Frontend Development

An Internship Report For

Course Code And Course Title: Csa-652 & Industry Internship

Credits: 14

Submitted In Partial Fulfillment Of Masters

(Mca) In Computer Application

by

LAXITA VITHAL NAIK

Seat Number: 22P0320028

ABC ID: 486725580903

PRN:20190279

Under the Mentorship of

MR. RICKY NORONHA / MR. DHIRAJ RAJPUT

Goa Business School

Department of Computer Science and Technology



GOA UNIVERSITY

Date: June 2024

DECLARATION BY STUDENT

I hereby declare that the data presented in this Internship report entitled, "Frontend

Development" is based on the results of investigations carried out by me in Online Productivity

Solutions Pvt. Ltd., under the mentorship of Mr Ricky Noronha / Dhiraj Rajput and the same has

not been submitted elsewhere for the award of a degree or diploma by me. Further, I understand

that Goa University or its authorities will not be responsible for the correctness of observations /

experimental or other findings given the internship report/work.

I hereby authorize the University authorities to upload this dissertation on the dissertation

repository or anywhere else as the UGC regulations demand and make it available to any one as

needed.

Signature and Name of Student

Seat no: 22P0320028

Date:

Place: Goa University

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OFFER LETTER

Microsoft Partner





OPSPL/PERS/62/2023-2024

15th December 2023

Ms. Laxita V. Naik Fatorda, Margao, Goa,

Sub: OFFER OF INTERNSHIP

Dear Laxita,

This is with reference to your application for an Internship with our Company and your subsequent meeting with us at our office.

We are pleased to inform you that we consider you suitable for association with the Company, as a **Software Engineering Intern**, on the following conditions:

- You will be on internship for a maximum period of six months. Your performance within the
 company and ability to assist with project work assigned to you and learn what is required of
 you efficiently and independently.
- On Internship, you will be eligible for a monthly CTC of Rs. 8,000/- (Rupees Eight Thousand Only) inclusive of all allowances and Company contributions calculated as "Cost to Company".
- On completion of the Internship period and on you meeting all required conditions to
 complete the Internship successfully, your performance will be reviewed and if found
 satisfactory, you will be offered to regularise your status in the Company.
 On Regularisation, you will be entitled to all Company facilities, incentives and increments
 thereafter, commensurate with your performance.

This offer to join for Internship is valid till 15th January 2024, latest by which day you should join.

You are advised to peruse the Company Personnel Policy for the relevant Company rules and regulations as will be applicable to your Internship.

We hope you will justify your association with us by taking this opportunity to perform your duties to the best of your ability.

Regards,

Mr. Americo (Ricky) Noronha,

Director,

for Online Productivity Solutions Pvt. Ltd.

OPSPL/PERS/62/2023-2024 Ms. Laxita V. Naik Software Engineering Intern



Terms of Internship / Job Description & Responsibilities

In the post Software Engineering Intern, you will be required to:

- Assist the in-house Teams develop custom software solutions and work on existing software solutions for our new and existing Company clients.
- Work with the tools and technologies that we use in-house to understand current IT solutions and assist with, specify and develop new solutions as required.
- Work with our in-house Support Team to plan and co-ordinate support for existing clients on Company software projects.
- As an Intern member of the Development Team, we expect that you will also be actively
 involved in the development of your knowledge on all the areas we work with here.
- · Co-ordinate with appointed in-house Guide / Project Team Leader on a regular basis.
- Assist with other areas of the Company's software projects as required.

Please note that:

- You will need to make your own travel arrangements within Goa State. For travel to places
 out of Goa State, when required for work/training, the Company will make your travel
 arrangements. For travel and/or stay at places out-of-Goa State, you will be reimbursed on
 actual expenditure (against bills for the same).
- We are Goa's foremost IT Software Solutions Company. You will need to familiarise
 yourself with and understand current Best Practices in IT Software Solutions and Services
 and the testing and implementation of the same, the solutions we develop implement and
 support for clients and the different tasks and stages therein.
- As an Intern, you will need to work towards being an IT-savvy Software professional, capable of handling software design projects with existing and new clients, to their full satisfaction. Our clients are some of the best-known names in the industry.
- As an Intern with no development experience, we do understand that you may currently have limitations to your knowledge and/or exposure to IT Solutions and support. We trust you will make every endeavour to overcome these in the shortest possible time. On our part, we will provide all the necessary inputs for you to achieve this.

Mr. Americo (Ricky) Noronha

Director,

for Ouline Productivity Solutions Pvt. Ltd.

COMPLETION CERTIFICATE

This is to certify that the internship report "Frontend Development" is a bonafide work carried

out by Ms. Laxita Vithal Naik under my mentorship in partial fulfillment of the requirements

for the award of the degree of Master in Computer Application in the Discipline of Computer

Science and Technology at the Goa Business School, Goa University.

Date:

Signature and Name of Mentor

Signature of Dean of School/HoD

School/Department Stamp

Date:

Place: Goa University

Microsoft Partner

Silver Hosting Silver Datacenter Silver Midmarket Solution Provider





INTERNSHIP CERTIFICATE

This is to certify that Ms. Laxita Vithal Naik, Student of the Goa Business School, undergoing Masters of Computer Applications has successfully completed Internship between 2nd January 2024 to 31st May 2024 and will be here till end of June 2024; at M/s Online Productivity Solutions Pvt. Ltd.

She actively participated in the activities during the period of internship and learned the skills needed for various activities such as FOSS System Front End Developer Intern.

During her training period, we have found her to be hard working and she has applied herself well to all the work that was assigned to her.

Her attendance and conduct were found to be good and she has been cooperative and sincere.

Mr. Americo B M Noronha

for **Ouline** Productivity Solutions Pvt. Ltd

Verna - Goa

Director,

Dated: 31st May 2024

Ref. No.: OPSPL/PERS/002/2024-2025

S-1, Second Floor, Casa de Alegria, Near (old) Verna Panchayat, Verna, Salcette, Goa, 403 722, India.

Mobile: (+91) 94224 39593

ACKNOWLEDGMENTS

I would like to express my sincere gratitude to Mr. Ricky Noronha, the director of OPSPL for giving me the opportunity to do my internship at his company. Despite his hectic schedule, he was kind enough to welcome me into his organization and mentor me during my internship.

I would also like to thank my mentor, Mr. Dhiraj Rajput, for his constant guidance and support, both of which have been crucial in my personal growth. He supported and guided me by offering advice on how to handle and approach various circumstances. His leadership was an incredible force that helped me finish the internship program.

I am also thankful to the rest of the OPSPL staff for their assistance and direction, which enabled me to overcome the difficulties faced during internship.

Lastly, I would like to thank my university mentor, Ms. Yma F. Pinto, for providing valuable advice and ensuring a smooth transition between my academic and the professional world. I am also grateful to Goa University for providing me with the opportunity to serve as an intern, enabling me to acquire invaluable practical knowledge. My professional development has really benefited from this internship experience, and I am thankful to everyone who helped me make it possible.

EXECUTIVE SUMMARY

This internship report summarizes my experience as an software engineering intern at Online Productivity Solutions Pvt. Ltd. It contains the details about what I have done and what practical knowledge I gained during internship.

Organization

Online Productivity Solutions Pvt. Ltd. is an Project based company that works on different projects from different clients. It has around 80 employees. It is located in the verdant South-Goan village of Verna, Salcette and offers total IT services and solutions. They Provide the highest quality services to offshore as well as domestic clients in Custom Cloud-based Systems Design and Development, App Development, Customized Software Development, Networking Solutions, IT Consultancy, Back-Office and Digital Marketing Services.

Tasks Handled

My responsibility was to contribute with the frontend development of the of the web application which involved:

- Building interactive and responsive user interfaces using React JS, AntDesign and React Bootstrap.
- Integrating APIs.
- Utilizing git for efficient code management and collaboration.
- Communicating with the back end team for effective collaboration.
- Meeting sessions with senior developers and project managers to discuss issues faced and to come up with solutions.

Learning

In this internship I got to learn React JS, AntDesign, React Bootstrap and Git, which were later used in the project. While working on the project, I was given different tasks which helped me build my problem solving skills and helped me to solve various frontend issues and bugs. With the guidance of our seniors we were trained to write an optimized code for effective development.

Challenges

The most difficult aspect of the internship was understanding the project's deep and complex concept, as well as adhering to rules and guidelines while writing the code. Aside from that, I encountered a variety of challenges and bugs while coding, which were difficult to debug but necessary to develop ways to avoid them. However, by seeking advice and assistance from seniors and utilizing available internet resources, I was able to successfully overcome these hurdles.

CHAPTER 1: ORGANISATION / COMPANY

M/s Online Productivity Solutions Pvt. Ltd.

Established in August 1995. Goa's oldest IT Solutions Company.

Duly Registered SOFTEX Company and Software Services Exporter.

1.1 Birds Eye View

Online Productivity Solutions Pvt. Ltd. is a fully Goan Information Technology company, nestled in the verdant South-Goan village of Verna, Salcette and offering total IT services and solutions.

Providing the highest quality services to offshore as well as domestic clients in Custom Cloud-based Systems Design and Development, App Development, Customized Software Development, Networking Solutions, IT Consultancy, Back-Office and Digital Marketing Services.

Incorporated in 1995 by a group of experienced IT professionals, Online Productivity Solutions Pvt. Ltd. has seen the World Wide Web grow and revolutionize the world. Committed to providing the latest and most advanced solutions to partners and clients; Online – Goa is a Microsoft Certified Partner, listed Linux, Enterprise-ready, MySQL and PostgreSQL consultant.

1.2 Products / Services

Customized Cloud based systems design, development, implementation and support.

App development across the Microsoft and FOSS development Platforms.

Outsourced system development and DevOps Solutions being provided to clients in all continents on both the Microsoft and FOSS Platforms.

Full range of Digital Marketing, SEO and SMM Services.

1.3 Sections within the Company

- → Management Team
- → Admin, Accounts and HR Team.
- → Project Management and Coordination Team
- → QA and Testing Team
- → FOSS Dev Platform:

Back End Development Team (PHP / Python)

Front End Development Team (React.Js)

→ Microsoft Dev Platform:

Back End Development Team (C#, Asp.Net, MS Azure)

Front End Development Team. (MS Azure, React.Js)

→ UI-UX and Design Team: (React.Js)

→ DevOps Team:

Microsoft Systems DevOps Team

FOSS Systems DevOps Team

→ Digital Marketing and Internet research Team

CHAPTER 2: TASK(S) HANDLED

2.1 Which Section(S) You Worked In?

During the internship, I was given the responsibility of working as a front-end developer for our project named, "Clin-ED". For this project, we were asked to design and develop responsive user interfaces (screens) using technologies like React.js, Ant Design, and React Bootstrap and had to integrate APIs to connect the front-end with back-end functionalities and implement efficient form validations.

During the development process of the "Clin-ED" project, we referred to the existing Clin-ED website as a foundation and were asked to implement new functionalities which were previously not implemented. We had to focus more on code optimization and were trained to use global functions to avoid unnecessary duplication.

2.2 Your Working Schedule (Date And Time Every Day)

Monday to Friday (5 days) 9:00 AM - 6:30 PM

2.3 Type Of Task(S) You Were Exposed To

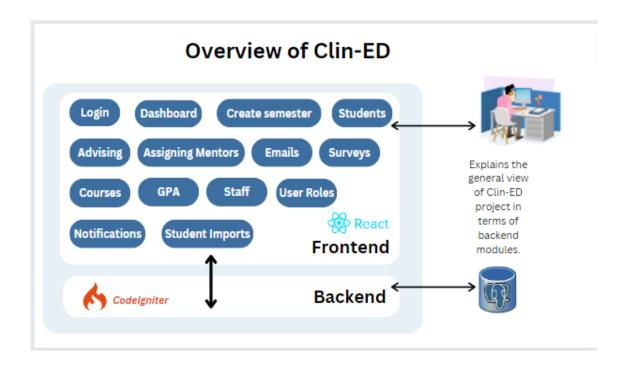
- I worked as a part of the frontend team, which entailed creating and maintaining the User Interfaces with the React JS framework, AntDesign, and React Bootstrap.
- Integrating APIs into the newly designed user interface
- I worked with version control software like git for code management.
- Used best practices for cross-browser compatibility

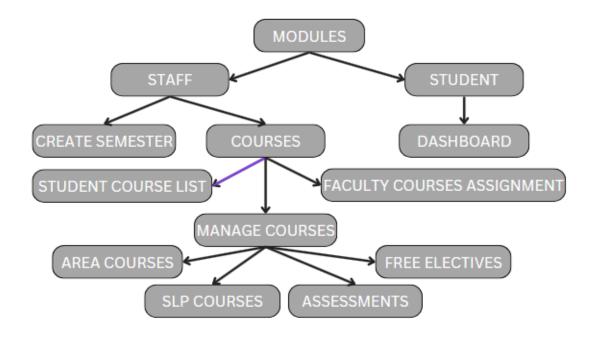
2.4 Hands-On Experience (Number Of Cases Handled)

During my internship, I worked on a project called "Clin-Ed". The "Clin-Ed" project, with the Speech Language Pathology Department of Misericordia University as the client, began in 2017 and had its educational components finished before being halted due to the COVID-19 pandemic. Following the pandemic, it was decided to restart the clinical component with new technology—CI4 on the backend and React on the frontend. To ensure smooth integration, the educational component, which was originally built using the CakePHP framework, is also being converted to the new technology(CI4 on the backend and React on the frontend).

This hands-on experience allowed me to:

- Implement unique components on a website along with specific functionality.
- Integrate different types of APIs on different types of screens.
- Implement interactive features like search filters, popups, navigation, onClick events, validations, etc.





2.5 Relationship Of The Task With The Course You Studied In The Classroom

The skills and knowledge learned in the classroom were useful during the internship in following ways:

Technologies taught during the Web Development course like JavaScript, CSS, and HTML, helped to create user interfaces and implement interactive features. During this course, we were assigned tasks and assignments that required us to create a react web application using Bootstrap. Because of this information and knowledge, I was able to work more efficiently and grasp the needs for completing the tasks assigned to me.

CHAPTER 3: LEARNING

3.1 What Did You Learn From The Practical Exposure

During my internship period, I was given different tasks for which I had to learn different technologies like React JS, Ant Design etc.

Technical Skills:

At the beginning of my internship, I was asked to learn ReactJS, AntDesign, and React Bootstrap, which was later used to implement a user interface in the project.

React JS

React is an free and open-source front-end JavaScript library that allows developers to build user interfaces based on components.

Features

- 1. **Reusability**: ReactJS allows developers to create reusable UI components, which helps to reduce the amount of code that needs to be written from scratch.
- 2. **Ease of use**: Learning react is a quick process, making it easy for developers to get started with building applications quickly.
- 3. **Performance:** React JS uses a virtual DOM (Document Object Model), which allows it to efficiently update and render UI components based on changes in application data.

AntDesign

Ant Design is a **React. js UI library** that contains easy-to-use components that are useful for building interactive user interfaces.

- Building enterprise applications: Ant Design is a good choice for building enterprise applications such as CRMs, ERP systems, and project management tools.
- 2. Building data visualization applications: Ant Design includes a wide range of data visualization components, such as charts, graphs, and maps.
- Building internationalized applications: Ant Design supports internationalization, which means that it can be used to build applications that are localized for different markets.

Problem Solving

I tackled and resolved intricate frontend bugs, improving the overall user experience and application stability.

Analyzed frontend bugs by examining browser developer tools, reviewing code, and testing different scenarios to identify the root cause of issues.

I developed adaptive layouts and flexible grid systems to ensure that the application maintained a consistent look and feel across various screen sizes and devices.

conducted First level testing on different scenarios and browsers to verify that the application did not have any bugs or issues.

Collaboration

Participated in regular meetings with the backend team to discuss API functionalities, endpoints, and data structures, ensuring clear understanding and effective integration.

Code reviews were done to identify potential issues, enforce coding standards, and suggest improvements, which helped maintain high-quality codebases.

Project Management

Regularly updated the status of tasks in the project management tools, providing visibility to the team on the progress.

Identified the resources needed for each task and ensured their availability and focused on minimizing delays.

Have You Had An Opportunity To Be Innovative In Handling Task(S)? – The Way You Introduced New Practices That Cut Short The Time Required, Enhanced Quality In The Output, Etc.

During my internship, I identified opportunities to leverage React JS's component-based architecture to promote code reusability. By creating modular components, it was easier to encapsulate specific functionalities and reuse them across different parts of the application.

I utilized props to pass data and functions between components, enabling a clear and structured data flow within the application. This approach minimized code redundancy and enhanced maintainability. This practice not only reduced code duplication but also improved the overall readability and organization of the codebase.

This approach streamlined the development process. Writing less code meant that I spent less time on repetitive tasks and more time on adding value through new features and improvements. This modularity made the codebase easier to understand, debug, and maintain, thereby improving overall code quality.

Have You Learned Something About Yourself (Your Abilities Vis-A-Vis Expectations Of Your Reporting Officer, Your Likes And Dislikes)

Initially, I wrote code that wasn't optimized, which often resulted in inefficiencies and redundancies. My mentor advised me to focus on writing more optimized and concise code. This feedback was pivotal in changing my approach to coding. This shift not only improved the performance of my code but also made it easier to maintain and understand.

Secondly, Rather than being given direct solutions to the issues I faced, I was encouraged to think independently and come up with my own solutions. This approach was supplemented by guidance and feedback from my seniors, which helped refine my problem-solving skills.

This process of self-reliance and mentorship significantly boosted my confidence. I became more comfortable tackling complex problems and proposing innovative solutions during team meetings.

Throughout the internship, I had numerous opportunities to present my ideas and progress to the team. These experiences were crucial in helping me gain confidence in public speaking and presenting technical concepts clearly and effectively.

Regular interactions with senior developers and project managers enriched my knowledge and exposed me to different perspectives and approaches to problem-solving. Their feedback and insights were invaluable in my growth.

CHAPTER 4: CHALLENGES

4.1 The Activity That You Were Unaware About

- When I started my internship, the very first challenge I faced was my lack of proper knowledge of React JS. This gap in my skills was daunting, as React JS was a core technology required for the project work. However, my mentor was incredibly supportive and understanding. Instead of immediately assigning me to project tasks, he provided me with the time and resources to learn React JS thoroughly. This initial period of focused learning was crucial, as it allowed me to build a solid foundation in React JS before diving into the project's complexities
- Secondly, to Maintain the code with Git was another significant challenge I faced at the beginning of my internship. I was unfamiliar with many Git commands and the best practices for version control. This often led to confusion and errors in managing code versions. Fortunately, my senior colleagues were incredibly supportive. They walked me through essential Git commands and shared best practices for using version control effectively. This guidance was transformative, enabling me to manage code versions confidently, collaborate more efficiently with my team, and maintain a well-organized codebase.

• When I initially started working on the project, I was completely unaware of its scope and objectives. This lack of understanding made it difficult for me to contribute effectively. To address this, I sought guidance from the director and senior team members. They provided me with a comprehensive overview of the project, explaining its goals, functionalities, and the problem it aimed to solve. This clarity allowed me to align my efforts with the project's objectives and contributed significantly to my ability to work effectively within the team.

4.2 Meeting Deadlines

- During my internship, every task we undertook required us to provide an estimated number of hours needed for completion. This practice of time estimation was crucial for project planning and resource management. We were expected to finish the tasks within the estimated time, which instilled a sense of discipline and helped us develop better time management skills.
- Occasionally, tasks proved more challenging than anticipated, and completing them
 within the estimated hours was difficult. Whenever we encountered such difficulties, we
 had to promptly report the delays to our project guide. This process of reporting was
 essential for maintaining transparency and ensuring that the project stayed on track
 despite the setbacks.

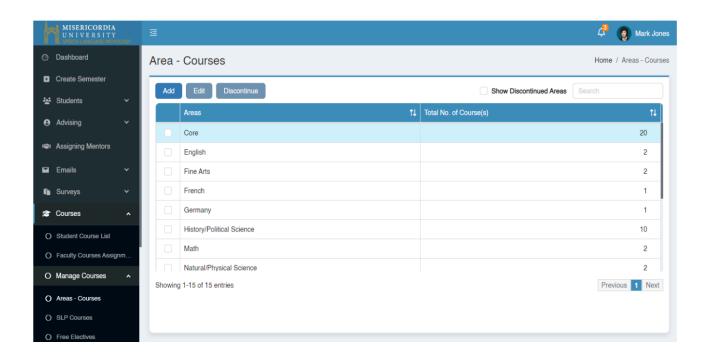
• Through this experience, I learned the importance of accurate time estimation and the need to be adaptable when unexpected challenges arise. The practice of estimating task durations not only improved my time management skills but also taught me to anticipate potential hurdles and plan for contingencies. Additionally, the support from mentors reinforced the value of teamwork and collaboration in overcoming project difficulties.

Appendix I: Samples Of The Work Done

Manage Courses:

1. Area Courses:

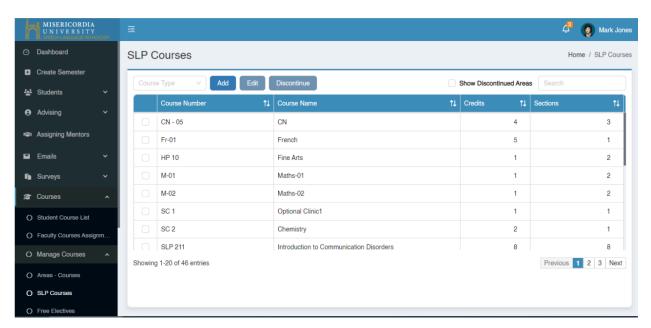
Description: This page displays a list of Area courses and under each area how many courses are there i.e total number of courses. There are 3 Buttons on top. First is Add, where you can add a new Area course to the list. This is done using API and by sending the data to be added as a payload which updates the list. Edit button is used to update existing areas. And discontinue is used to discontinue a particular area, which can be seen when the "show discontinued areas" checkbox is checked. Apart from this there is search functionality, sorting each column by ascending and descending order.



```
const payload = {
    adminid: "1",
    type: "1",
    area: removeExtraSpaces(values.area),
    total_no_courses: values.total_no_courses,
    asha_required_courses: values.asha_required_courses,
    asha course name: filteredDynamicInputs
};
fetchStaffApi('/add-course', 'POST', payload).then((res) => {
    if (res?.code === "200") {
        message.success(constants.successMessage)
        setShowAddModal(false);
        form.resetFields();
        getAllAreaList();
    }else{
        message.error(res?.message)
});
```

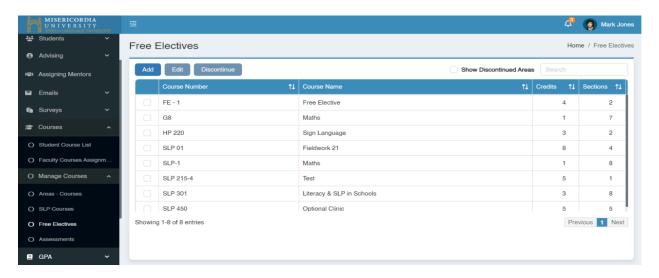
2. SLP Courses:

Description: This page displays details of courses like code, sections, name, credits etc. It has the same functionalities like Area Courses. The additional part is filter dropdown. Based on the course type the table data gets filtered.

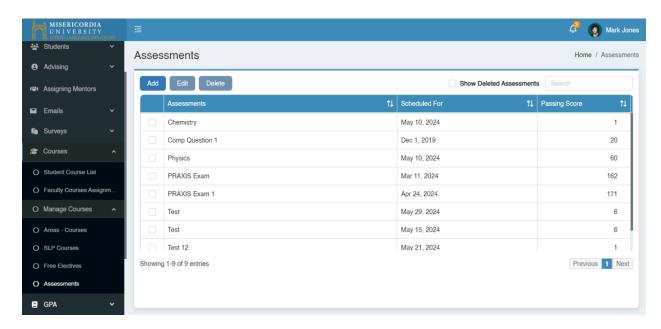


```
Row gutter={[10, 10]}
  <Col lg={12} xs={24}>
      <Space wrap>
          Select allowClear className="select-container" placeholder={constants.CourseType}
          onChange={handleDropdownTypeChange}
              {constants.dropdownOption.map(option => (
                  <Option key={option.id} value={option.id} >{option.name}
          <Button className=" text-capitalize btn-info"</pre>
              hidden={showDiscontinued}
              disabled={selectedRowKeys.length > 0 || showDiscontinued}
              onClick={handleAdd}>{constants.Add}
          <Button className="text-capitalize btn-info"</pre>
              disabled={selectedRowKeys.length === 0}
                  if (selectedRowKeys.length > 0) {
                      handleEdit();
          <Button className="text-capitalize btn-info"</pre>
              hidden={showDiscontinued}
              disabled={selectedRowKeys.length > 0 ? false : true || showDiscontinued}
              onClick={handleDiscontinue} >{constants.disconBtn}
          </Button>
```

3. Free Electives:



4. Assessments:

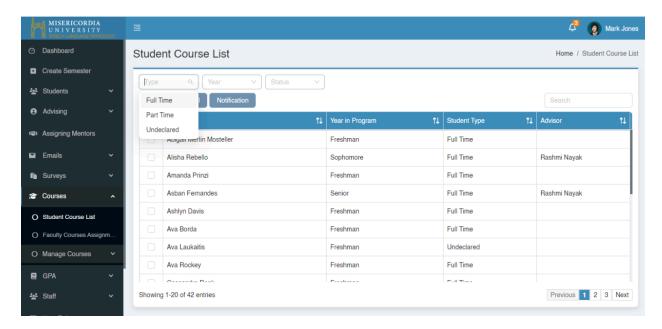


```
const handleConfirmDelete = () => {
    const payload = {
        adminid: 1,
        type: 3,
        assessment_id: record.id
    }
```

```
// Call the API to discontinue the area
fetchStaffApi('/delete-course', 'PUT', payload).then((res) => {
    if (res?.code === '200') {
        message.success(constants.DeleteSucessMessage)
        setShowDeleteModal(false);
        setSelectedRowKeys([]);
        setRecord([]);
        getAllAreaList();
    }
    else {
        message.error(constants.AddAPIError)
    }
});
}
```

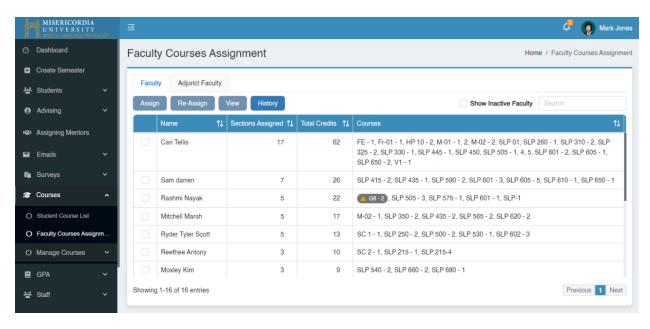
Student Course List:

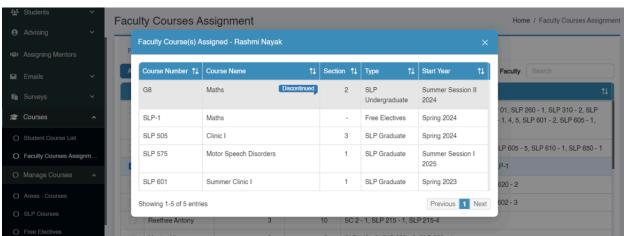
Description: Here the filtration is done by Course type, Year, and by status. Everytime any of this dropdown option is selected it would change the payload and based on payload the data gets filtered. Apart from that You can select one or multiple students and send that notification or emails individually or together for all. Notifications and emails were done by other team members yet I had to pass my data to their respective pages while selecting the students.



Faculty Course Assignment:

Description: Faculty course assignment has mainly 2 tabs, faculty and adjunct faculty. On change of tabs the respective faculty list is displayed. Assign button allows users to assign new courses to the faculty and add start year and end year for the course. Similarly if a user needs to re-assign the courses of one faculty to another then that can be done using re-assign button. View button is to see the details of courses for each selected faculty. And history allows users to see all the courses that faculty have been teaching till present semester.



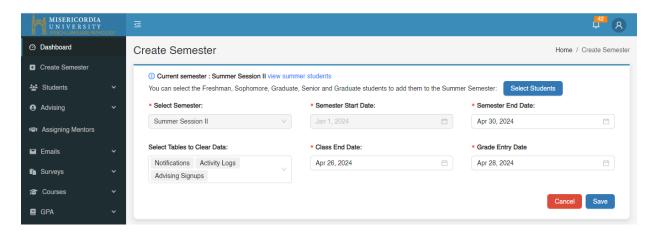


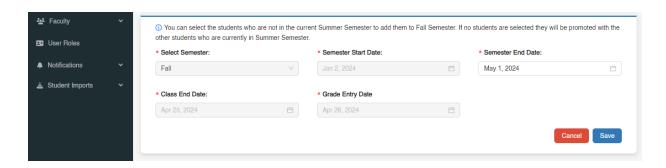
Create Semester:

Description: Initially when no semester is created, it allows users to create a new semester which is Fall, while creating you need to enter all the dates shown below. After the semester is created you can edit the dates as and when needed. If the Semester end date is over it shows you the button to end that semester and start with next semester i.e spring. Same procedure to create and end Spring semester.

Now suppose After Spring semester, some students did not do well and needed extra classes. Then there is something called "summer session 1" which can be created only after the spring semester.

While creatingSummer session 1 you need to select the students for whom you wish to take that semester. Simultaneously you can create Fall semester for the students who dont require summer sessions and are promoted to next year.





```
if (Data) {
    if (Data.latest_semester) {
        form2.setFieldsValue({
            semester_type: Data?.latest_semester_semester_start_date ? dayjs(Data.latest_semester_start_date) : null,
            semester_end_date: Data?.latest_semester.semester_end_date ? dayjs(Data.latest_semester.semester_end_date) : null,
            class_end_date: Data?.latest_semester.class_end_date ? dayjs(Data.latest_semester.semester_end_date) : null,
            grade_entry_date: Data?.latest_semester.grade_entry_date ? dayjs(Data.latest_semester.grade_entry_date) : null,
        });
    }
    if (Data.fall_semester) {
        form.setFieldsValue({
            semester_type_fall: Data.fall_semester.semester_type,
            semester_start_date: Data?.fall_semester?.semester_start_date ? dayjs(Data.fall_semester.semester_start_date) : null,
            semester_end_date: Data.fall_semester?.semester_end_date ? dayjs(Data.fall_semester.semester_end_date) : null,
            class_end_date: Data.fall_semester?.class_end_date ? dayjs(Data.fall_semester.class_end_date) : null,
            grade_entry_date: Data.fall_semester?.grade_entry_date ? dayjs(Data.fall_semester.grade_entry_date) : null,
        });
}
```

Appendix II: Photos While at Work



