole website is an interactive platform that consist of all the details about the company, and the collaborative companies, with separate dashboards present for counsellor, faculty and student respectively. When someone fills the enquiry form these details get reflected in the counsellor portal, where counsellor can have a check of how many enquiries were done and how many were confirmed. It makes the details to be handled easily and also can have a record. After the follow-up the details are filled by the counsellor and the person gets enrolled in what-so-ever brand and field he wants to. Then the interaction between the faculty and students is done by portal as the faculty post the assignments and projects with remarks and the student gets an update of the work that needs to be done. Overall, this website development was made for the enhancement and more effective productivity in the company and through this project I came across many technologies and their working which in all let to my knowledge enhancement. This project provided me a great opportunity to get to know about how things work in a company and the ability to deal with client and how to fulfill the client’s expectations.

CHAPTER-11

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1.1 BIBLIOGRAPHY

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CHAPTER-12

APPENDICES

12.1 OPTIONS TECHNIKA (WEBSITE DEVELOPMENT) SNIPPETS

Courses Offered: People visiting the website can have a look on all the courses available along with their description in order to choose their course in easier way.

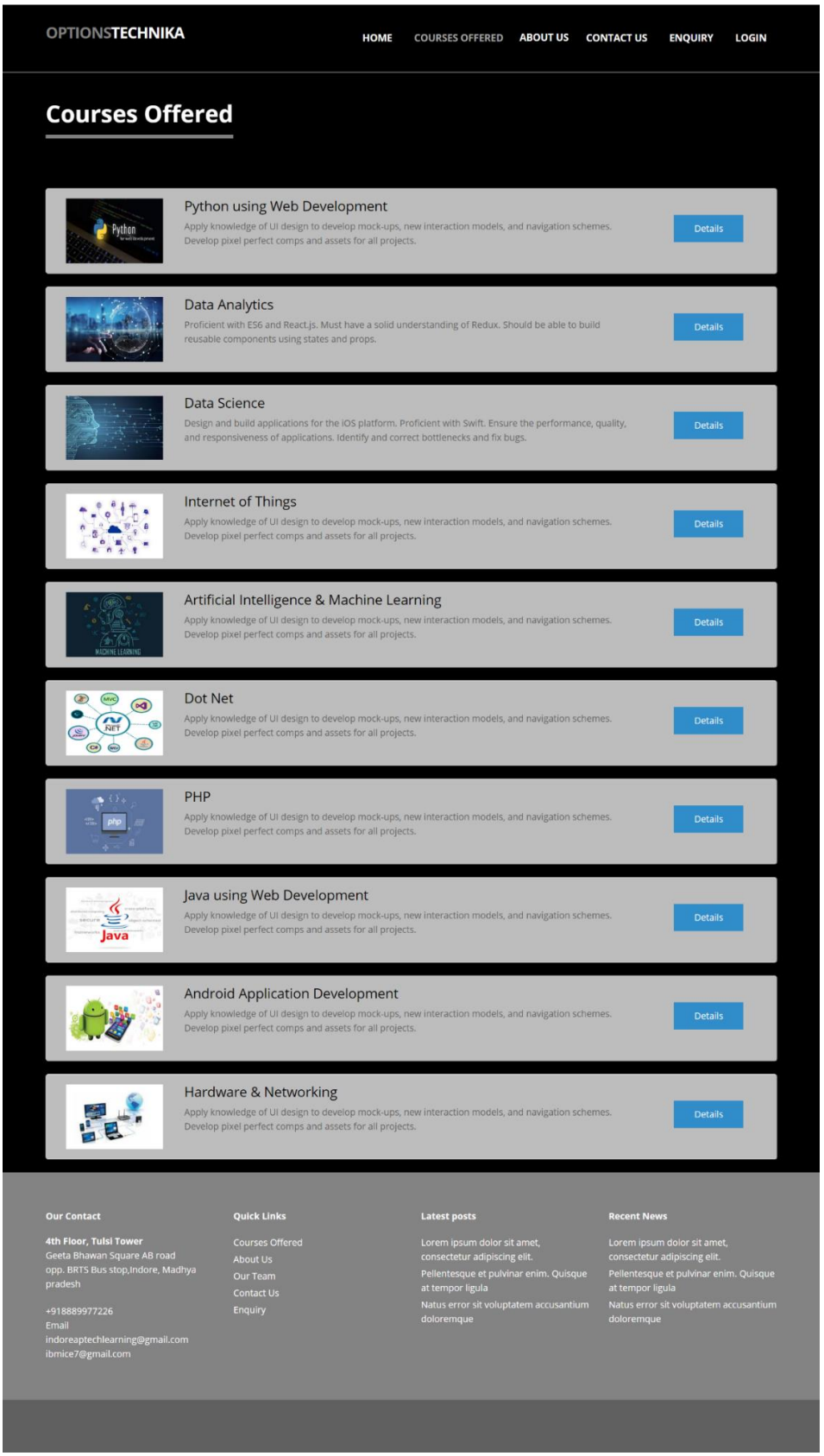

FIGURE 12.1 COURSES OFFERED

About Us: Clicking on this tab, the user retrieves the page wherein he can explore about the company. In addition to this, the user can also learn about the courses offered and its details.

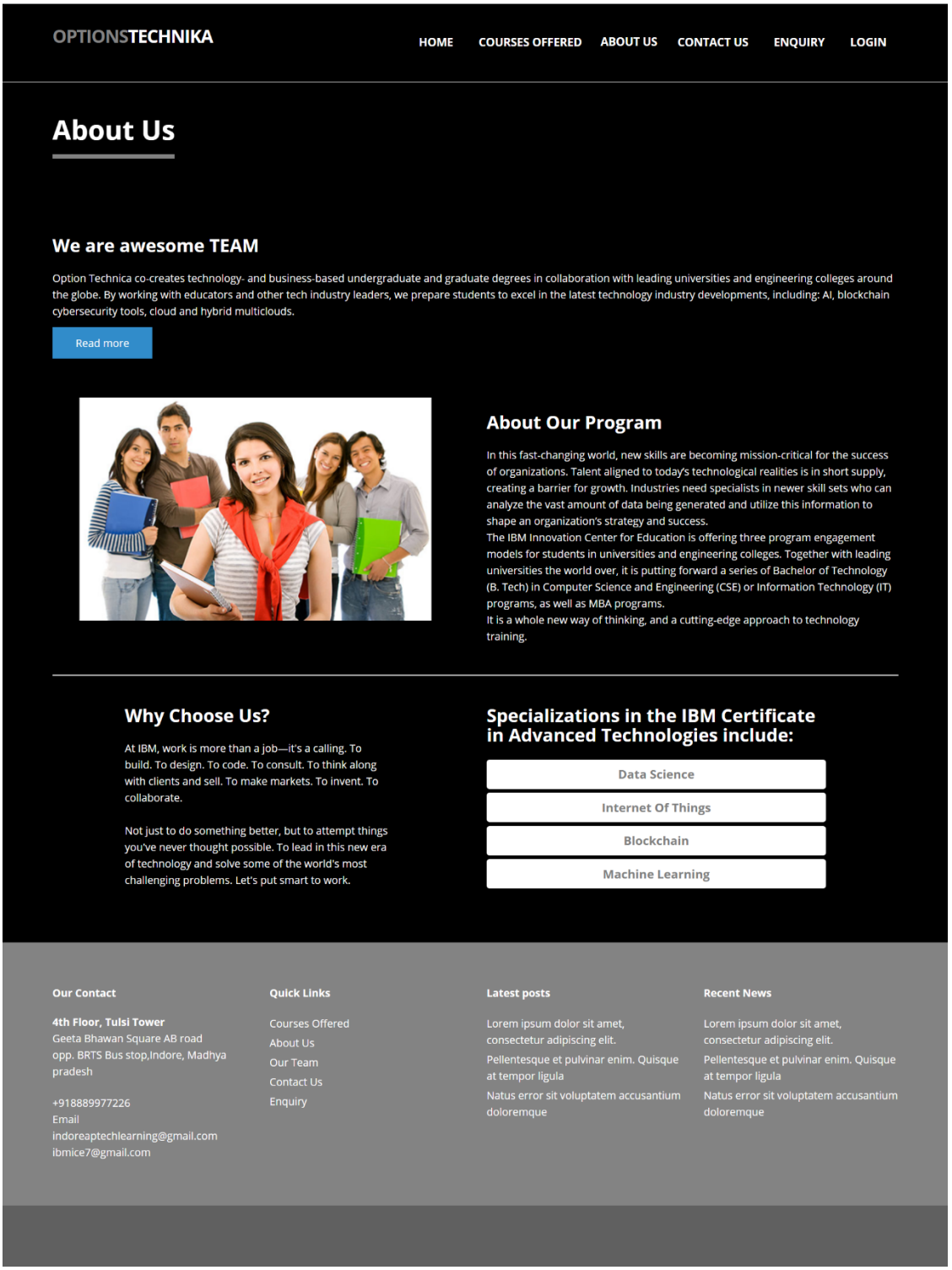

FIGURE 12.2 ABOUT US

Team: This website along with other dashboards, provides description of their team, which includes the person's name along with the email. In case someone needs to contact them in person.

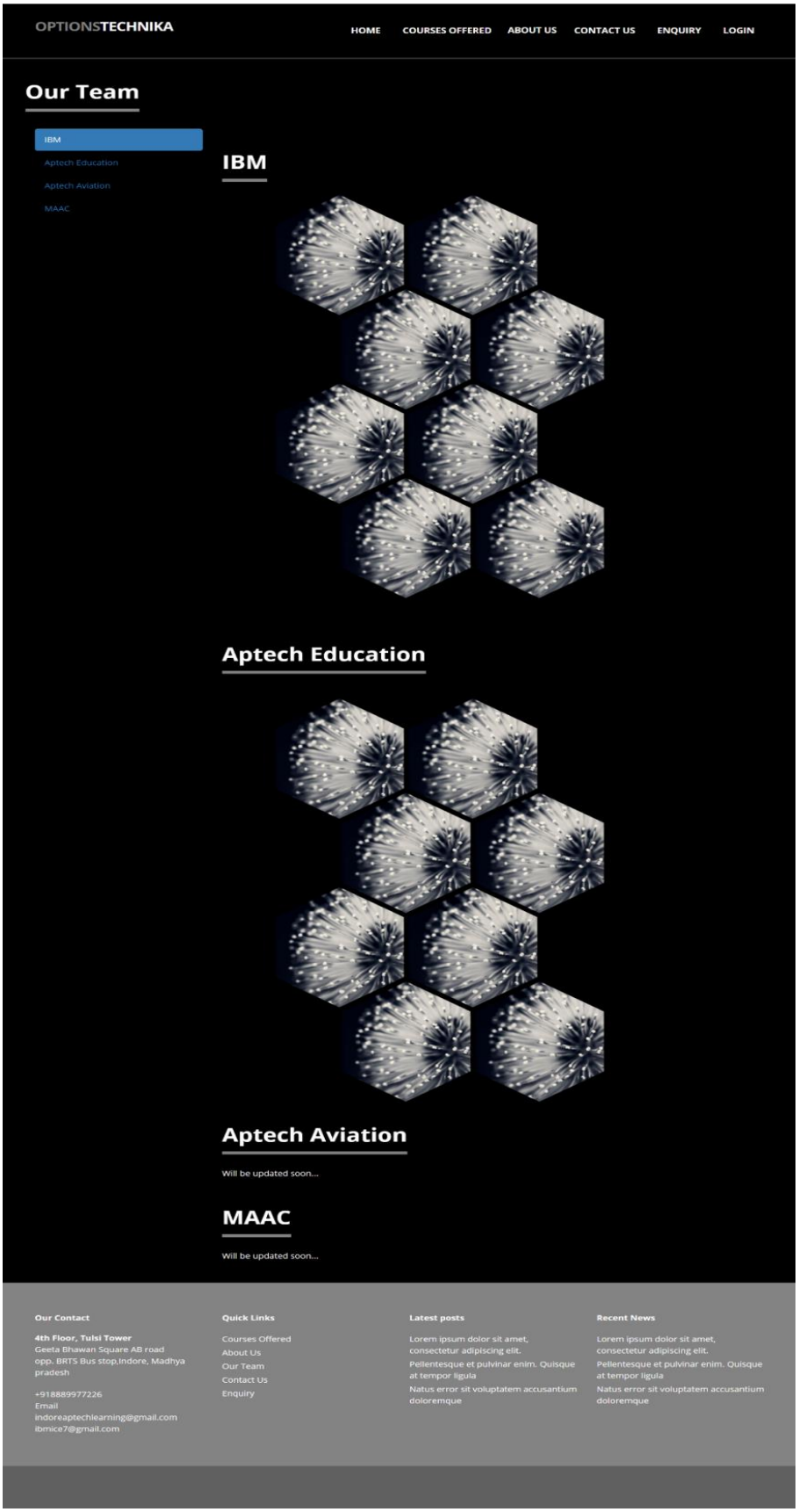

FIGURE 12.3 OUR TEAM

Contact Us: Any doubts by the user, contact us is the tab to go for. Here there will be the address information as well as the contact numbers and email ids of various people in the company using which the user can contact and ask for queries.

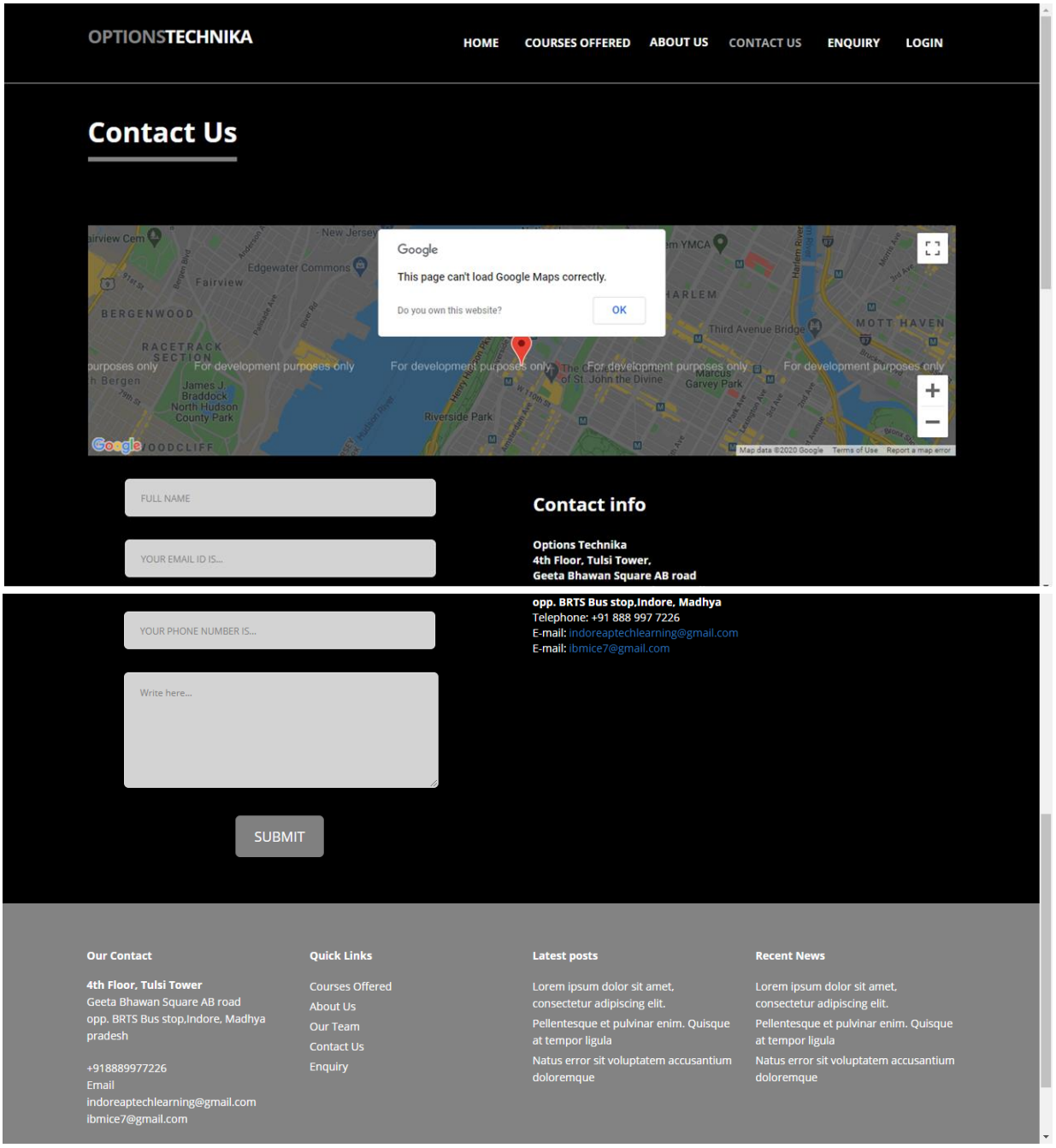

FIGURE 12.4 CONTACT US

Registration: The new users before accessing their portal have to get their registration done so as to get enrolled to the course. The details put in the registration page by the student will be stored in the database which can be used in the future as and when needed.

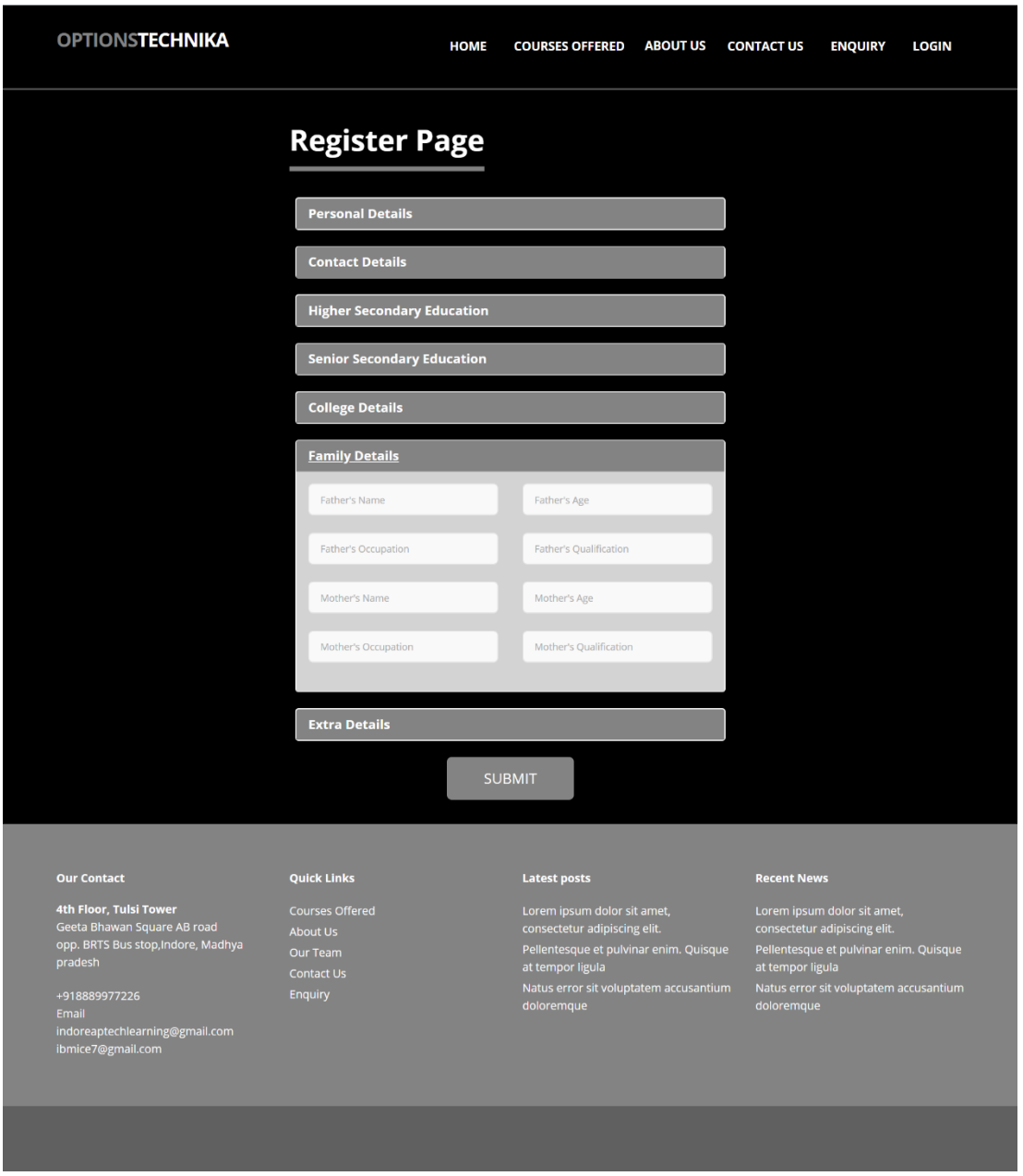

FIGURE 12.5 REGISTRATION PAGE

Counsellor Dashboard: Counsellor can update Payment Status, Confirmation Status, and can update the position.

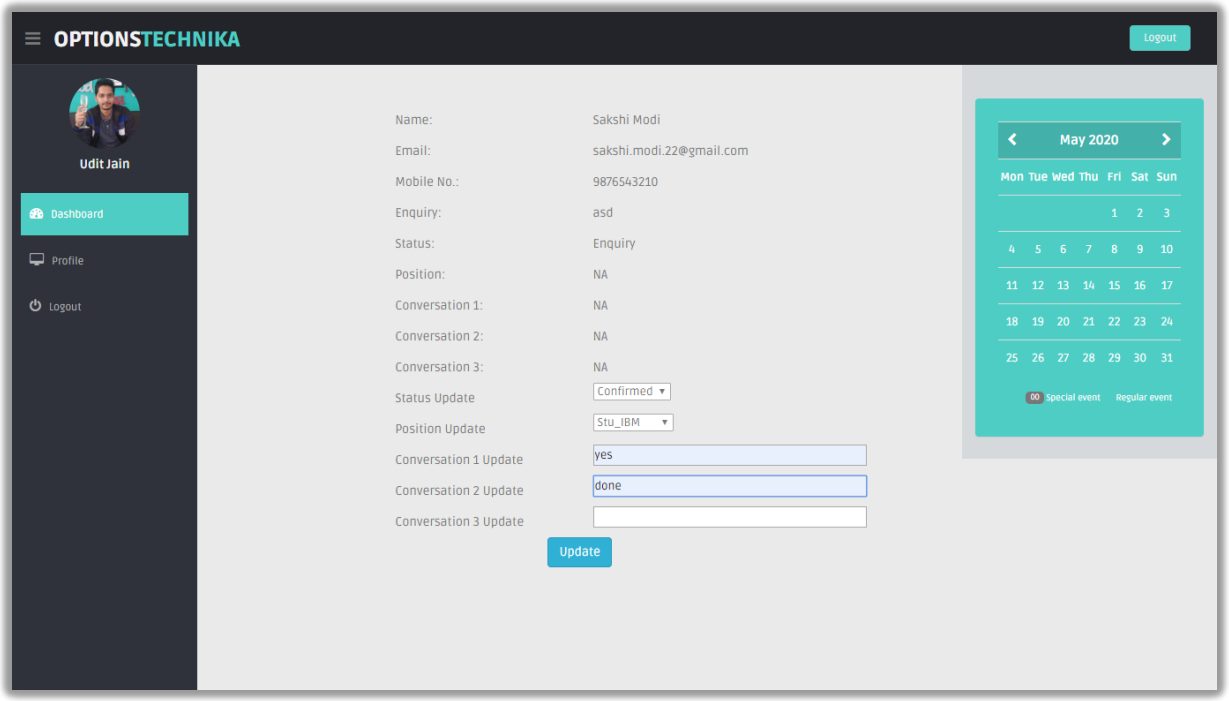

FIGURE 12.6 CONSELLOR DASHBOARD - UPDATION PAGE