PROJECT REPORT

(March 2024 – May 2024)

1. **ONLINE EXAMINATION TOOL(WEB APPLICATION).**
2. **IMAGE CROPPER (DESKTOP APPLICATION).**
3. **IMAGE MERGER (WEB APPLICATION).**
4. **PDF COMBINER (WEB APPLICATION).**
5. **CSV COMPARE (WEB DATA CONVERSION).**
6. **HYBRID TESTING SYSTEM (RESPONSIVE SITE).**
7. **TOUR VOUCHER (BITRIX24 INTEGRATION).**

TECH STACK USED:

- **FRONTEND:** React JS, Tailwind UI , Material UI.
- **BACKEND:** Node JS , Express Js ,
- **DATABASE :** MYSQL.
- **DESKTOP APPLICATION :** Electron Js
- **VERSION CONTROL:** Git Version control using Github

Acknowledgement

It is with immense pleasure that we acknowledge the invaluable contributions that led to the successful completion of this project.

Our deepest gratitude goes to **Surykant Sir and Aman Sir** for their unwavering guidance, support, and insightful expertise. Their leadership was instrumental throughout the project's lifecycle.

We extend our sincere appreciation to the entire project team. Their dedication, collaborative spirit, and unique skillsets significantly enriched the project's outcomes.

Furthermore, we recognize the essential role played by **OMR INDIA OUTSOURCES** in providing the necessary resources, facilities, and opportunities to conduct this research. Their support was paramount.

Finally, we acknowledge the invaluable contributions of the participants and stakeholders. Their generosity in sharing their time, feedback, and cooperation was instrumental in achieving our project goals.

Thank you to all for your unwavering commitment.

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1 INTRODUCTION

1.1 Project Overview

The image manipulation software is designed to process and store the digital copies of imaged in proper documented format. This project was developed following the Software Development Life Cycle (SDLC) to ensure a systematic, organized, and successful outcome.

1.2 Objectives

i. Develop a robust and scalable software application.

ii. Ensure user-friendly interface and seamless user experience.

iii. Implement secure and efficient data handling and storage.

iv. Adhere to project timelines and budget constraints.

2 SDLC PHASES

2.1 Planning.

2.1.1 Goals and Scope

The initial phase involved defining the project goals and scope. Key stakeholders were identified, and their requirements were gathered through meetings and surveys like UI requirement, image quality and main functionality.

2.1.2 Feasibility Study.

A feasibility study was conducted to analyze the technical, efficient, and operational feasibility of the project. This included resource allocation and risk analysis.

2.2 Analysis

2.2.1 Requirements Gathering

Detailed requirements were collected from stakeholders through interviews, questionnaires, and observation. The requirements were documented in a Software Requirements Specification (SRS) document.

2.2.2 Requirements Analysis

The gathered requirements were analyzed to ensure they are clear, complete, and feasible. Functional and non-functional requirements were identified and prioritized.

2.3 Design

2.3.1 System Design

The system architecture was designed based on the requirements analysis. This included the overall system architecture, data flow diagrams, and filesystem design.

2.3.2 Detailed Design

Detailed design involved creating detailed specifications for each component of the system, including user interfaces, algorithms, and data structures. Design documents were created to guide the development team.

2.4 Implementation

2.4.1 Design-Driven Development

The actual coding was meticulously crafted based on established design documents. This ensured a clear roadmap for development and minimized the risk of deviations from the planned functionalities.

2.4.2 Frontend Development with React

The project utilized JavaScript as the primary language for the frontend development. React, a popular JavaScript library, was chosen to build a user-friendly and interactive interface for the application.

2.4.3 Backend Development with Node.js

For the robust backend infrastructure, the project leveraged Node.js, a powerful JavaScript runtime environment. This choice facilitated efficient handling of server-side logic and data processing tasks.

2.4.4 Coding Standards and Best Practices

The development team prioritized adherence to established coding standards and best practices. This ensured code maintainability, readability, and overall quality throughout the project.

2.5 Testing

2.5.1 Unit Testing

- Each module was tested individually to ensure they function correctly.
- Unit tests were conducted using automated testing tools.

2.5.2 Integration Testing

Modules were integrated and tested as a complete system to ensure they work together as expected. This included testing interfaces and data flow between modules.

2.5.3 System Testing

The entire system was tested for compliance with the requirements. This included functionality testing, performance testing, security testing, and usability testing.

2.6 Deployment

2.6.1 Deployment Planning

A detailed deployment plan was created, outlining the steps for deploying the software to the production environment.

2.6.2 Deployment Execution

The software was deployed to the production environment. This phase included setting up the necessary infrastructure, configuring the environment, and migrating data.

2.7 Maintenance

2.7.1 Post-Deployment Support

After deployment, the software was monitored for any issues. Bug fixes and updates were made as necessary.

2.7.2 Continuous Improvement

Ongoing improvements were made based on user feedback and changing requirements. This included adding new features and optimizing existing ones.

3 PROJECT OUTCOME

3.1 Achievements

- Successful completion of the project within the planned timeline.
- Development of a user-friendly and efficient software application.
- Positive feedback from stakeholders during User Acceptance Testing.

3.2 Lessons Learned

- Importance of thorough requirement analysis to avoid scope creep.
- Effective communication and regular updates were crucial for stakeholder satisfaction.
- Flexibility in handling changes and issues during the development process.

4 PRODUCT DELIVERY.

4.1 Delivery Process

The delivery of the Image Manipulation and PDF Combiner software was carried out in multiple phases to ensure smooth transition and adoption by the users. Each phase included thorough testing, documentation, and user training to guarantee a successful deployment.

4.2 Version Timeline.

Version 1.0 (Online Examination Tool)

Timeline: 03 MARCH 2024 TO 06 MARCH 2024

Release Date: 06 MARCH 2024.

Key Features: Exam login, Instruction page , Examination page.

- **Exam Login:** Secure and user-friendly login process for examinees.
- **Instruction Page:** Clear and concise instructions to guide users through the examination process.
- **Initial User Interface Design:** A user-friendly interface designed to ensure ease of navigation and accessibility for users.
- **Examination Page:** A functional and intuitive interface for taking the examination.

Delivery Activities:

- **Completed Coding and Initial Unit Testing:** All planned functionalities were coded and subjected to initial unit testing to ensure each component works as intended.
- **Conducted Integration and System Testing:** Comprehensive testing was carried out to verify that the integrated components function together seamlessly and the system performs reliably.
- **Collected Feedback from Initial Users and Client:** Feedback was gathered from users and the client to identify any issues or areas for improvement.
- **Provided Initial User Training:** Training sessions were conducted to help users understand how to use the image cropper effectively.

Version 1.0 (Image Cropper)

Timeline: 07 MARCH 2024 TO 11 MARCH 2024

Release Date: 12 MARCH 2024.

Key Features: Image Uploading, Cropping.

- **Image Uploading:** Users can upload images from their local device to the application for cropping.
- **Cropping:** Basic cropping functionality that allows users to select and crop a portion of the uploaded image.
- **Initial User Interface Design:** A user-friendly interface designed to ensure ease of navigation and accessibility for users.
- **Basic Security Measures and Error Data Handling:** Implementation of fundamental security protocols to protect user data and handle errors gracefully.

Delivery Activities:

- **Completed Coding and Initial Unit Testing:** All planned functionalities were coded and subjected to initial unit testing to ensure each component works as intended.
- **Conducted Integration and System Testing:** Comprehensive testing was carried out to verify that the integrated components function together seamlessly and the system performs reliably.
- **Collected Feedback from Initial Users and Client:** Feedback was gathered from users and the client to identify any issues or areas for improvement.
- **Provided Initial User Training:** Training sessions were conducted to help users understand how to use the image cropper effectively.

Version 1.1 (Image Cropper)

TimeLine: 12 MARCH 2024 TO 16 MARCH 2024

Release Date: 16 MARCH 2024.

Key Features: Image rotation degree wise, Image folder upload.

- **Image Rotation:** Functionality added to rotate images by specified degrees.
- **Image Folder Upload:** Users can upload entire folders of images for batch processing.
- **Next and Previous Button:** Navigation buttons to move between images in a folder.
- **Initial Cropping Area Blank:** The crop box is only visible when dragged, allowing for a cleaner interface.
- **Image Saving Feature:** Added the ability to save cropped images.

Delivery Activities:

- **Completed Coding and Initial Unit Testing:** The updated features were coded and tested at the unit level to ensure they function correctly.
- **Added Transition for Moving Next and Previous Images:** Smooth transitions were implemented for better user experience.
- **Deployed to a Staging Environment on Netlify:** The application was deployed to Netlify for further user testing and feedback.
- **Collected Feedback from Initial Users and Stakeholders:** Additional feedback was obtained to refine the new features and address any remaining issues.

Version 1.2 (Image Cropper)

Timeline : 18 MARCH 2024 TO 23 MARCH 2024

Release Date: 23 MARCH 2024.

Key Features: Desktop Application for using file system of computer.

- **File Saving to Specific Directory:** Added functionality to save images to a user-specified directory within the document/uploads folder.
- **Executable File**: Generated a .exe file that can be executed on any Windows computer.
- **Desktop Application Using Electron:** Created a desktop application utilizing Electron framework for enhanced performance and offline capabilities.

Delivery Activities:

- **Automatic Increment on Saving the Image:** Added functionality to automatically increment file names when saving images to avoid overwriting.
- **Deployed to a System-Based Software:** The application was deployed as a desktop software for enhanced accessibility and performance.
- **Collected Feedback from Initial Users and Stakeholders:** Feedback was gathered to identify any issues and ensure user satisfaction.
- **Provided Initial User Training and Documentation:** Comprehensive training sessions and detailed documentation were provided
- to assist users in understanding and utilizing the desktop application effectively.

Version 1.0 (Image Merger)

TimeLine : 24 MARCH 2024 TO 31 MARCH 2024

Release Date : 31 MARCH 2024.

Key Features : Image Merger Added on Basis of row and column.

- **Basic Functionality**: Core features include routing to different pages, allowing users to easily navigate through the application and merge images based on specified rows and columns.
- **Initial User Interface Design**: A user-friendly interface designed to ensure ease of navigation and accessibility for users, facilitating a smooth experience while merging images.
- **Basic Security Measures and Data Handling**: Implementation of fundamental security protocols to protect user data, including encryption and secure data handling practices.

Delivery Activities:

- **Completed Coding and Initial Unit Testing**: All planned functionalities were coded and subjected to initial unit testing to ensure each component works as intended.
- **Conducted Integration and System Testing**: Comprehensive testing was carried out to verify that the integrated components function together seamlessly and the system performs reliably.
- **Deployed to a Staging Environment :** The application was deployed in a staging environment to allow real users to test its functionalities and provide feedback.
- **Collected Feedback from Initial Users and Stakeholders**: Feedback was gathered from users and stakeholders to identify any issues or areas for improvement.
- **Provided Initial User Training and Documentation**: Training sessions and documentation were prepared and delivered to help users understand how to use the image merger effectively.

Version 1.1 (Image Merger)

TimeLine : 31 MARCH 2024 TO 01 APRIL 2024

Release Date : 01 APRIL 2024.

Key Features : Improved quality of merged image and pdf, indexing for merged image .

- **Enhanced Merging Quality:** Improved algorithms and processing techniques to ensure that merged images and PDFs maintain the highest possible quality, preserving original resolution and details.
- **Indexing for Merged Images:** Introduction of an indexing feature to make it easier for users to locate and manage their merged images.
- **Basic Functionality:** Continued support for core features such as user registration, login, and basic data entry.
- **Initial User Interface Design**: The user interface remains user-friendly and accessible, with minor enhancements based on user feedback.
- **Basic Security Measures and Data Handling**: Ongoing commitment to security with robust data handling practices.

Delivery Activities:

- **Completed Coding and Initial Unit Testing :** The updated features were coded and tested at the unit level to ensure they function correctly.
- **Conducted Integration and System Testing:** Further testing was done to ensure that all components, including the new features, integrate well and the system operates smoothly.
- **Deployed to a Staging Environment for User Acceptance Testing (UAT):** The new version was deployed in a staging environment for further user testing and feedback.
- **Collected Feedback from Initial Users and Stakeholders:** Additional feedback was obtained to refine the new features and address any remaining issues.
- **Provided Initial User Training and Documentation:** Updated training materials and documentation were provided to assist users in understanding the enhancements and how to utilize the improved merging quality and indexing feature.

Version 1.0 (PDF combiner)

TimeLine : 02 APRIL 2024 TO 04 APRIL 2024

Release Date : 04 APRIL 2024.

Key Features : Multiple PDF Combiner Introduced.

- **Basic Functionality**: Core features include user registration, login, and basic data entry, enabling users to manage their accounts and start combining PDFs.Initial user interface design.
- **Initial User Interface Design**: A user-friendly interface designed to ensure ease of navigation and accessibility for users, facilitating a smooth experience.
- **Basic Security Measures and Data Handling**: Implementation of fundamental security protocols to protect user data, including encryption and secure login mechanisms.

Delivery Activities:

- **Completed Coding and Initial Unit Testing:** All planned functionalities were coded and subjected to initial unit testing to ensure each component works as intended.
- **Conducted Integration and System Testing:** Comprehensive testing was carried out to verify that the integrated components function together seamlessly and the system performs reliably.
- **Deployed to a Staging Environment for User Acceptance Testing (UAT):** The application was deployed in a staging environment to allow real users to test its functionalities and provide feedback.
- **Collected Feedback from Initial Users and Stakeholders**: Feedback was gathered from users and stakeholders to identify any issues or areas for improvement.
- **Provided Initial User Training and Documentation**: Training sessions and documentation were prepared and delivered to help users understand how to use the PDF combiner effectively.

Version 1.1 (PDF combiner)

TimeLine : 05 APRIL 2024 TO 13 APRIL 2024

Release Date : 13 APRIL 2024.

Key Features : Increased quality of Merged PDF.

- **Basic Functionality**: Continued support for core features such as user registration, login, and basic data entry.
- **Initial User Interface Design**: The user interface remains user-friendly and accessible, with minor enhancements based on user feedback.
- **Basic Security Measures and Data Handling**: Ongoing commitment to security with robust data handling practices.

Delivery Activities:

- **Completed Coding and Initial Unit Testing**: The updated features were coded and tested at the unit level to ensure they function correctly.
- **Conducted Integration and System Testing**: Further testing was done to ensure that all components, including the new features, integrate well and the system operates smoothly.
- **Collected Feedback from Initial Users and Stakeholders**: Additional feedback was obtained to refine the new features and address any remaining issues.
- **Provided Initial User Training and Documentation**: Updated training materials and documentation were provided to assist users in understanding the enhancements and how to utilize the improved PDF merging quality.

Version 1.0 (CSV Compare)

Timeline: 15 APRIL 2024 TO 22 APRIL 2024

Release Date: 22 APRIL 2024.

Key Features: CSV upload, Comparing CSV for mult and different data.

- **CSV Upload:** Users can upload CSV files from their local device for comparison.
- **Comparing CSV for Multiple and Different Data:** Functionality to compare multiple CSV files and identify differences and similarities in the data.
- **Initial User Interface Design:** A user-friendly interface designed to ensure ease of navigation and accessibility for users.
- **Basic Security Measures and Error Data Handling:** Implementation of fundamental security protocols to protect user data and handle errors gracefully.

Delivery Activities:

- **Completed Coding and Initial Unit Testing:** All planned functionalities were coded and subjected to initial unit testing to ensure each component works as intended.
- **Conducted Integration and System Testing:** Comprehensive testing was carried out to verify that the integrated components function together seamlessly and the system performs reliably.
- **Collected Feedback from Initial Users and Client:** Feedback was gathered from users and the client to identify any issues or areas for improvement.
- **Provided Initial User Training:** Training sessions were conducted to help users understand how to use the image cropper effectively.

Version 2.0 (CSV Compare)

Timeline: 25 APRIL 2024 TO 10 MAY 2024

Release Date: 10 MAY 2024.

Key Features: Task Assigning ,Blanks Finding in Form Fields.

- **Task Assigning:** Allows users to assign tasks based on the CSV comparison results, facilitating workflow management and collaboration.
- **Blanks Finding in Form Fields:** Identifies and highlights blank or missing entries in form fields within the CSV files, ensuring data completeness and accuracy.

Delivery Activities:

- **Completed Coding and Initial Unit Testing:** All planned functionalities were coded and subjected to initial unit testing to ensure each component works as intended.
- **Conducted Integration and System Testing:** Comprehensive testing was carried out to verify that the integrated components function together seamlessly and the system performs reliably.
- **Collected Feedback from Initial Users and Client:** Feedback was gathered from users and the client to identify any issues or areas for improvement.
- **Provided Initial User Training:** Training sessions were conducted to help users understand how to use the image cropper effectively.

Version 1.0 (Hybrid Testing System)

Timeline: 11 MAY 2024 TO 18 MAY 2024

Release Date: 18 MAY 2024.

Key Features: Side menu and page content mobile and tablet responsive.

- **Side Menu Mobile and Tablet Responsive:** Ensures the side menu adapts seamlessly to different screen sizes, providing a consistent user experience on both mobile devices and tablets.
- **Page Content Mobile and Tablet Responsive:** Ensures that all page content is fully responsive, allowing users to access and interact with the system efficiently on mobile devices and tablets.
- **User Interface Design:** A user-friendly interface designed to ensure ease of navigation and accessibility for users.

Delivery Activities:

- **Completed Coding and Initial Unit Testing:** All planned functionalities were coded and subjected to initial unit testing to ensure each component works as intended.
- **Conducted Integration and System Testing:** Comprehensive testing was carried out to verify that the integrated components function together seamlessly and the system performs reliably.
- **Collected Feedback from Initial Users and Client:** Feedback was gathered from users and the client to identify any issues or areas for improvement.

Version 1.0 (Bitrix24 integration in tour voucher application)

Timeline: 18 MAY 2024 TO 25 MAY 2024

Release Date: 25 MAY 2024.

Key Features: Bitrix authentication and authorization, user api for determining admin or employee.

- **Bitrix Authentication and Authorization:** Integration of Bitrix24 for secure user authentication and authorization, ensuring that only authorized users can access the tour voucher application.
- **User API for Determining Admin or Employee:** Implementation of an API to determine if a user is an admin or an employee, enabling role-based access control and functionality within the application.
- **Basic Security Measures and Error Data Handling:** Implementation of fundamental security protocols to protect user data and handle errors gracefully.

Delivery Activities:

- **Completed Coding:** All planned functionalities were coded and subjected to initial unit testing to ensure each component works as intended.
- **Conducted Integration and System Testing:** Comprehensive testing was carried out to verify that the integrated components function together seamlessly and the system performs reliably.
- **Collected Feedback from Initial Users and Client:** Feedback was gathered from users and the client to identify any issues or areas for improvement.

5 Project Roles and Responsibility.

5.1 Online Examination Tool.

UI Design

- Login UI with submit button.
- Proper instruction page with start test.
- Developed intuitive and visually appealing user interfaces

Functionality

- Timer added on start test.
- Saving answer status with skip func.
- Navigation to multiple question added.
- Accessibility Features like key integration

5.2 Image Cropper Module.

UI Design

- Drag and drop UI added.
- Necessary input field added.
- Developed intuitive and visually appealing user interfaces

Functionality

- Drag and drop functionality added.
- Rotation and Edit business logic added.
- Navigation to multiple image added.
- Aspect Ratio Locking
- Accessibility Features like key integration

5.3 Image Merger Module

Functionality

- Quality improved of merged image using image processing libraries and adjusting ratios.
- Downloadable Pdf of merged image without decreasing the quality.
- Indexing of image as shown on merger grid.

5.4 CSV Compare Module

UI Design

- Csv uploader and image uploader.
- Necessary input field added.
- Developed intuitive and visually appealing user interfaces

Functionality

- Image and csv upload logic.
- Two csv comparison and finding mult and blank.
- Developed Task assigning to user and correction done by user.

5.5 PDF Combiner Module.

UI design

- Interactive design using bootstrap.
- Multiple PDF uploader.
- Develop intuitive and visually appealing user interfaces

Functionality

- Combination logic for combining pdf.
- Showing combined PDF with best quality.
- Download logic for the combined pdf.

5.6 Hybrid Testing System.

UI design

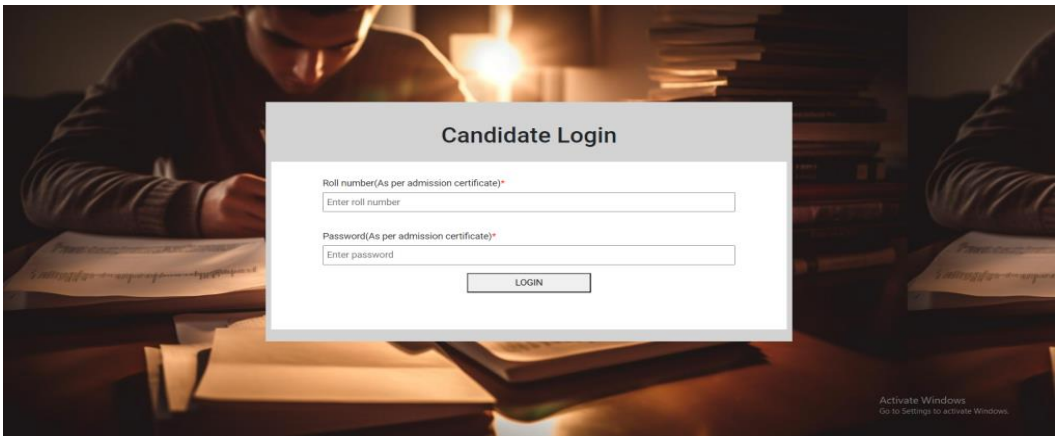
- Interactive design using bootstrap.
- Side Menu different in tablet and mobile.
- Develop intuitive and visually appealing user interfaces

5.7 Tour Voucher.

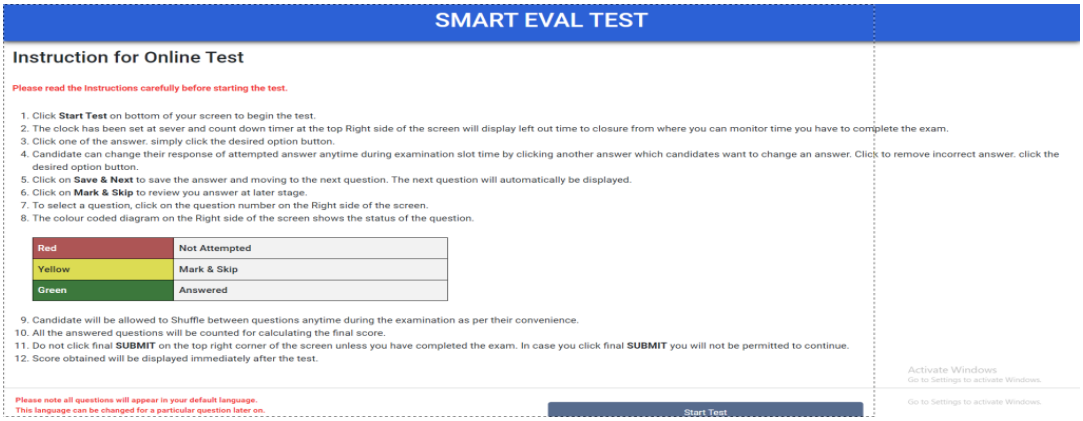
- Authentication and authorization using Bitrix24.
- User determination API for administrator or employee.

6 List of figures.

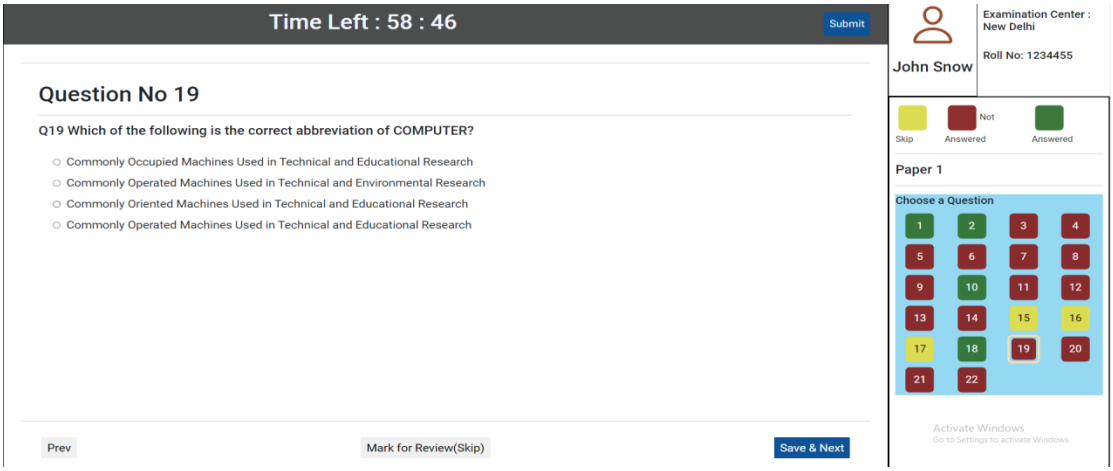
6.1 IMAGES OF ONLINE EXAMINATION TOOL



LOGIN PAGE

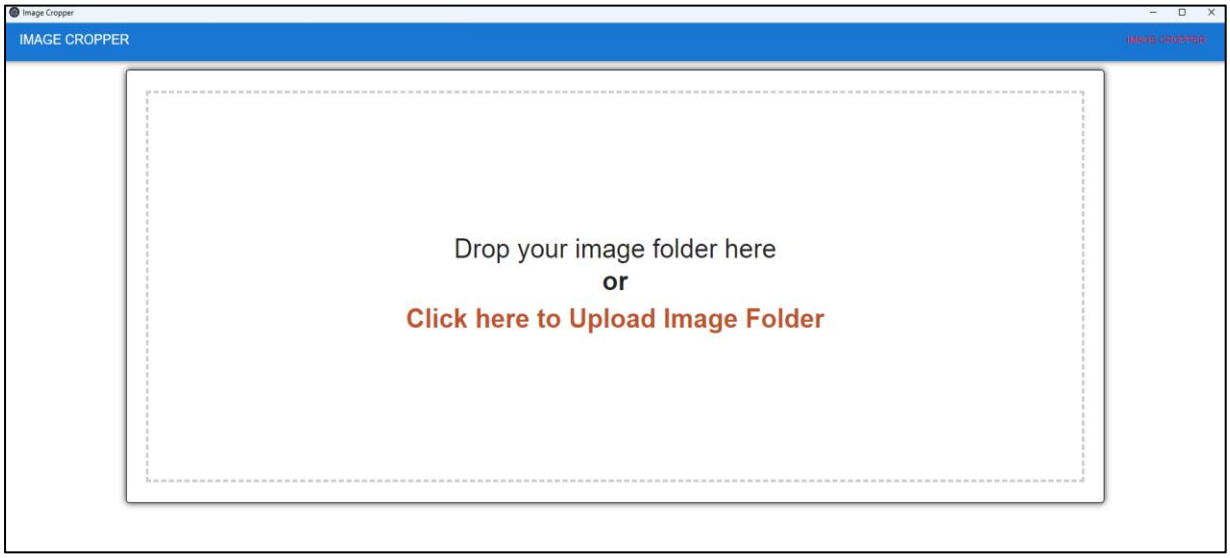


INSTRUCTION PAGE

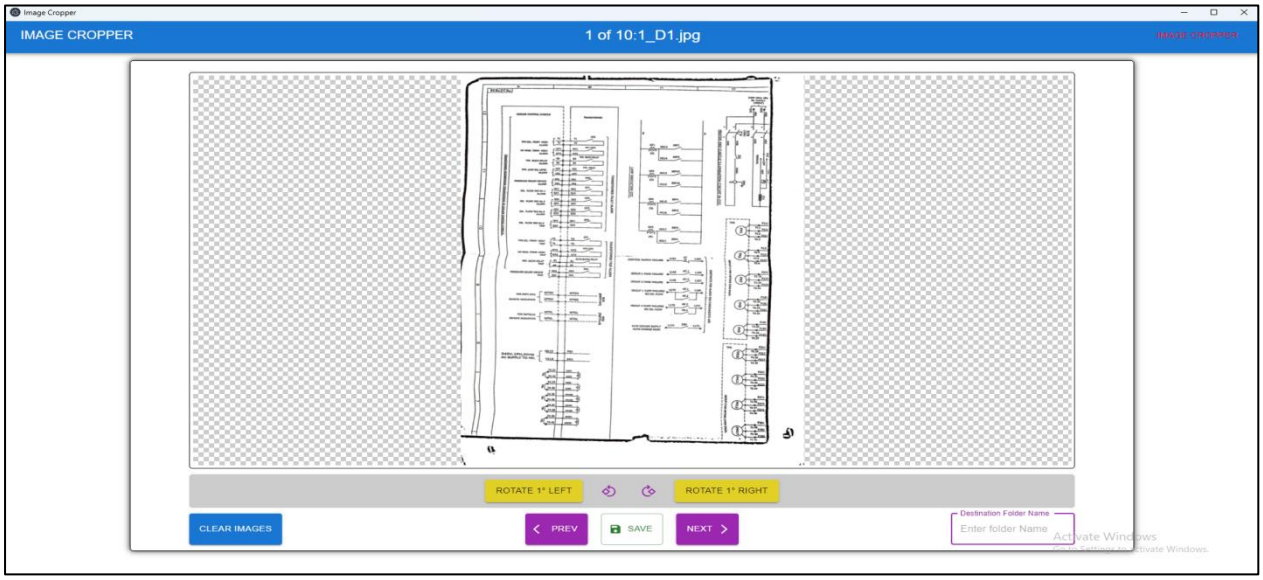


EXAMINATION PAGE

6.2 IMAGES OF IMAGE CROPPER

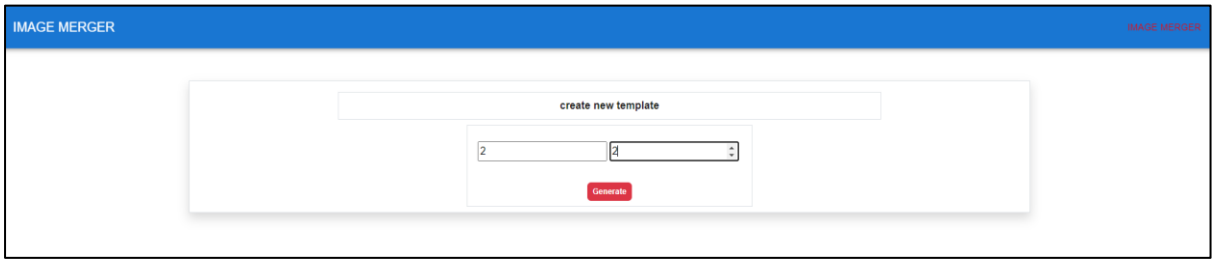


Homepage of Image cropper

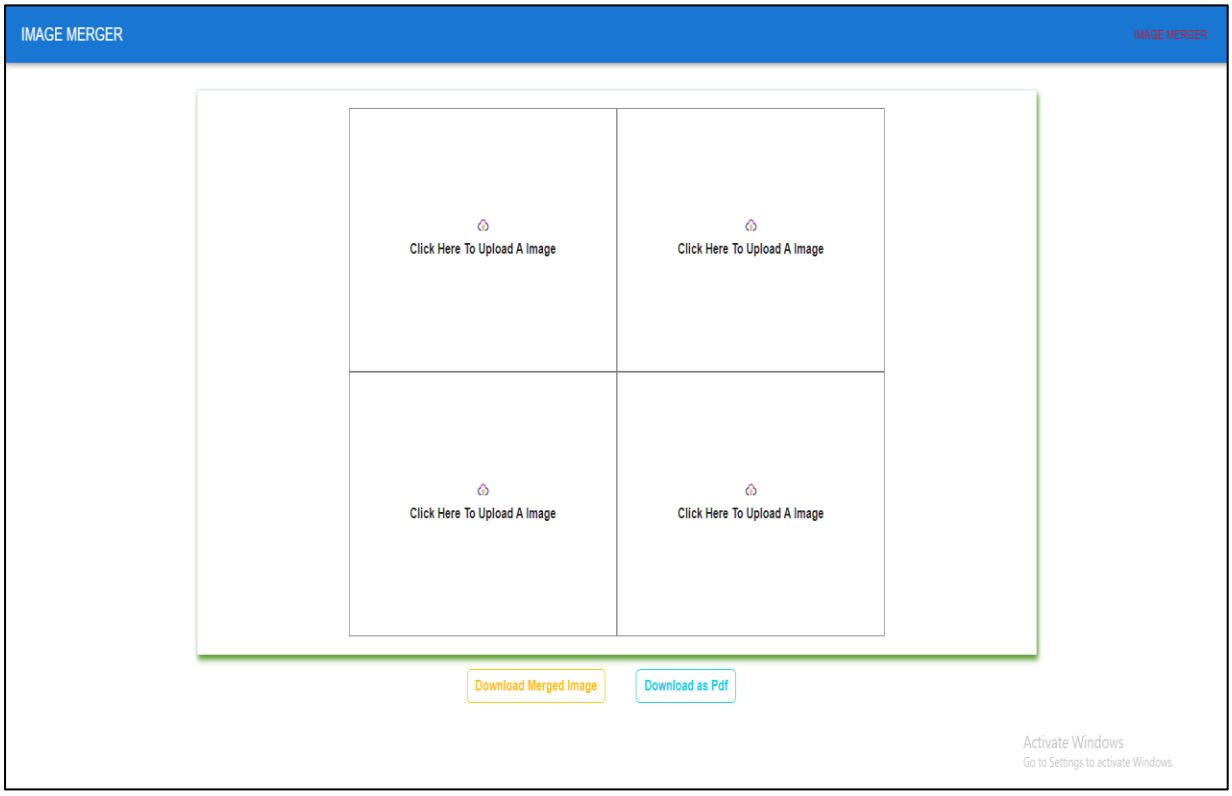


IMAGE_EDITOR_PAGE

6.3 IMAGES OF IMAGE MERGER.

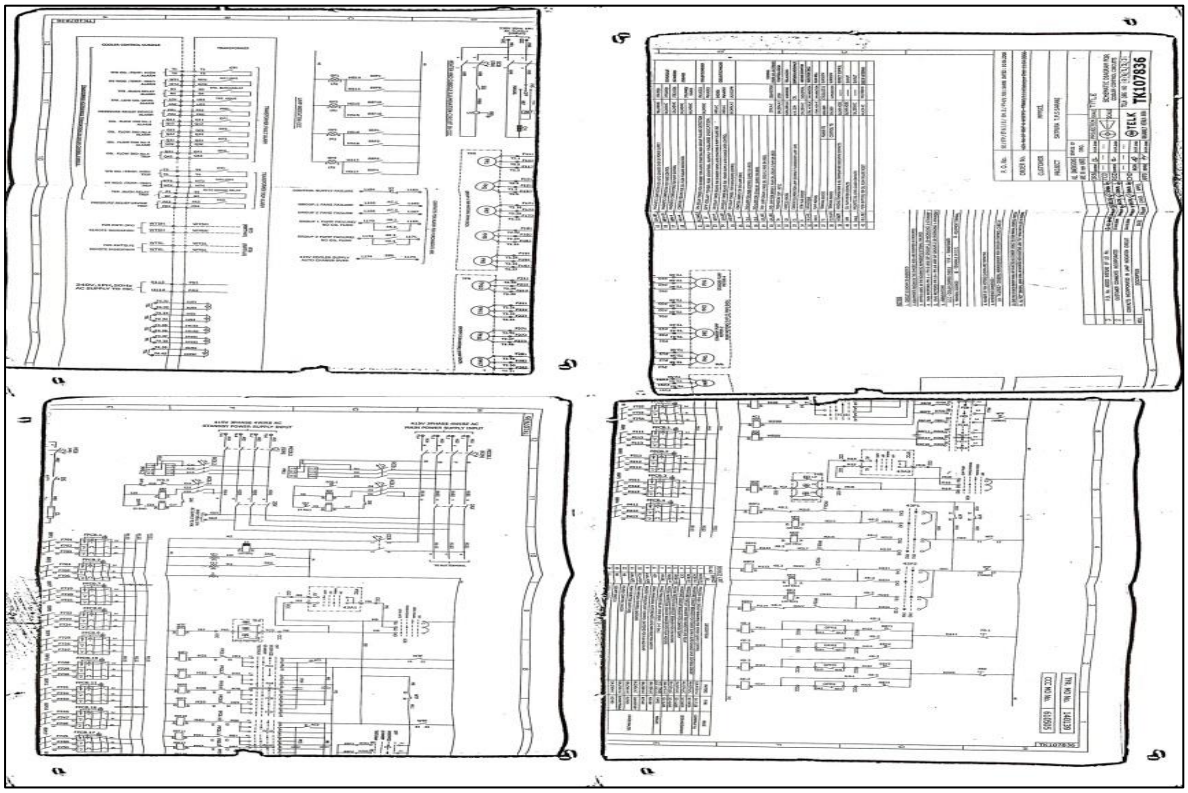


LANDING PAGE

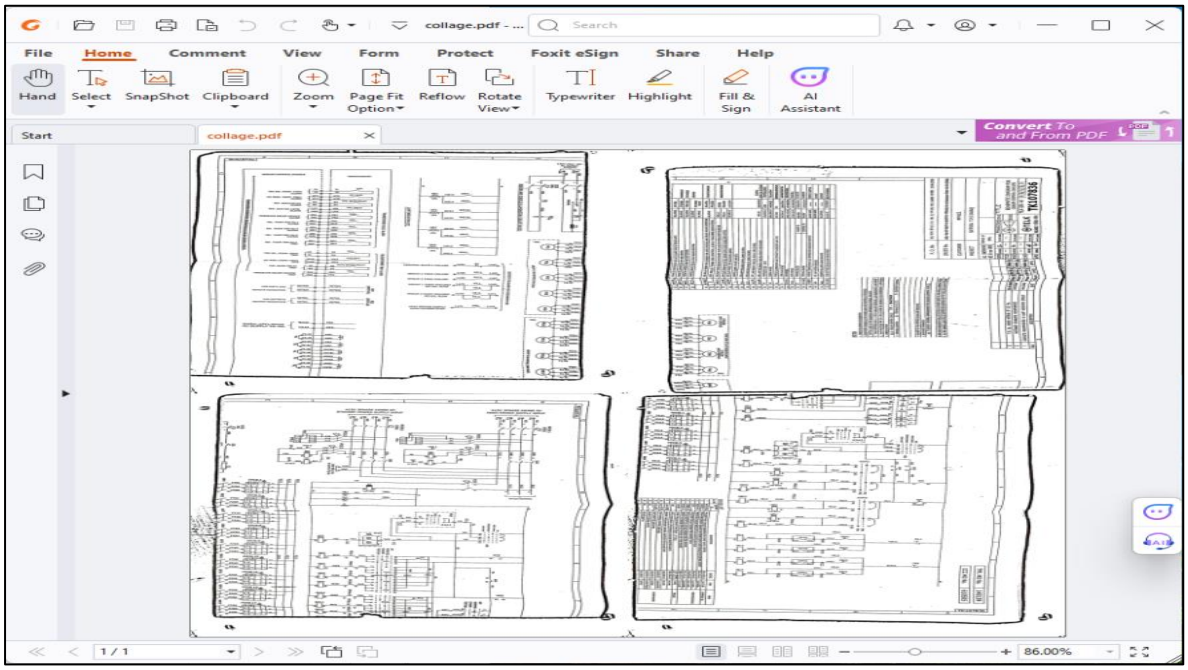


MERGER PAGE

SAMPLE OUTPUT DATA



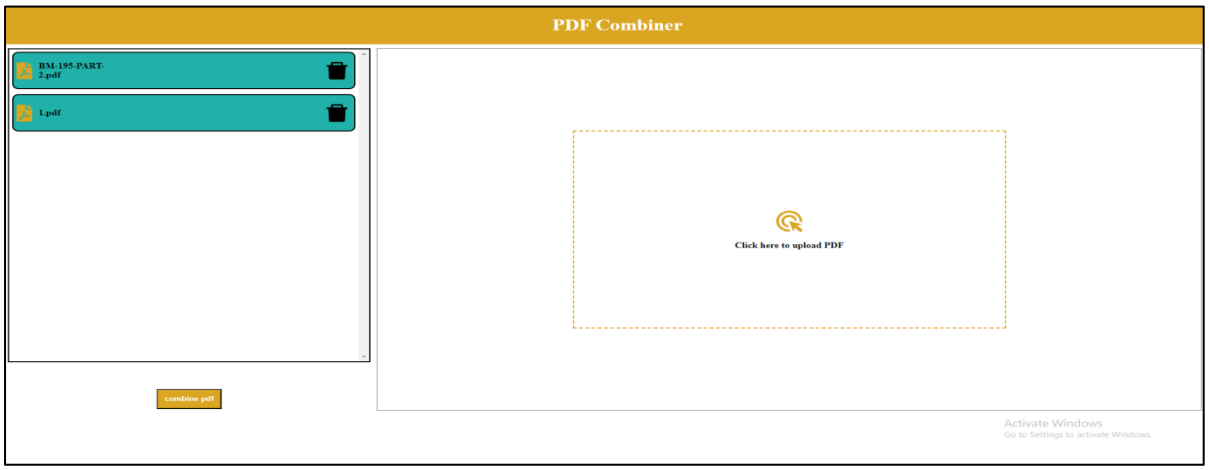
MERGED JPG FILE



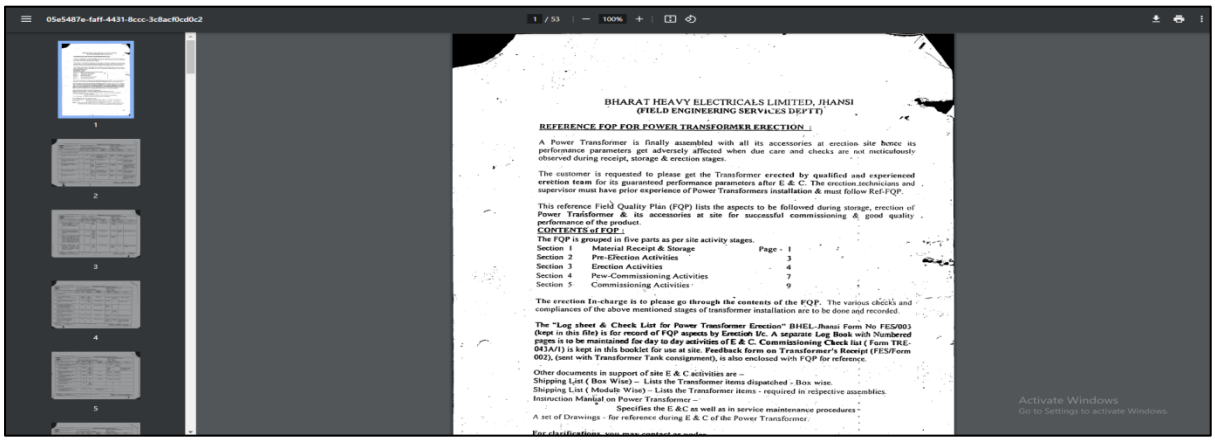
MERGED PDF FILE

6.4 IMAGES OF PDF COMBINER

LANDING PAGE

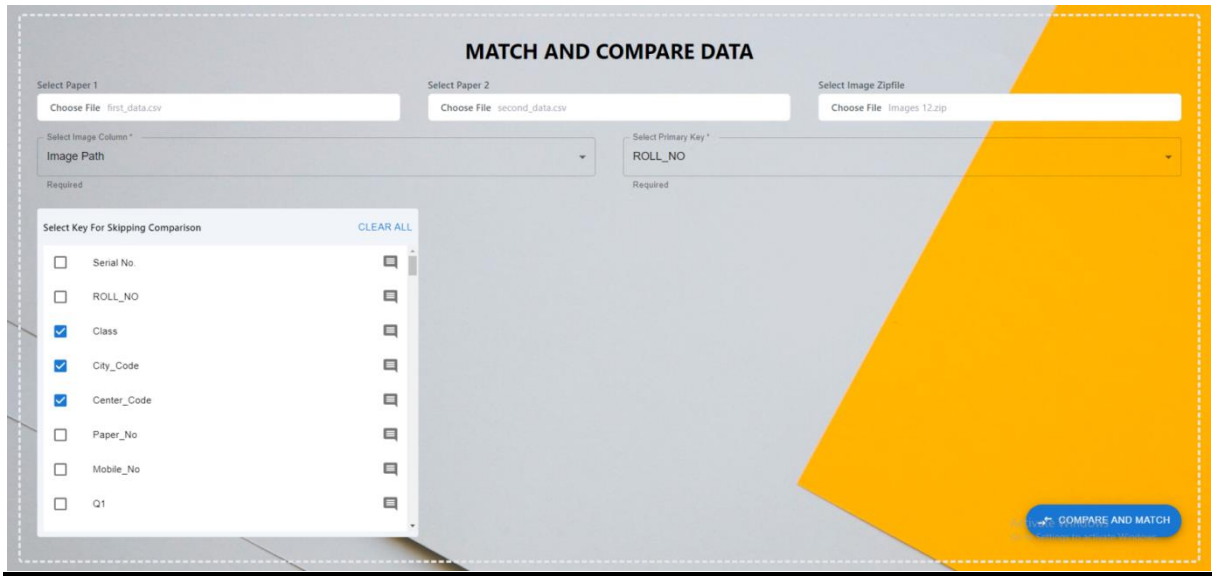


PDF UPLOADED FILE SECTION

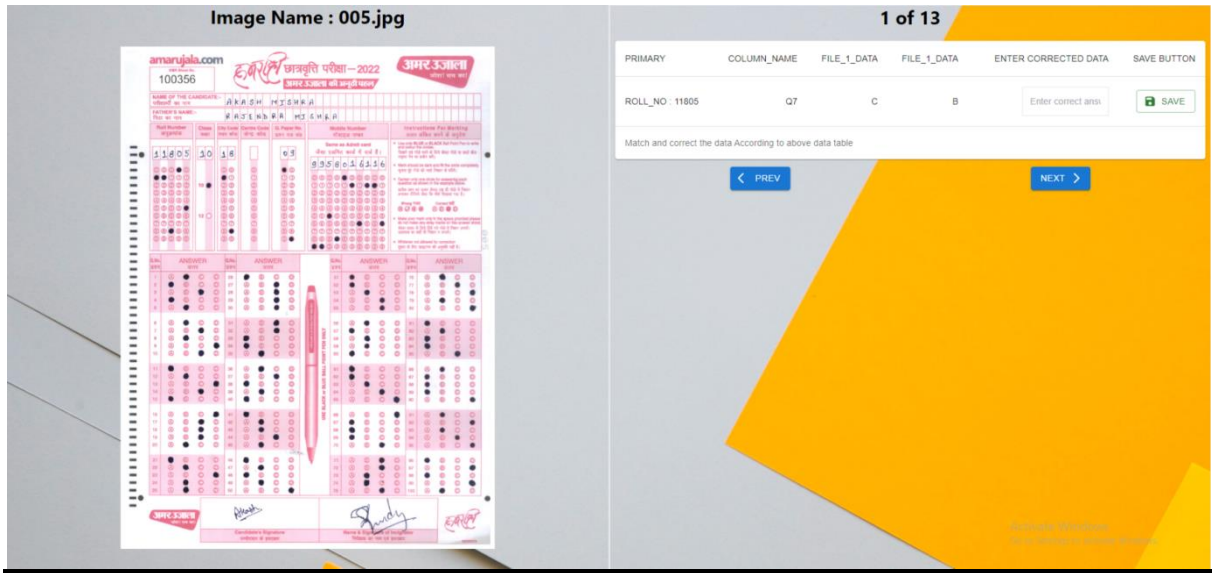


MERGED PDF

6.5 IMAGES OF CSV COMPARER.



LANDING PAGE OF CSV COMPARER



CSV CORRECTION PAGE

7 Conclusion

The Image Manipulation and PDF Combiner project has culminated in the successful delivery of a high-quality software application. This achievement is attributed to the meticulous application of a robust Software Development Lifecycle (SDLC) methodology. By adhering to this structured framework, we ensured the application effectively fulfills the established requirements of our stakeholders.

The chosen SDLC methodology provided a comprehensive development roadmap, encompassing critical phases such as meticulous planning, design iteration, controlled development, rigorous testing, and strategic deployment. This comprehensive approach not only guaranteed the application's functionality but also fostered a collaborative and transparent development environment within the team.

The resulting software application offers a user-centric and efficient solution for image manipulation and PDF combination tasks. However, the development team acknowledges the paramount importance of continuous support and maintenance. We are firmly committed to ensuring the application's sustained effectiveness and ongoing relevance through the implementation of regular updates, the prompt resolution of identified issues, and the potential incorporation of future features based on user feedback and evolving stakeholder needs.

This project stands as a testament to the team's unwavering dedication to delivering high-caliber software solutions. Through the consistent application of best practices in software development and project management, we have not only delivered a valuable tool but also established a solid foundation for its continued success and positive impact on its intended users.

8 References.

- **Online Resources:**

  - [1]**Stack Overflow:** https://stackoverflow.com/ (Website offering solutions and discussions on various programming problems)
  - [2]**ChatGPT:** https://chat.openai.com/ (Large language model chatbot developed by OpenAI)
  - [3]**React.js Documentation:** https://legacy.reactjs.org/docs/getting-started.html (Official documentation for the React JavaScript library)
  - [4]**Node.js Documentation:** https://nodejs.org/docs/latest/api/ (Official documentation for the Node.js JavaScript runtime environment)
  - [5]**MDN Web Docs (Mozilla Developer Network):** https://developer.mozilla.org/index.html (Comprehensive documentation on web development technologies by Mozilla)

- **Additional Resources:**

  - [5]Kumar Gaurav *(expense tracker)*(Internal Document). (Group Chat Application)