PractiEase HUB:

A DIGITALIZED PRACTICUM COMPLETION SYSTEM

In partial fulfillment in the course (35944)

Provided By:

ICTe Solutions

TABLE OF CONTENTS

4. Database management

5. Reliable performance

6. Data backup and recovery

7. Scalability

8. Analytics and reporting

C. Functional Requirements

1. User registration and authentication

2. Profile management

3. Practicum requirement and submission

4. Profiling section customization

5. Queue management

6. Report generation

7. Search and retrieval

8. Role-based access control

Section 3: Project Deliverables

A. Software application

B. User manual

C. Technical documentation

D. Source code

E. Training

F. Deployment

G. Project reports

1. Project status report

2. Project closeout report

3. Meeting minutes

4. Budget report

5. Resource utilization report

6. Risk management report

7. Quality assurance report

Section 4: Project Methodology

A. **Agile method**

B. **Project management software**

C. **Communication plan**

Section 5: Technical Requirements

A. **Hardware requirements**

B. **Software requirements**

C. **Network requirements**

Section 6: User Interface Design

A. **Overview of the project**

B. **Purpose of the SOW**

C. **Project Requirements**

Section 7: Database Design

A. **Objectives**

B. **Guidelines of design**

C. **Elements of a database**

D. **Information shifting strategy**

Section 8: Testing and Quality Assurance

A. **Overview**

B. **Methods of testing**

1. Unit testing

2. Integration testing

3. System testing

4. Acceptance testing

5. Performance testing

6. Security testing

7. Regression testing

8. Usability testing

9. Exploratory testing

10. Continuous testing

C. **Test types**

1. Functional testing
2. Non-functional testing
3. Performance testing
4. Security testing
5. Usability testing
6. Regression testing
7. User acceptance testing (UAT)
8. Compatibility testing
9. Exploratory testing
10. Automated testing
11. Data migration testing

D. Information shifting strategy
1. Hardware requirements
2. Software requirements

E. Quality Assurance Measures

Section 9: Project Schedule

Section 10: Project Budget

Section 11: Project Management and Team Structure

Section 12: Conclusion

Section I: Introduction

A. Overview of the project

Introducing the PractiEase Hub: A Digitalized Practicum Completion System, a cutting-edge online tool created to simplify the practicum requirement submission process. Our objective is to provide a more practical and effective means of managing and transmitting important information for practicum instructors and students, in response to the difficulties presented by conventional submission methods.

Our system is designed to enable the quick transmission of practicum requirements and includes an adaptable area for student profiling that can hold extensive data. The main goal is to get rid of wait traffic so that practicum teachers and students have an uninterrupted experience.

In addition to the convenience our system offers, our application is user-friendly, with a straightforward user interface that greatly simplifies submission and profiling.

Embrace innovation, save time, and embark on a hassle-free practicum completion journey with the PractiEase Hub.

B. Purpose of SOW

The aim of this Statement of Work (SOW) is to articulate the project's objectives, deliverables, and milestones. This document serves as a crucial tool to minimize misunderstandings, mitigate risks, and guarantee the timely, within-budget, and satisfactory delivery of the upcoming project involving ICTe Solutions and our stakeholders Mr. Joseph Pusing and Ms. Denise Punzalan. Functioning as a project roadmap, the SOW delineates the essential components that will steer the project's development, implementation, and completion.

Recognized as a pivotal document, the SOW establishes the groundwork for the successful execution of the project. It imparts a lucid comprehension of the project's goals, objectives, and the services to be provided by the service provider. This clarity ensures that all involved parties share a common understanding of expectations, fostering effective collaboration to attain the desired project outcomes.

Moreover, the SOW assumes a critical role in contract negotiation, project planning, and management. It will serve as a constant reference throughout the project's lifecycle, promoting alignment among all parties and ensuring the project adheres to its defined trajectory. Through

a comprehensive definition of the project scope, this document contributes to the coordination and success of all involved parties.

C. Project requirements:

I. User Authentication and Authorization:

- Implement a secure and user-friendly authentication system to verify the identity of students and practicum instructors.
- Define user roles with appropriate permissions to ensure data confidentiality and system integrity.

II. Practicum Requirement Submission:

- Develop a feature allowing students to submit practicum requirements through an intuitive and easy-to-use interface.
- Include the ability to upload documents, enter textual information, and provide any other necessary details.

III. Requirement Access:

- Include the ability to access the documents through browser view and downloads.

IV. Flexible Profiling Section:

- Design a profiling section that allows students to input comprehensive information about themselves, including academic details, contact information, and relevant skills.

V. Queue Management and Status:

- Implement a queue management system to organize and prioritize submitted practicum requirements.
- Provide real-time status updates to users regarding the processing of their submissions.

VI. Contacts:

- Provide contact information for each assigned practicum teacher
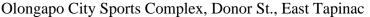
VII. Responsive design:

- Platform should be optimized for desktop and mobile devices, with a responsive design that adjusts to different screen sizes and resolutions.

VIII. Security:

- Possesses robust security measures in place to protect student and practicum teacher data.

IX. Reporting and Analytics:

- Incorporate reporting tools to generate analytics on system usage, submission trends, and other relevant metrics.

Section 2: Project Objectives

A. Business Objectives

The following are the technical goals of the practicum submission platform for ICTe Solutions:

I. Cost Management:

- The system development and implementation should be cost-effective, aligning with the budget constraints of the educational institution.

II. Return on Investment (ROI):

- The system should demonstrate a positive return on investment by improving efficiency, reducing administrative costs, and enhancing overall practicum management. III. User Adoption:

- Ensure high user adoption rates by providing a system that is intuitive, user-friendly, and meets the needs and expectations of both students and practicum instructors.

IV. Efficiency and Time Savings:

- The system should significantly reduce the time and effort required for practicum requirement submission, processing, and management, contributing to increased efficiency.

V. Customer Satisfaction:

- Measure and enhance customer satisfaction by gathering feedback from users and addressing any concerns or suggestions for improvement.

VI. Competitive Advantage:

- The system should provide the educational institution with a competitive advantage by offering a more advanced and streamlined practicum completion process compared to traditional methods.

VII. Integration with Existing Systems:

- Ensure seamless integration with existing systems and tools used by the educational institution, such as student information systems, to facilitate data exchange and continuity.

VIII. Continuous Improvement:

- Establish mechanisms for continuous improvement, including regular updates and enhancements based on user feedback, technological advancements, and changing requirements.

IX. Marketing and Communication:

- Develop a marketing and communication strategy to promote the benefits of the system among students, practicum instructors, and other stakeholders, encouraging widespread adoption.

B. Technical Objectives

The following are the technical goals of the practicum submission platform for ICTe Solutions:

1. User-friendly interface: The platform should have a user-friendly interface that is easy to navigate, with ease of understanding how file upload works and easy customization of student profile.

2. Mobile compatibility: The platform should be optimized for mobile devices, with responsive design and fast page load times, ensuring seamless transaction between the students, files, and practicum teachers.

3. Secure file transfer: The platform should have robust security measures, including file securities and encryption technologies, to protect student and practicum teacher data and ensure the integrity of transactions.

4. Database management: Utilize an efficient and well-structured database management system to store and retrieve user information, submission data, and system logs.

5. Reliable performance: Optimize the system's performance to ensure quick response times, efficient data processing, and minimal downtime, even during peak usage periods.

6. Data backup and recovery: Implement regular data backup procedures and establish a robust disaster recovery plan to minimize data loss in the event of unforeseen issues.

7. Scalability: Design the system architecture to be scalable, allowing it to handle a growing number of users and submissions without compromising performance.

8. Analytics and reporting: The platform should provide real-time analytics and reporting, allowing for extensive research regarding student file and trends.

C. Functional requirements

Functional requirements for Digitalized Practicum Completion System:

I. User Registration and Authentication:
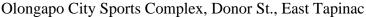- Users (students and practicum instructors) should be able to register for an account with valid credentials.
- The system must authenticate users securely, ensuring access only to authorized individuals.

II. Profile Management:
- Users should have the ability to create, update, and manage their profiles, including personal information, academic details, and relevant skills.

III. Practicum Requirement and Submission:

- Provide a user-friendly interface for students to submit practicum requirements, including document uploads, textual information, and any additional details required.

IV. Profiling Section Customization:

- Allow users to customize and update their profiling sections dynamically as needed, ensuring flexibility in presenting relevant information.

V. Queue Management:

- Implement a queue management system to organize and prioritize practicum requirement submissions based on predefined criteria.

VI. Report Generation:

- Include reporting tools to generate analytics and reports on system usage, submission trends, and other relevant metrics for administrators.

VII. Search and Retrieval:

- Enable users to search and retrieve specific information within the system easily, facilitating quick access to relevant data.

VIII. Role-Based Access Control:

- Implement RBAC to assign different roles and permissions to users, ensuring appropriate access levels based on their responsibilities.

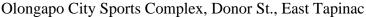These functional requirements are essential for ensuring that the Digitalized Practicum Completion System meets the needs of its users, streamlines the submission process, and provides a reliable and user-friendly experience

D. Application Features

1. User Registration/Login
2. Forgot Password
3. Admin Panel
4. Profile Customization
5. Practicum Requirement Submission
6. Search and Retrieval

7. Status of submission
8. Edit, delete, and add files

SECTION 3: Project Deliverables

a) Software Application

The Digitalization of practicum completion process can develop a user-friendly web-based software application. Our application can support the tracking, evaluation, and documentation of student practicum experience.

b) User Manual

Our team created a detailed user manual providing clear instructions on how to use our system. This user manual covered the system navigation, from login and sign up to logout feature, data input, and retrieval process to ensure use for administrators, evaluators, and students. In addition, it also contains Profile Setup, Document Submission, Feedback and Revisions, Resource Center, etc.

c) Technical Documentation

Produce detailed technical documentation outlining the system architecture, database schema, API documentation, and any other technical aspects relevant to system maintenance and future development.

d) Source Code

To provide a firmly established source code, we will use the utilized version control of GitHub to manage the source repository.

e) Training

We will provide effective training and sessions to our stakeholders, such as administrators, professors, and students that will be involved or relevant in using our system. Our Training sessions will cover the advanced features, tips and tricks of our system.

f) Deployment

Our deployment plan will outline the systematic and prerequisites of the Digitalized Practicum Completion system, this plan consists of Infrastructure Readiness to make sure that our system requirements will meet. We will have a Deployment team, Security Measures, Data Migration, Testing, and Backup Procedures.

g) Project Reports

   a. Project Status Report

Our team will provide Regular updates on project, challenges, focusing on progress, timeline, and budget. In addition, changes to the project will also be provided.

   b. Project Closeout Report

This report will summarize our entire project, milestones, timeline, risks, and accomplishments. This will consist of Executive Summary, Project timeline Budget Analysis, and Stakeholders Feedback.

   c. Meeting Minutes

During our meetings, the attendees and agenda will be written formally, we will use Microsoft word for the report.

   d. Budget Report

For our budget overview we will use Microsoft Excel to track down our future expenses and financial aspects for the system, this budget report consists of Variance Analysis, forecast, and funding source to help our stakeholders to stay informed.

   e. Resource Utilization Report

Our RUR will help to track on how we efficiently used the resources and to allows adjustments to be made as needed. Our team will provide Resource Categories (equipment, software, team members, etc.), also key metrics will be in our RUR.

f. Risk Management Report

In this report we will list the identified or future risks that will might give impact in our system, E.g(Technology Risks, Resource Risks, and Schedule Risks). This report will provide Risk analysis and current status.

g. Quality Assurance Report

Our test team will provide Test cases, for Error Detection and prevention we will assess the system's compliance with several quality standards and regulations. Our test team will identify and rectify issues related to the system, in addition, cost saving and risk mitigation will also provide

SECTION 4: Project Methodology

A. Agile Method

1. **Overview of Agile Methodology:** The Agile methodology is an iterative and incremental approach to software development that prioritizes flexibility, collaboration, and customer satisfaction. It emphasizes adaptive planning, continuous delivery, and the ability to respond quickly to changing requirements.

2. **Agile Framework:** For the Digitalized Practicum Completion System project, the Scrum framework is employed. Scrum provides a structured yet flexible framework with defined roles, events, and artifacts. It encourages collaboration, transparency, and regular inspection and adaptation.

3. **Sprint Cycles:** After the Initiate phase of Planning which inquires for a week. Sprint cycles for this project are set at two weeks. Each sprint encompasses development, testing, and review phases. The short duration allows for quick iterations, continuous feedback, and frequent adjustments based on changing requirements.

4. **User Stories:** User stories are captured through collaborative sessions involving the development team and stakeholders. Prioritization is determined based on the project

goals and user needs. Acceptance criteria are established during sprint planning, ensuring that user stories are clear, measurable, and ready for deployment.

5. **Retrospectives:** Regular retrospectives are conducted at the end of each sprint. The team reflects on the completed work, identifies areas for improvement, and implements changes to enhance efficiency and effectiveness in subsequent sprints.

6. **Stakeholder Engagement:** Stakeholder engagement is a key aspect of the Agile process. Regular demonstrations of working software are conducted, providing stakeholders with tangible progress updates. Feedback loops are established, allowing stakeholders to contribute to the decision-making process and ensuring the final product aligns with their expectations.

7. **Agile Tools:** To facilitate Agile project management, the team utilizes project management software for sprint planning, task tracking software for real-time progress monitoring, and collaboration tools for effective communication. These tools enhance transparency and coordination within the team and with stakeholders.

By embracing the principles and practices of the Agile methodology, the Digitalized Practicum Completion System project is well-positioned to deliver high-quality software applications. The iterative nature of Agile allows for responsiveness to changing requirements, while regular engagement with stakeholders ensures alignment with their needs and expectations. Through the consistent use of Agile tools and collaborative processes, the project aims to achieve success by fostering open communication, adaptability, and a focus on delivering value to end-users.

B. Management Software

1. **Overview of Project Management Software:** Project management software is crucial for planning, organizing, and tracking tasks, ensuring effective collaboration among team members, and facilitating communication with stakeholders.

2. **Project Management Software Selection:** The project management software chosen for this initiative is Trello, selected for its robust features, scalability, and compatibility with Agile methodologies. The software provides tools for task management, collaboration, and reporting, aligning with the project's dynamic requirements.

3. **Agile Methodology Integration:** The project management software integrates seamlessly with Agile methodologies, it supports sprint planning, backlog management, and real-time progress tracking. This integration fosters agility, allowing the team to respond promptly to changing requirements and priorities.
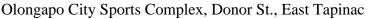
4. **Task Breakdown and Assignment:** Tasks are broken down into manageable units, following Agile principles. The project management software facilitates the assignment of tasks to team members based on skill sets and availability. This ensures a balanced workload distribution and promotes accountability within the team.

5. **Progress Monitoring and Reporting:** Real-time progress monitoring is a key feature of the project management software. The dashboard provides a visual representation of completed, ongoing, and upcoming tasks. Customized reports are generated to track sprint progress, velocity, and potential bottlenecks, enabling informed decision-making.

6. **Collaboration and Communication:** The project management software serves as a centralized hub for collaboration and communication. Team members can share updates, discuss tasks, and address issues within the platform. Additionally, it facilitates communication with stakeholders through transparent reporting and access to relevant project information.

7. **Iterative Planning and Adaptation:** The software supports iterative planning, allowing the team to adapt to changing requirements. Backlog refinement sessions and sprint

planning meetings are conducted regularly within the tool, ensuring that the project remains aligned with stakeholder expectations and evolving needs.

8. **Risk Management:** The project management software includes features for risk identification, assessment, and mitigation planning. Risks are regularly reviewed during sprint planning and addressed collaboratively to minimize their impact on the project timeline and deliverables.

The integration of robust project management software, aligned with Agile methodologies, plays a pivotal role in the success of the Digitalized Practicum Completion System project. The software empowers the team with efficient task management, real-time collaboration, and data-driven decision making. As the project progresses, ongoing optimization of the software utilization will continue to enhance productivity and contribute to the successful delivery of a high-quality digital practicum completion system.

C. Communication Plan

1. **Purpose of Communication Plan:** The purpose of the Communication Plan is to establish a structured framework that fosters effective and transparent communication throughout the Digitalized Practicum Completion System project. The plan aims to facilitate collaboration, manage stakeholder expectations, and support the overall success of the project by ensuring that information flows seamlessly among team members, stakeholders, and relevant parties.

2. **Stakeholder Communication:** Key stakeholders for the Digitalized Practicum Completion System project include students, faculty, IT teams, and administrative staff. The Communication Plan addresses the unique communication needs of each stakeholder group, ensuring that information is tailored to their interests and requirements. Regular updates and feedback mechanisms are implemented to keep stakeholders engaged and informed.

3. **Communication Methods:** Various communication methods are employed to cater to the diverse needs of stakeholders. These include face-to-face meetings for critical discussions, email for official announcements and documentation, telephone for urgent matters, and video conferencing for remote collaboration. We will also implement the use of third-party applications such as Slack to boost our communication productivity.

4. **Communication Schedule:** The Communication Plan outlines a comprehensive schedule of communication activities. This includes weekly status updates, bi-weekly sprint reviews, and monthly stakeholder meetings. Regular communication ensures that stakeholders are consistently updated on project progress and have opportunities to provide feedback.

5. **Communication Responsibilities:** The project team collaboratively prepares and distributes communications, with designated individuals responsible for responding to inquiries promptly. The Communication Plan also designates a communication manager to oversee and manage the overall communication strategy.

6. **Communication Protocols:** The Communication Plan establishes communication protocols to guide the format, content, and frequency of communications. Protocols include guidelines for maintaining a professional tone, ensuring accuracy in information dissemination, and addressing communication issues promptly.

7. **Communication Approvals:** A structured process for obtaining approvals for communication materials is outlined in the Communication Plan. Specific individuals, such as project leads and stakeholders, are designated as responsible for approving communications. The plan defines the workflow for obtaining approvals, ensuring that all communications align with project goals and stakeholder expectations.

The Communication Plan, as an integral part of the Digitalized Practicum Completion System project methodology, serves as a roadmap for effective communication. By adhering to

the outlined purpose, stakeholder communication needs, diverse communication methods, a well-defined schedule, clear responsibilities, established protocols, and a robust approval process, the project team aims to foster collaboration, manage expectations, and contribute to the successful delivery of a high-quality digital practicum completion system.

SECTION 5: Technical Requirements

A. Hardware Requirements

Overview

Designing the hardware requirements for the Digitalized Practicum Completion System is a critical aspect that directly impacts the system's overall efficiency and user experience. In addition to specifying computing resources, it is essential to consider various factors to guarantee the system's robustness and seamless operation.

Server Requirements

The Digitalized Practicum Completion System will utilize the modern hosting servers known today. Apache, which is available for Microsoft Server systems, is our top choice for its robustness and flexibility. Used by 31.5 percent of all known websites, it is guaranteed a great server to host this project. Moreover, it is an open-source project that uses HTTP protocol. Another top reason is Apache operates on various operating systems, such as Windows. This server software is comprised of several modules, which our team can adjust to process different requests. Additionally, Apache supports various programming languages and has an active community of developers. Lastly, our project will utilize PHP for its backend technology, which Apache ultimately supports. Some key features of Apache Server includes IPv6, Session Tracking, FTP and HTTP/2, and Customizable Modules.

Powering our project requires extensive research and alignment regarding hardware capabilities and software requirements. A table showing the hardware requirement for our server is shown below:

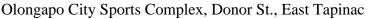| CPU	RAM	STORAGE	STORAGE TYPE	Operating System
Intel Xeon Processor with at least 4 physical cores and is running in 64-bit	64 gigabyte memory that is at least running in DDR 4	5 Terabytes	Solid State Drive	Windows

The selected CPU for our project is a widely utilized server processor renowned for its commendable performance and reliability. Specifically, the Xeon processors, designed for server and workstation environments, are known for their high-performance capabilities and robustness. These processors boast multiple cores and threads, optimized to facilitate multitasking and parallel processing. Given our server configurations and requirements, the Xeon processor aligns seamlessly with our needs. Furthermore, it is worth noting that Xeon processors are already established in the server infrastructure of esteemed organizations. Our project, which involves handling traffic requests for beneficiaries such as students and professors, will benefit from the Xeon processor's capacity to manage such demands.

It is imperative to acknowledge the correlation between higher processing units and enhanced performance. However, any consideration of upgrading the processing unit should be approached cautiously due to potential budget implications and the need for extensive financial revisions. Regarding memory specifications, the server should possess a minimum of 16 gigabytes of volatile memory to ensure efficient data transfer and prevent performance issues. Ideally, a recommended memory capacity of 64 gigabytes aligns with our project's focus on file transfers.

In terms of server storage, a minimum of 1 terabyte is essential to accommodate files, images, and texts, all of which demand substantial storage space. For scalability and the ability to handle large files and requests effectively, a recommended storage capacity of 5 terabytes should be met. Opting for Solid-State Drive (SSD) storage is crucial for achieving speed and optimal performance, as SSDs outpace traditional Hard Disk Drives (HDDs). However, it is

crucial to consider budget constraints when deliberating on the choice of storage, as faster options may involve higher costs. These specified requirements have been carefully considered to align with our budget constraints.

Server Environment

The server infrastructure demands meticulous attention to various critical factors to ensure seamless functionality and data integrity. First and foremost, it must be equipped with an effective cooling system to prevent overheating and ensure optimal performance. Physical security measures are paramount, safeguarding the server against unauthorized access or tampering. The server's power supply needs to be reliable, guaranteeing uninterrupted operation 24/7 to maintain continuous accessibility. Equally crucial is a robust and reliable network connection with appropriate bandwidth to facilitate efficient communication and data transfer. Additionally, protective measures against environmental threats such as flooding and fire are imperative to safeguard the server and its data, ensuring the longevity and resilience of the overall system. In consideration of these factors, the server is fortified against both physical and environmental challenges, ensuring a secure, stable, and consistently operational computing environment.

B. Software Requirement

The Digitalized Practicum Completion System is engineered to seamlessly operate within users' web browsers, encompassing popular platforms such as Chrome, Edge, Firefox, Opera, and Brave. Committed to elevating user experience standards, our system is dedicated to crafting a web application that epitomizes speed, reliability, and responsiveness. This commitment is underscored by the adoption of contemporary technologies, including HTML5, CSS3, and a JavaScript framework, specifically Angular, authored in TypeScript to ensure robust support for Single Page Application (SPA) capabilities. The incorporation of these cutting-edge technologies underscores our dedication to delivering an optimal and dynamic user interface.

In terms of backend technology, our application is strategically designed to leverage Vanilla PHP, a versatile and widely recognized scripting language. This choice aligns with our commitment to robust and efficient backend functionality, ensuring the seamless integration of

data processing, storage, and retrieval. By adopting Vanilla PHP, we aim to strike a balance between performance and versatility, facilitating a streamlined user experience while maintaining a scalable and adaptable backend architecture.

The meticulous selection of these technologies underscores our unwavering commitment to technological excellence, ensuring that the Digitalized Practicum Completion System not only aligns with contemporary industry standards but also offers a sophisticated and user-centric interface that caters to the diverse preferences of our user base. This strategic technological integration positions our system as a cutting-edge solution in the digital landscape, poised to redefine the landscape of practicum management and completion within educational institutions.

Operating System Requirements

The Digitalized Practicum System is designed to cater the student's needs for accomplishing their practicum requirements. This application will work on the student's browsers, meaning that it will support both Computer and Mobile devices for as long as they have their browsers installed on their devices. The table below shows the operating system requirements to run our application:

Operating System	Version	Browser
Windows	8 or Higher	Chrome, Firefox, Edge, Opera, Brave
Linux	Ubuntu	
MacOs	10.14 or Higher	

Database Requirements

Our web-application is strategically engineered to harness the robust capabilities of MySQL as its chosen database management system. The decision to integrate MySQL is rooted in its multifaceted strengths, encompassing speed, reliability, scalability, and user-friendly functionalities. This choice is particularly apt for a system that involves the storage of critical data such as student and practicum professor information, as MySQL excels in managing such datasets efficiently.

MySQL stands out as one of the most mature and extensively utilized databases globally, boasting a proven track record of over 25 years in various scenarios. Its resilience has

been tested and affirmed by a multitude of enterprises, including some of the world's largest companies, attesting to its reliability in supporting mission-critical applications. The maturity of MySQL as a database solution provides a solid foundation for our web-application's data management needs.

In addition to its established reliability, MySQL offers the advantages of being lightweight and fast, facilitating swift data processing and retrieval. Its adaptability and scalability make it an ideal choice for a system that anticipates growth and evolving data requirements over time. The utilization of MySQL aligns seamlessly with our commitment to providing a web-application that not only meets current needs but also stands prepared for future expansions and enhancements.

Furthermore, MySQL's connectivity, speed, and security features render it highly suitable for accessing databases over the internet, ensuring a seamless and secure interaction between our web-application and the underlying database. This aspect is pivotal for our system, which involves the dynamic exchange of data in an online environment.

In conclusion, the selection of MySQL for our web-application's database management stems from its proven performance, scalability, and extensive industry adoption. Leveraging MySQL ensures that our Digitalized Practicum Completion System benefits from a database solution that not only meets the current demands of data storage and retrieval but also aligns with the robustness and reliability required for the successful execution of our educational practicum management platform.

Development Environment Requirements

The development strategy for the Digitalized Practicum Completion System is rooted in the utilization of modern tools and Integrated Development Environments (IDEs) to optimize efficiency and productivity. Our primary IDE of choice is Visual Studio Code, distinguished for its wealth of extensions and plugins that promise to significantly enhance our development process. This selection aligns with our commitment to fostering a versatile and dynamic environment that caters to diverse development needs.

Collaborative development is pivotal to the success of our project, and to facilitate seamless teamwork, Git has been chosen as our version control system. The robust features of Git

ensure meticulous tracking and management of code changes, promoting transparency and streamlined collaboration among team members. By incorporating Git into our workflow, we aim to enhance the reliability and integrity of our codebase, ensuring a systematic approach to code modifications.

To further augment collaborative efforts and real-time communication within the development team, Slack has been designated as our Collaboration Platform. This choice reflects our dedication to creating a cohesive and communicative environment where ideas, updates, and feedback can be exchanged swiftly and efficiently.

In addition to these tools, the implementation of RESTful APIs plays a crucial role in our development strategy. Leveraging RESTful APIs facilitates seamless communication and data exchange between different components of our system. Specifically, RestAPI will be employed to enable efficient interaction between the frontend and backend of the Digitalized Practicum Completion System. This strategic use of RESTful APIs enhances the modularity and flexibility of our system architecture, allowing for easier integration of new features and ensuring scalability.

Furthermore, our commitment to comprehensive documentation extends to the API integration. We emphasize the importance of documenting API endpoints, parameters, and responses thoroughly, facilitating clear communication and understanding among developers working on different parts of the system.

In summary, our development approach combines the power of Visual Studio Code, Git for version control, Slack for collaboration, and RESTful APIs, specifically RestAPI, to ensure an efficient, collaborative, and scalable process in building the Digitalized Practicum Completion System. This comprehensive strategy aims to deliver a robust, transparent, and future-ready practicum management platform.

C. Network Requirements

      The Digitalized Practicum Completion System is designed to cater to a school organization of moderate to sizable scale in terms of student population. Consequently, our undertaking may necessitate a considerable allocation of network resources. Given that our project entails feature like file upload and download functionalities, a consistent and robust network speed is imperative to ensure stability, especially d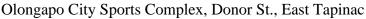uring periods of increased traffic and peak usage stress. The following table delineates our specific network requirements, aimed at minimizing potential performance issues for the smooth operation of our project:

Bandwidth	Latency	Reliability	QoS	Firewall and Network Security
500mbps – 1gbps (may require more)	Lowest latency – 50 milliseconds	Up time of internet connection shouldn't be lower than 99%	Implement a QoS to control network traffic	Deploy a robust firewall and implement security measures to protect against unauthorized access. Enforce access control policies.

Load Balancing	Scalability	Network Monitoring	IPv6 compatibility	School Policy
Optional	Optimize network design and architecture	Employ network monitoring tools to track the	Optional	Ensure that the network infrastructure

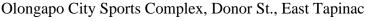|		health and performance of the network.		aligns with school policies and regulations regarding data privacy, acceptable use, and other relevant considerations.

The requirement above is expected to be met if our project will push through to live. User experience and security is our project's top priority. The Digitalized Practicum Completion System, designed for a medium to large-sized school organization, demands a high-speed internet connection ranging from 500mbps to 1gbps, with a potential need for scalability to accommodate increasing data transfer demands. This is particularly crucial considering the system's anticipated functionalities such as file upload and download, necessitating a robust and flexible bandwidth capacity. The system requires a network with the lowest possible latency, targeting a maximum of 50 milliseconds. This low latency ensures real-time responsiveness within the Digitalized Practicum Completion System, enabling swift interactions and seamless user experiences during tasks like document submissions or assessments. A dependable internet connection is paramount, with an uptime threshold not falling below 99%. This high level of reliability guarantees uninterrupted access to the Digitalized Practicum Completion System, crucial for students, faculty, and administrators who rely on the platform for practicum-related activities. To effectively manage network traffic and prioritize critical functionalities within the system, Quality of Service protocols must be implemented. This ensures that essential processes, such as file transfers and data submissions, receive the necessary bandwidth and priority to maintain optimal performance even during peak usage periods. A robust firewall and comprehensive security measures are indispensable components of the network infrastructure. These security measures aim to protect the Digitalized Practicum Completion System from potential cybersecurity threats and unauthorized access. The

enforcement of access control policies adds an additional layer of protection, ensuring that only authorized users can access sensitive information within the system. While load balancing is optional, it can contribute significantly to network efficiency. By optimizing the distribution of network resources, load balancing prevents congestion and bottlenecks, enhancing the overall performance and responsiveness of the Digitalized Practicum Completion System, especially during periods of high user activity. The network design and architecture should be optimized for scalability, allowing the Digitalized Practicum Completion System to seamlessly expand as user demands grow. This ensures that the system can adapt to future enhancements and increased usage without compromising performance or user experience. Employing robust network monitoring tools is essential to track the health and performance of the network infrastructure. Continuous monitoring enables the timely identification of potential issues, facilitating proactive measures to maintain the reliability and efficiency of the Digitalized Practicum Completion System. While optional, ensuring IPv6 compatibility is forward-thinking. It prepares the system for future technological advancements and aligns with industry standards, ensuring the sustained relevance and compatibility of the Digitalized Practicum Completion System within evolving network environments. The network infrastructure should align with the school's policies and regulations, encompassing considerations such as data privacy, acceptable use, and other relevant guidelines. Adhering to these policies ensures compliance, ethical use, and the responsible management of the Digitalized Practicum Completion System within the educational institution's framework.

Storage Requirement and Data Backup Measures

The primary emphasis of the Digitalized Practicum Completion System lies in the efficient handling of student submissions encompassing diverse formats, including documents, images, and texts. This places a significant demand on the storage infrastructure, necessitating a substantial storage capacity to accommodate the varied and voluminous data generated by student submissions.

To ensure the integrity and availability of this crucial data, our storage subsystem is meticulously designed. It incorporates redundant Solid-State Drives (SSDs) arranged in a RAID 1 array configuration, prioritizing data redundancy. This RAID 1 setup involves mirroring, where identical copies of data are maintained on separate SSDs. This redundancy not only enhances

data reliability but also ensures continuity in the event of a drive failure, mitigating the risk of data loss.

In addition to the RAID 1 configuration, a robust backup strategy is implemented to fortify the system against potential disasters. Regular backups of the data are conducted, with these backup sets stored at an offsite location. This offsite backup serves as a critical component of our disaster recovery plan, ensuring that in the event of any unforeseen circumstances or system failures, the system can be restored promptly from a secure and remote location.

This comprehensive storage design not only addresses the immediate storage needs of the Digitalized Practicum Completion System but also strategically incorporates measures to safeguard against data loss and potential disasters. The combination of RAID 1 redundancy and offsite backups ensures a resilient and reliable storage infrastructure, aligning with our commitment to data integrity, availability, and disaster recovery preparedness.

SECTION 6: User Interface Design

A. User interface design standards
Overview

The UI design for the Digitalized Practicum Completion System embodies a philosophy of simplicity, clarity, and an intuitive user experience. Consistency in branding elements is a key focus to create a cohesive visual identity throughout the system.

Color Palette

The primary color palette adopts light tones to enhance readability and maintain a clean aesthetic. White (#FFFFFF) serves as the background, complemented by light gray (#F2F2F2) for secondary elements. An accent color, such as a calming blue (#3498db), is employed for buttons and primary call-to-action elements. Specific colors are designated for status indicators, ensuring a consistent and recognizable visual feedback system.

Typography

Typography choices prioritize readability and a modern aesthetic. A clean sans-serif font, such as Roboto or Open Sans, is chosen for body text and headings, fostering a consistent

font family across all UI elements. A well-defined hierarchy of font sizes guides the presentation of headings, subheadings, and body text, while consistent line spacing enhances readability.

Layout and Grid System

The design adopts a responsive 12-column grid system, ensuring consistency across various screen sizes and devices. A mobile-first approach guides the layout structure, maintaining a clean and organized interface with distinct sections for different functionalities.

Icons and Graphic Elements

Iconography follows a consistent set of recognizable and lightweight icons throughout the system. Subtle graphic elements, aligned with the overall branding, are integrated for enhanced visual appeal without compromising clarity.

Interaction Design

Interactive elements are designed with a clear hierarchy, utilizing the accent color for primary actions. Visual feedback, such as hover effects and subtle animations, enhances the user experience. Forms feature clear labels, proper spacing, and real-time input validation to guide users seamlessly.

Accessibility

The color palette ensures sufficient contrast to meet accessibility standards, with tools used for validation. Text legibility is maintained through appropriate font sizes and line spacing. Keyboard navigation is enabled for all interactive elements, and descriptive alt text is provided for images, ensuring a fully accessible experience.

The UI Design for our project is tailored to serve users a user-friendly experience. These aspects will make up the entirety of our design plan for our development phase. It is worth noting that our team values accessibility more than aesthetics.

B. Design guidelines

The design guidelines for the Digitalized Practicum Completion System aim to establish a seamless and user-friendly experience. Beginning with brand identity, it is imperative to maintain a consistent brand throughout the system, integrating the school's logo, color scheme, and official fonts to reinforce brand recognition. User experience (UX) is at the forefront,

demanding a user-centric design approach. Task flows and navigation are carefully crafted to guide users intuitively through practicum submission and evaluation processes, while feedback mechanisms ensure informative responses at each interaction.

On the user interface (UI) front, the system adopts a light color palette for a clean and professional appearance. Layout consistency is emphasized, employing a grid system to maintain uniformity across various sections. Iconography and graphics follow a consistent set for easy recognition and integration, adhering to the overall branding without overwhelming the user interface. Responsiveness is achieved through a mobile-first design philosophy, optimizing components to adapt to different screen sizes.

Accessibility is a paramount consideration in these guidelines. Ensuring appropriate color contrast supports users with visual impairments, and keyboard navigation is enabled to provide an alternative means of interaction. Descriptive alt text for images and multimedia content accessibility contribute to an inclusive user experience. These guidelines collectively contribute to a visually cohesive, user-centric, responsive, and accessible design for the Digitalized Practicum Completion System. Regular reviews and updates will be conducted to align with evolving design trends and project requirements, fostering an environment of continual improvement.

C. User interface design process

1. **User Research:** The process begins with in-depth user research to comprehend the needs and expectations of practicum instructors and students. Insights gathered here inform subsequent design decisions, ensuring the interface caters to real-world user requirements.

2. **Information Architecture:** Establishing a strong information architecture becomes pivotal to organizing and structuring the content effectively. This stage defines how information is presented and accessed, contributing to a user-friendly and intuitive experience.

3. **Interaction Design:** Emphasizing beyond aesthetics, the design guidelines translate into concrete strategies during the interaction design phase. This involves specifying

how users will engage with the system, ensuring usability, clarity, and efficiency in every interaction.

4. **Visual Design:** Building upon brand identity considerations, the visual design phase brings the interface to life. This encompasses decisions on color palette, typography, icons, and graphic elements, all working harmoniously to create a visually appealing and cohesive user interface.

5. **User Testing:** Extensive user testing is carried out to obtain feedback and validate design decisions. This iterative process makes sure that the interface works well in a variety of settings and meets user expectations.

6. **Iteration and Refinement:** The design process embraces an iterative approach, where feedback from user testing leads to refinements. Continuous improvement ensures that the interface evolves to meet the changing needs and preferences of practicum instructors and students.

Through these phases, the User Interface Design Process gathers the methodical actions that were performed in order to convert design principles into a workable, effective, and user-friendly interface for the Digitalized Practicum Completion System

SECTION 7: Database Design

1. **Objectives**

   The primary objective of the Database Design section is to establish a robust and efficient database structure to facilitate the management, retrieval, and archiving of data related to faculty profiling and development monitoring. The design aims to ensure optimal system performance, scalability to accommodate future growth, and uphold data integrity throughout the system. The focus is on creating a reliable foundation that streamlines data handling for various entities within the system, including student profiles, submitted forms, contacts, and development objectives.

2. **Guidelines for Design**

   Normalization:

Normalization principles should be followed to reduce redundancy and maintain data integrity within the database schema.

1. Relational Model: A relational database model is used to establish relationships between various entities, such student profile, submitted forms, Contacts, and development objectives.

2. Data Consistency: Unique and foreign key constraints can be used to ensure data integrity and consistency across related tables.

3. Indexing: Indexing strategies can help improve query performance and data retrieval, especially for frequently accessed data.

4. Scalability: Design the database schema with future growth and expansion of student profiles and monitoring data in mind.

5. Security: Security features such as role-based access control (RBAC) and encryption should be used to protect sensitive data stored in databases.

3. **Elements of a Database**

1. Users Profile Table: Make a table that will hold the user's personal information, contact information, and credentials.

2. Requirements Table: Establish a table to record user's requirements.

3. Contacts table: Make a table that will hold the practicum teacher's personal information, contact information.

4. **Information Shifting Strategy**

To ensure a seamless transition to the new database schema, develop a data migration strategy for the user profiling and development monitoring data currently in use. Procedures for data extraction, transformation, validation, and loading should be included in the plan in order to minimize data loss and maintain data integrity throughout the migration process.
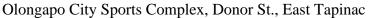
SECTION 8: Testing and Quality Assurance

A. **Overview**

Testing and Quality Assurance (QA) are essential components of the software development life cycle, serving various crucial purposes. Their primary objective is to

detect and rectify defects or bugs in the software, preventing potential issues that could impact user experience and business operations. QA processes focus on improving overall software quality by ensuring adherence to requirements, industry standards, and intended functionality. This contributes to user satisfaction and retention, as high-quality software provides a positive user experience. Additionally, testing helps mitigate risks, identify compliance with regulations and standards, and reduce the overall cost of development by addressing issues early in the process. Continuous improvement is facilitated through iterative QA processes, where analysis of defects and feedback leads to enhancements in subsequent development cycles. The documentation generated during QA activities serves as a guide for testing, providing references for maintenance and troubleshooting. Ultimately, thorough testing instills confidence in the development team and stakeholders, ensuring that the software is ready for release with minimized risks and optimal quality.

B. Methods of Testing

1. **Unit Testing:**

   Purpose: Verify the functionality of individual components or modules in the Digitalized Practicum Completion System.
   Scope: Isolate each system module, such as user authentication, submission processing, and notification systems, ensuring they perform as intended.

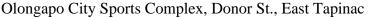2. **Integration Testing:**

   Purpose: Evaluate the interaction between integrated components of the Digitalized Practicum Completion System.
   Scope: Ensure seamless collaboration between modules, validating data flow, and identifying any issues related to the integration of student profiling, submission processing, and notification features.

3. **System Testing:**

Purpose: Validate the entire Digitalized Practicum Completion System against specified requirements.

Scope: Assess the system as a whole, including its interfaces with external systems, ensuring all functionalities meet defined standards for practicum requirement submission and processing.

4. **Acceptance Testing:**

Purpose: Confirm that the Digitalized Practicum Completion System meets user expectations and business requirements.

Scope: Validate the system's compliance with user needs, including user authentication, practicum requirement submission, and notification features.

5. **Performance Testing:**

Purpose: Assess the responsiveness, speed, and scalability of the Digitalized Practicum Completion System.

Scope: Measure performance under various conditions, such as peak submission times, ensuring optimal user experience and identifying potential performance bottlenecks.

6. **Security Testing:**

Purpose: Identify vulnerabilities and weaknesses in the security of the Digitalized Practicum Completion System.
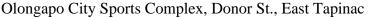
Scope: Examine the system for potential security threats and risks, including secure user authentication, data transmission, and protection against unauthorized access.

7. **Regression Testing:**

Purpose: Ensure that new changes do not negatively impact existing functionalities of the Digitalized Practicum Completion System.

Scope: Re-test modified parts of the system after updates or enhancements, preventing the introduction of new defects during software maintenance.

8. **Usability Testing:**

Purpose: Evaluate the user interface and overall usability of the Digitalized Practicum Completion System.

Scope: Focus on user experience, ensuring that navigation, student profiling, and submission processes are intuitive and user-friendly.

9. **Exploratory Testing:**

Purpose: Discover defects in an ad-hoc manner by exploring the Digitalized Practicum Completion System without predefined test cases.

Scope: Encourage testers to creatively explore various scenarios, uncovering unexpected defects, and enhancing overall application quality.

10. **Continuous Testing:**

Purpose: Integrate testing throughout the development pipeline of the Digitalized Practicum Completion System.

Scope: Automate testing at various stages, including code integration, deployment, and continuous monitoring, ensuring consistent quality and faster delivery.

This testing methodology for the Digitalized Practicum Completion System aims to ensure the reliability, security, and user satisfaction of the platform designed for practicum requirement submission and processing. Each testing phase has a specific purpose and scope, collectively contributing to the overall quality assurance process for the system.

C. Test Types

1. Functional Testing:

• Purpose: Validate that the Digitalized Practicum Completion System functions according to specified requirements.

• Subtypes:

    a) User authentication testing

    b) Practicum requirement submission testing

    c) Profiling section functionality testing

2. Non-Functional Testing:

• Purpose: Evaluate non-functional aspects of the system, such as performance, security, and usability.

• Subtypes:

    a) Performance testing

    b) Security testing

    c) Usability testing

3. Performance Testing:

• Purpose: Assess the responsiveness, speed, and scalability of the Digitalized Practicum Completion System under various conditions.

• Subtypes:

    a) Load testing

    b) Stress testing

    c) Scalability testing

4. Security Testing:
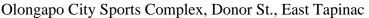
• Purpose: Identify vulnerabilities and weaknesses in the security of the Digitalized Practicum Completion System.

• Subtypes:

    a) Penetration testing

    b) Vulnerability scanning

    c) Authentication and authorization testing

5. Usability Testing:

• Purpose: Evaluate the user interface and overall user experience of the Digitalized Practicum Completion System.

• Subtypes:

    a) User interface (UI) testing

    b) User experience (UX) testing

    c) Accessibility testing

6. Regression Testing:

• Purpose: Ensure that new changes or updates do not negatively impact existing functionalities.

• Subtypes:

    a) Automated regression testing

    b) Manual regression testing

7. User Acceptance Testing (UAT):

• Purpose: Confirm that the Digitalized Practicum Completion System meets user expectations and business requirements.

• Subtypes:

    a) Alpha testing

    b) Beta testing

    c) End-to-end testing

8. Compatibility Testing:

• Purpose: Ensure the Digitalized Practicum Completion System functions correctly across different browsers, devices, and operating systems.

• Subtypes:

    a) Cross-browser testing

    b) Cross-device testing

    c) Cross-platform testing

9. Exploratory Testing:

• Purpose: Discover defects in an ad-hoc manner by exploring the Digitalized Practicum Completion System without predefined test cases.

• Subtypes:

    a) Session-based testing

    b) Time-boxed testing

10. Automated Testing:

• Purpose: Use automation tools to execute test cases, especially those that are repetitive or time consuming.

• Subtypes:

      a) Unit test automation

      b) Regression test automation

      c) Performance test automation

11. Data Migration Testing:

• Purpose: Ensure the accurate and secure transfer of data during system upgrades or migrations.

• Subtypes:

      a) Data integrity testing

      b) Data consistency testing

These test types cover a broad spectrum of testing activities to ensure the Digitalized Practicum Completion System's reliability, security, performance, and user satisfaction.

D. Test Environments

1. Hardware Requirements:

A. Servers:

Application Server:

- Processor: Multi-core processor with sufficient processing power.
- Memory (RAM): 16 GB or more.
- Storage: SSD for faster data access and improved performance.
- Network: Gigabit Ethernet for high-speed data transfer. Operating System: Windows.

B. Database Server:

- Processor: Powerful multi-core processor for handling database queries efficiently.
- Memory (RAM): 32 GB or more.

- Storage: Fast and reliable storage subsystem, preferably SSD for data storage and retrieval.
- Network: Gigabit Ethernet for optimal data transfer between the application and database servers.
- Database Management System (DBMS): MySQL.

B. Databases:

Considerations for Simulating Real-World Conditions:

- Database Size: Populate the test database with a realistic amount of data, similar to what is expected in production.
- Data Distribution: Ensure a representative distribution of data to simulate different scenarios accurately.
- Indexes: Create indexes based on production requirements to evaluate query performance.

C. Client Machines:

End-User Machines:

- Processor: Reflect the average processing power of end-user machines.
- Memory (RAM): 8 GB or as per typical end-user machine specifications.
- Storage: Standard HDD or SSD, depending on common end-user configurations.
- Network: Wi-Fi with at least 5 mbps of internet speed.
- Development and Testing Machines:
    - Processor: Powerful enough for software development and testing tasks. Intel core i5, Ryzen, or Xeon.
    - Memory (RAM): 16 GB or more for efficient multitasking.
    - Storage: SSD for faster development and testing processes.
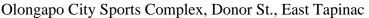   - Network: Standard Ethernet or Wi-Fi connectivity.

2. Software Requirements:

A. Operating System:

- Server Side: Windows Server

- Client Side: Can support various operating systems such as Windows, macOS, and Linux for end-users.

3. Web Server:

Primary Web Server: Apache HTTP Server for serving web pages and handling HTTP requests.

4. Database:

Database Management System (DBMS): MySQL.

5. Server-Side Programming Language/Framework:

-Vanilla PHP, JAVASCRIPT

6. Client-Side Frameworks/Libraries:

- Frontend Framework: Angular for building dynamic and responsive user interfaces and SPA support.
- Styling: CSS frameworks like Bootstrap or Tailwind CSS for consistent styling.

7. Authorization:

- Role-based access control.

8. Development and Testing Tools:

- Version Control: Git for source code version control.
- Automated Testing: Selenium for automated testing. GitHub Actions for automating development workflows.

9. Containerization and Orchestration (Optional):

Containerization: Docker for containerization of application components.

10. Collaboration and Communication:

- Project Management: Trello
- Communication: Slack

E. Quality Assurance Measures

Efficiency and Coding Standards:

- Code design ensures that the code is not only functional but also efficient in terms of resource utilization (CPU, memory, etc.).
- Adhering to coding standards and best practices promotes consistency and readability, making it easier for QA teams to understand and verify the code.

Bug Tracking:

- An efficiently designed codebase aids in bug tracking by providing a clear structure, making it easier to identify and fix issues.
- QA teams utilize bug tracking systems to document, prioritize, and communicate issues to developers. A well-designed codebase streamlines this process.

Resource Utilization:

- Efficient code design contributes to optimized resource utilization, ensuring that the software operates with minimal resource consumption, which is particularly important for applications with resource constraints.

Mini-Test Cases:

- Performing mini-test cases during the development cycle helps identify bugs and vulnerabilities early on, reducing the chances of critical issues arising later in the process.
- These mini-test cases can be focused on specific functionalities or modules, allowing for targeted testing and quick feedback.

Performance Test/Stress Test:

- Performance testing evaluates how well the software performs under normal and peak load conditions.

- Stress testing specifically assesses how the system behaves under extreme conditions, helping identify potential bottlenecks, points of failure, and areas for optimization.

Scalability Test:

- Scalability testing assesses the system's ability to handle increased load and scale resources to meet growing demands.
- It ensures that the application remains responsive and reliable as user numbers or data volumes increase, helping prevent performance degradation and unexpected issues in production.

Resource Efficiency:

- A well-designed codebase contributes to resource efficiency during performance and stress testing, as optimized code requires fewer resources to deliver the desired functionality.
- Efficient code enhances the overall performance of the application, contributing to a positive user experience.

Early Detection of Issues:

- Effective code design facilitates early detection of issues, allowing QA teams to address problems at their source before they become critical or impact the user experience
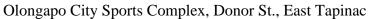
SECTION 9: Project Schedules

A. Project Timeline

1. **Project Schedule:** The Digitalized Practicum Completion System project starts on January 26, 2024 until May, 2024.
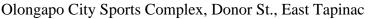
2. **Task Breakdown and Resource Allocation:**

Phase	Tasks	Start Date	End Date	Duration	Responsible Team Members
Project Initiation	Project kickoff, Stakeholder engagement, Initial planning	January 26, 2024	January 31, 2024	6 days	Janna Lyn M. Rolls, Jomarie M. Del Rosario, Braian Robles
Requirement Analysis	Workshops, Interviews, Requirement documentation	February 1, 2024	February 4, 2024	4 days	Jomarie M. Del Rosario, Braian Robles, Aldrin Fechalin
System Design	Architectural design, Database design, UI design	February 5, 2024	February 19, 2024	15 days	Aldrin Fechalin
Development	Coding, Development sprints, Unit testing	February 24, 2024	March 24, 2024	29 days	Janna Lyn M. Rolls, Braian Robles, Lee Leighnard Jose, Yzer Vincent De Omania
Testing	System testing, UAT, Bug fixing	March 26, 2024	March 30, 2024	4 days	Princess Diane Urbano, Edelyn Tabilisma, Markus Eugene Alop
Deployment	System deployment, Transition	March 30, 2024	May 4, 2024	5 days	Brian Villanueva, Xanthei Iona Pilares

The Digitalized Practicum Completion System Project is led by Janna Lyn M. Rolls. Devices such as laptops and testing equipment are allotted to improve productivity. Software tools include integrated development environments (IDEs) and programs like GitHub and Visual Studio Code. The successful completion of the project is largely dependent on proactive risk management and continuous communication to ensure optimal resource utilization.

4. **Dependencies:**

The project's success hinges on the completion of key phases in a sequential manner. The Requirement Analysis phase is dependent on the prior completion of Project Initiation, ensuring a clear understanding of project objectives. System Design relies on the conclusive findings from Requirement Analysis, laying the groundwork for subsequent development. Development is contingent on the finalization of the System Design phase, ensuring a smooth transition from planning to execution. Testing is interlinked with the completion of the Development phase, allowing for thorough validation of the system's functionality. The Deployment and Training phase is dependent on the successful completion of Testing, marking the final steps before system implementation.

5. **Risk Management:**

The project team will consistently identify potential risks that may impact the project timeline or success. Continuous vigilance ensures that risks are promptly recognized. Ongoing contingency planning will address identified risks. Detailed plans are in place to minimize the impact of potential challenges. Continuous monitoring of identified risks will be conducted, allowing for proactive management and timely adjustments to the project plan. In the event of a risk materializing and impacting the project timeline, a contingency trigger will activate the pre-defined response plan. The project team will implement the steps outlined in the contingency plan, such as adjusting the project timeline, reallocating resources, or implementing alternative solutions, to minimize the impact of identified risks. The project team will regularly review the effectiveness of the contingency plan and make necessary updates to enhance its responsiveness to future risks.

6. **Milestones:**
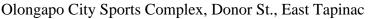
Project kickoff: January 26, 2024

Requirements Gathering: February 1, 2024

Design Review: February 5, 2024

Development Start: February 24, 2024

Development Complete: March 24, 2024

User Acceptance Testing: March 26, 2024

Deployment: March 30, 2024

7. Reporting:

Regular status updates will be communicated either online or face to face during weekly project meetings to maintain transparency and alignment within the team. Bi-weekly progress reports will be distributed to stakeholders, providing detailed insights into project advancements and potential challenges. This information will contribute to the continuous improvement of project processes.

B. Key Milestones

Key Milestones:

Project Kickoff (January 26, 2024):

The commencement of the project on January 26, 2024, marks a pivotal moment. This is the official start, bringing together the project team and setting the stage for collaboration. During this phase, stakeholders engage in discussions, defining the project scope and collectively agreeing upon its goals and objectives. Led by Project Manager Janna Lyn M. Rolls, this milestone establishes the groundwork for the tasks that lie ahead.

Requirements Gathering Complete (February 4, 2024):

As of February 4, 2024, the project reaches a critical juncture with the successful completion of the requirements gathering phase. Business Analysts Jomarie M. Del Rosario and Braian Robles, in collaboration with Solution Architect Aldrin Fechalin, lead workshops and interviews to identify user needs. The result is a comprehensive functional requirements document, providing a clear roadmap for the subsequent phases.

System Design Review (February 5, 2024):

On February 5, 2024, the focus shifts to the design aspect of the system. Solution Architect Aldrin Fechalin finalizes the architectural design, while also overseeing the development of the user interface. This phase culminates in a design review where stakeholders evaluate and provide feedback, ensuring alignment with project objectives and user expectations.

Development Start (February 24, 2024):

The development phase initiates on February 24, 2024, with Technical Leads Janna Lyn M. Rolls and Braian Robles at the helm. Tasks are allocated, a development schedule is established, and the coding process commences. This milestone signifies the transition from planning and design to the practical realization of the Digitalized Practicum Completion System.

Development Complete (March 24, 2024):

By March 24, 2024, the development phase draws to a close. The team, including Lee Leighnard Jose and Yzer Vincent De Omania from the Development Team, successfully completes coding, undergoes rigorous development sprints, and concludes unit testing. The application is then delivered to the quality assurance team for further scrutiny.

User Acceptance Testing Complete (March 26, 2024):

As March 26, 2024, approaches, the focus shifts to user acceptance testing (UAT). Testing Team members Princess Diane Urbano, Edelyn Tabilisma, and Markus Eugene Alop meticulously test the application, ensuring it meets end-user expectations. Defects are identified, addressed, and the stakeholders ultimately grant their approval.

Deployment (March 30, 2024):

The culmination of the journey occurs on March 30, 2024, with the deployment of the Digitalized Practicum Completion System. Led by Deployment Team members Brian Villanueva and Xanthei Iona Pilares, this milestone involves the installation of the application, configuration of servers, and the initiation of post-deployment support processes.

C. Schedule Contingency Plan

Identification of Risks:

Risk identification will be a collaborative effort involving key project stakeholders and experts from diverse domains. Led by the Project Manager, Janna Lyn M. Rolls, the team will leverage the unique insights of Business Analysts Jomarie M. Del Rosario and Braian Robles, Solution Architect Aldrin Fechalin, Technical Leads Janna Lyn M. Rolls and Braian Robles, and members of the Development, Testing, and Deployment Teams. Risks will be identified through a combination of historical data, expert judgment, and continuous monitoring of the project environment.

Contingency Planning:

Contingency planning will be a dynamic and inclusive process, ensuring that the collective expertise of the team is utilized effectively. Business Analysts, Solution Architect, and Technical Leads will play pivotal roles in developing detailed contingency plans for each identified risk. These plans will be designed to address specific challenges and seize opportunities for innovation. The collaborative nature of the planning process will foster a shared understanding of potential risks and responses.

Risk Monitoring:

Risk monitoring will be integrated into the project's communication and reporting mechanisms. Technical Leads, Business Analysts, and the Testing Team will provide regular updates on the status of identified risks. The collaborative approach will enable the team to stay proactive, adapting to changing circumstances and ensuring that the risk landscape is accurately reflected in ongoing project assessments.

Contingency Trigger:

Clear and well-defined triggers for activating contingency plans will be established in consultation with relevant team members. Project milestones, as well as potential risk events, will be identified in collaboration with the Technical Leads, Business Analysts, and Testing Team.

For instance, triggers may include significant deviations in project timelines or unanticipated challenges during the Deployment phase.

Contingency Response:

The contingency response will be a collective effort, with each responsible team member playing a vital role in executing predefined plans. The Project Manager, Technical Leads, Business Analysts, and Testing Team will collaborate seamlessly to implement necessary adjustments to the project timeline, reallocate resources, and explore alternative solutions. The Development Team, led by Lee Leighnard Jose and Yzer Vincent De Omania, will be ready to adapt coding and testing strategies as required.

Review and Update:

Regular reviews of the effectiveness of contingency plans will be conducted, facilitated by the Project Manager, Business Analysts, and Solution Architect. Insights from the Deployment Team, Testing Team, and Technical Leads will be actively sought during stakeholder engagements to ensure that the contingency plans remain aligned with evolving project goals. This iterative review process will be instrumental in enhancing the team's responsiveness to emerging risks and opportunities.

SECTION 10: Project Budget

A. Project Cost

Project development comprise several layers of sections including cost for development, cost for testing, cost for deployment, cost for maintenance and updates. Digitalized Practicum Completion System aims to utilize monetary resources to power the project objectives.
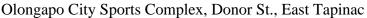
Development:

Devices:

-9 existing devices for development.

Software Application and Development Tools:

-Utilizing open-source applications and development tools.

-Tools include VS Code, GitHub, Slack, and Postman, which are free or have free versions.

<u>Testing:</u>

Test Environment:

-No additional cost for the test environment.

Automated Testing:

-Using Selenium for automated testing.

-Selenium is open-source and does not incur additional costs.

<u>Deployment:</u>

-Hostinger's Business Plan:

-P179/month (hosting cost).

<u>Overall Estimated Budget:</u>

Development:

Device costs: Assuming existing devices - no additional cost.

Software tools: No additional cost for open-source tools.

Testing:

-Test environment: Assuming existing infrastructure - no additional cost.

-Automated testing: No additional cost for Selenium.

Deployment:

-Hostinger's Business Plan: P179/month.

Ongoing Maintenance:

-Placeholder budget: To be determined based on future considerations.

Total Estimated Budget:

Monthly Deployment Cost: P179

Placeholder for Ongoing Maintenance: To be determined.

SECTION 11: Project Management and Team Structure

A. Project manager

- *Janna Lyn M. Rolls* will serve as the project manager for the Digitalized Practicum Completion System application project.
- The project manager will be in charge of all aspects of the project, encompassing project planning, execution, monitoring, control, and closure.
- As the primary liaison for all stakeholders, the project manager will ensure the project is completed punctually, within the allocated budget, and to the satisfaction of all parties involved.
- The project manager will be tasked with formulating and maintaining the project plan, which includes the timeline, budget, and resources necessary for project completion.
- Furthermore, the project manager will manage the project team, ensuring that all members are equipped with the necessary resources and support to effectively complete their tasks.

The role of the project manager is indeed pivotal in any software development project. They should possess the requisite expertise, abilities, and credentials to efficiently guide the project team. This section aims to offer a comprehensive understanding of the project manager's duties and qualifications. This includes their role in formulating and upkeeping the project plan, overseeing the project team, and acting as the main liaison for all stakeholders. This information is crucial for stakeholders as it provides insight into the project's leadership hierarchy and instills confidence in the project manager's capacity to successfully execute the project.

B. Project team structure

1. **Project Manager:** Janna Lyn M. Rolls
2. **Business Analyst:** Jomarie M. Del Rosario and Braian Robles
3. **Solution Architect:** Aldrin Fechalin
4. **Technical Lead:** Janna Lyn M. Rolls and Braian Robles
5. **Development Team:** Lee Leighnard Jose and Yzer Vincent De Omania

6. Testing Team: Princess Diane Urbano, Edelyn Tabilisma, and Markus Eugene Alop

7. Deployment Team: Brian Villanueva and Xanthei Iona Pilares

- **The Project Manager**, who will supervise the project team, will be directly accountable to Mr. Loudel Manaloto.
- **The Business Analyst**, tasked with collecting and analyzing stakeholder requirements, will report to the Project Manager.
- **The Solution Architect**, who will develop the solution's overall architecture, will also report to the Project Manager.
- **The Technical Lead**, who will guide the development team and ensure the solution aligns with the agreed architecture and standards, will report to the Solution Architect.
- **The Development Team**, who will code and develop the solution, will report to the Technical Lead.
- **The Testing Team,** who will conduct tests on the solution, will report to the Project Manager.
- **The Deployment Team**, who will handle the production deployment of the solution, will report to the Project Manager.

The structure of the project team is instrumental in ensuring a well-coordinated effort towards the successful completion of the project. It provides a roadmap of responsibility, clearly defining who is accountable for what, thereby promoting efficiency and effectiveness. This structure also ensures that all critical tasks are assigned and managed, facilitating a smooth progression towards the project's completion.

The importance of the project team structure in any software development project cannot be overstated. It serves as a blueprint, outlining the roles and responsibilities of each team member, thereby ensuring an effective execution of the project. This section aims to provide a clear and succinct overview of the project team structure, detailing the key roles and responsibilities of each team member, and their interaction dynamics. This information is crucial for stakeholders, as it provides insight into the project's internal operations and instills confidence in the project team's ability to successfully deliver the project.

C. Roles and responsibilities

A. **Project Manager:** The Project Manager is tasked with comprehensive project oversight, which includes the stages of planning, executing, monitoring, controlling, and concluding the project. The Project Manager also ensures that the project's goals are achieved and that the project is finalized within the defined constraints of time, cost, and quality.

B. **Technical Lead:** The Technical Lead holds the responsibility for managing the technical facets of the project, encompassing system architecture, development, and testing. They collaborate closely with the Project Manager to guarantee that the technical prerequisites are fulfilled and that the project is completed punctually.

C. **Business Analysts:** Business Analysts hold the responsibility for collecting and analyzing the business requirements of the project. They maintain close collaboration with stakeholders to guarantee that their requirements are precisely reflected in the project's deliverables.

D. **Developers:** Developers hold the responsibility for the creation and execution of the software application. They maintain a close collaboration with the Technical Lead and Business Analysts to ensure that the software aligns with the requirements and is completed within the stipulated time frame.

E. **Quality Assurance:** The Quality Assurance team holds the responsibility for confirming that the software application aligns with the defined quality standards. They maintain a close collaboration with the Developers and Technical Lead to pinpoint and rectify any issues that arise during the testing phase.

F. **User Acceptance Testing (UAT) Lead:** The UAT Lead holds the responsibility for orchestrating and executing the User Acceptance Testing (UAT) phase. They maintain a close collaboration with the Business Analysts and Quality Assurance team to ensure that the software aligns with the business requirements and is prepared for deployment.

G. **Stakeholders:** Stakeholders hold the responsibility for offering feedback and approval on project deliverables. They maintain a close collaboration with the Business Analysts and Project Manager to ensure that their requirements are precisely reflected in the project deliverables and that the project aligns with their expectations.

SECTION 12: Conclusion

A. Summary of the SOW

The Digitalized Practicum Completion System is an online tool designed to simplify the practicum requirement submission process. It aims to provide a user-friendly interface, manage information, and eliminate wait traffic. The system's Statement of Work (SOW) outlines objectives, deliverables, and milestones, ensuring timely, within-budget, and satisfactory delivery. The project requires user authentication, a user-friendly interface, flexible profiling, queue management, real-time status updates, contact information, responsive design, robust security measures, and reporting tools.

The project aims to develop a cost-effective, efficient, and user-friendly practicum submission platform that meets user needs, reduces time and effort, and enhances management. Technical goals include a user-friendly interface, mobile compatibility, secure file transfer, efficient database management, reliable performance, data backup, recovery, scalability, and real-time analytics.

The project will digitize the practicum completion process by developing a user-friendly web-based software application, including a detailed user manual, technical documentation, training sessions, and deployment plans. Project reports will provide regular updates on progress, risks, and accomplishments.

B. Future considerations

- **Future Considerations:** It is essential to plan ahead for potential future considerations that may come up as the Digitalized Practicum Completion System develops as we begin this journey. The following are some important things to remember:
- **Scalability:** As the digitalized practice completion system gains traction and usage increases, it's essential to ensure scalability. This involves designing the system architecture to accommodate future growth and handle increased user traffic efficiently. Scaling may entail adding additional server resources, optimizing database performance, or leveraging cloud-based solutions to meet evolving demands.

- **Mobile Compatibility:** With the prevalence of mobile devices in today's digital landscape, optimizing the Digitalized Practicum Completion System for mobile compatibility is paramount. Ensuring a seamless user experience across various devices and screen sizes will enhance accessibility and user satisfaction.

- **Integration with Other Systems:** The Digitalized Practicum Completion System may need to integrate with other current systems within educational institutions in order to offer a complete practicum management solution. Administrative platforms, learning management systems, and student information systems may fall under this category.

- **Security:** It's critical to safeguard private student and practicum instructor information. Strong security measures must therefore be put in place to protect against such threats and breaches. This entails following security procedures that are industry-standard, conducting frequent security audits, and taking preventative action to lessen risks. The Digitalized Practicum Completion System will maintain user data integrity and confidentiality through constant monitoring and update of security measures.

The project team will continue to keep a close eye on the Digitalized Practicum Completion System's requirements and performance. To guarantee that the platform continues to satisfy the changing demands of users and stakeholders, regular assessments and evaluations will guide any necessary modifications and improvements. We will continue to maintain the system's usefulness and efficacy in supporting practicum management procedures by anticipating and addressing future considerations.

C. Next steps.
Completion of this SIW represents a significant milestone in advancing the Digitalized Practicum Completion System project. As we moved forward, the following steps will guide our progress:

- **Review and Approval of SOW:** Before proceeding with development, it's essential for all stakeholders to thoroughly review and approve this SOW. This guarantees that all parties are in agreement with the goals and specifications of the project.

- **Project Kickoff Meeting:** To go over the details mentioned in the SOW, a meeting will be set up to discuss the project. During this discussion, any unanswered issues or concerns can be addressed, and a clear project budget and timeframe can be established.

- **Development:** The development team will start working on the Digitalized Practicum Completion System as soon as the SOW has been approved and a clear project plan has been established. The requirements specified in the SOW will serve as a roadmap for development activities.

- **Regular Status Updates:** Throughout the development phase, regular progress updates will be provided to stakeholders. These updates will ensure transparency and keep all parties informed of project advancements.

- **User Acceptance Testing:** Following development, the Digitalized Practicum Completion System will undergo user acceptance testing (UAT). This phase is critical for ensuring that the system meets the specified requirements and functions as intended.

- **Deployment:** The Digitalized Practicum Completion System will be put into the production environment after the UAT is successfully finished. As the system becomes accessible to students, practicum teachers, and other stakeholders, this represents an important milestone.

- **Ongoing Support and Maintenance:** Post-deployment, ongoing support and maintenance will be provided to ensure the continued functionality and effectiveness of the system. This includes addressing any issues that may arise and implementing updates or enhancements as needed.