IN PARTNERSHIP WITH PLYMOUTH UNIVERSITY

Name: D.N.Wickramage

Student Reference Number:10898703

Module Code:PUSL2021	Module Name:COMPUTING GROUP PROJECT
Coursework Title: The Virtual Office	
Deadline Date: 25-10-2023	Member of staff responsible for coursework: Mr. Pramudya Thilakarathna
Programme: Bsc (Hons) Software Engineering	

Please note that University Academic Regulations are available under Rules and Regulations on the University website www.plymouth.ac.uk/studenthandbook.

Group work: please list all names of all participants formally associated with this work and state whether the work was undertaken alone or as part of a team. Please note you may be required to identify individual responsibility for component parts.

D.N.Wickramage   10898703
W.A.D.S.D.RWijetunge 10898710
S.M.D.S Senevirathne   10898662
D.F.Y. Fernando   10899513
S.E.A.Fernando   10898455
K.A.T.P.Karunarathna   10899577

We confirm that we have read and understood the Plymouth University regulations relating to Assessment Offences and that we are aware of the possible penalties for any breach of these regulations. We confirm that this is the independent work of the group.

Signed on behalf of the group:

Individual assignment: *I confirm that I have read and understood the Plymouth University regulations relating to Assessment Offences and that I am aware of the possible penalties for any breach of these regulations. I confirm that this is my own independent work.*

Signed :

Use of translation software: failure to declare that translation software or a similar writing aid has been used will be treated as an assessment offence.

I *have used/not used translation software.

If used, please state state name of software…………………………………………………………………

Overall mark _____%   Assessors Initials _____   Date_____

Table of Contents

1. Executives Summary

Many businesses worldwide are frustrated by the lack of a secure and effective platform for conducting business online. Their personnel and those organizations must use various costly platforms.

As a result, they will be able to do all of their responsibilities through this one platform. Because of the corona outbreak, several organizations conducted their organizational work online. Even after the corona pandemic, many organizations began to perform their work online since it was a convenient technique. Employees of the organization become accustomed to performing organizational activities from their residences. However, carrying out the institutions' tasks was made more difficult since, as previously said, the institutions lack a single efficient and secure platform.

Accordingly, a new web application is introduced as a new solution to the above problems. It is called "**the Virtual Office**". An internet-based tool called a virtual office platform facilitates remote work for businesses.

Key Features-

- Account profile for the company
- User profile of an employee
- Chat and video conferencing are both options
- Management of Tasks and Projects
- Collaboration on Documentation
- Calendar and Planning

- Integration of Remote Tools

- Time Management

- Knowledge Exchange

- Employee management

- Customization

2. Introduction/Overview

Furthermore, companies and organizations use several sorts of applications and platforms to do various jobs. They had no choice but to utilize it. As a result, this proposal proposes creating a new platform for them to accomplish all of these jobs securely and effectively. This proposal proposes to address this issue with the most recent concept, **the Virtual Office** platform.

Within the rapidly developing field of computing, come across curious dichotomy processes with hard codes that can address physical problems, but the virtual capabilities of soft codes enable us to transcend digital barriers and open the way for innovation, connection, and game-changing concepts. In light of this, developing a virtual office platform to simplify and expedite work procedures.

Due in large part to the COVID-19 epidemic, there has been an important movement in the worldwide workforce in recent years toward remote workers. Because of this, creating efficient computing systems for remote collaboration and productivity has become crucial, changing the way individuals may work from home in comfort. This Virtual Office platform is a good opportunity for those who like to work at home.

Demand for remote work solutions has increased since the COVID-19 epidemic, but many of the systems that are now available are expensive and have security issues. Virtual office platform appeared as a response to these issues when it was determined that more easily available and secure technologies were required. Businesses not only save money with it, but it also functions as a flexible multitasking center for employees looking to improve productivity and flexibility in their work schedules.

6

Virtual office platform contributes significantly to environmental sustainability in addition to addressing issues of cost and efficiency. It actively reduces environmental pollution by encouraging remote work, eliminating the need for actual office premises, and cutting down on transportation. Because of its adaptability and wide range of applications, this platform is highly valued by businesses and organizations in a variety of industries, including education. It excels in managing office communication processes and documentation. It can also be easily converted to function as a school management system.

Purpose and objectives of the proposal.

1) Facilitation of Remote Work

Allow employees to work from any location, encouraging remote work and flexibility.

2) Reduce Cost

Save money on physical office space and related expenses.

Cut down on employee commuting expenses.

3) Data privacy and security

Secure and protect data by putting strong encryption and access controls in place.

Observe data protection laws to safeguard private information.

4) Customization

 Include unique tools and features that increase productivity.

5) User Experience

 To improve the user experience for staff members, design a virtual office environment that is simple to use and intuitive.

3. Objectives

- Create Consistent Communication

  To promote collaboration among team members working in various places, enable real-time chat and video conferencing.

- Effective Project and Task Management

  To ensure effective project management and on-time work completion, streamline task creation, assignment, and tracking.

- Improve document management and teamwork

  By using a central document repository with version control to facilitate project collaboration, you can guarantee that teams have access to the most recent data.

- Enhance your time management

  In order to monitor virtual check-ins and check-outs and to encourage improved time management and accountability in a remote work environment, include attendance monitoring services.

- Organize Information Centrally

  Create a concentrated hub for information by developing a user-friendly dashboard that offers a thorough overview of projects, deadlines, announcements, and recent activity.

- Allow remote meetings and events

  Add calendar features to virtual event and meeting scheduling and tracking to improve team member cooperation and organization.

- Ensure Data Privacy and Security

  To protect sensitive information and guarantee compliance with data privacy requirements, implement strong security measures.

- User-Friendly Settings and Profiles

  To improve user experience and provide users the ability to customize their virtual workspace, create user profiles and account settings that are configurable.

- Analytics to Help Decision-Making

  Give users access to analytics and reporting tools to gain insights on team productivity, project progress, and attendance in order to make better decisions.

- Adaptability to Mobile Devices

  Make sure the program is usable and available on a variety of devices to encourage flexibility for remote workers.

- Using notifications to improve user experience

  Install a notification system to remind consumers of significant changes, announcements, and future

Implement a notification system to remind users of critical changes, announcements, and approaching deadlines, improving the user experience overall.

- Integrations with Third Parties to Increase Functionality

  Integrate widely used third-party solutions to increase the functionality of the application and enable users to easily use their chosen project management and collaboration tools.

- Offer backing and documentation

  Create thorough help materials and a support ticketing system to help users troubleshoot problems and utilize the product correctly.

- Scalability

  Create the application to scale with the organization's expanding needs, allowing for an expanding user base and data volume.

4. Target Users

The virtual office platform is adaptable to a wide range of users, making it a flexible answer for different requirements. For freelancers and remote workers looking for a professional and collaborative virtual workplace, this platform is perfect. Cost-effective options for obtaining necessary services and establishing a company address are advantageous for small and medium-sized enterprises. This platform will prove to be beneficial for startups and entrepreneurs seeking to project a professional image without having to worry about leasing real office space. Regardless of their physical location, remote and international teams may use our platform to improve communication and collaboration.

Furthermore, Project team understand that professionals who work on the go, like salespeople and consultants, need to be able to retain their professionalism. This software provides mobile functionality so they may stay in touch with colleagues, Company employees and students. The virtual office platform may be used by business incubators and accelerators to help startups by offering essential business services to its members. This platform allows coaching and consulting professionals to handle appointments and client communications while maintaining discretion and professionalism. The safe and private communication solutions on this platform are also advantageous to legal and financial organizations since they are crucial for managing sensitive client data.

Beyond these particular groups, the virtual office platform is adaptable enough to serve workers, learners, and everyone else wishing to improve their virtual workplace experience. Project team make sure that the virtual office platform features and marketing approaches match the unique

requirements and expectations of each category by focusing on these varied user groups, which makes it a useful tool for a variety of users.

Accordingly, the main target users of the virtual office platform can be specified as follows

1. Companies

Accordingly, any company in the world has the ability to carry out work through the virtual office platform. They can do their work by creating their own company account, which can be done very efficiently and securely.

2. Organizations

Organizations can also perform their duties and they also have the ability to experience all the features included here.

3. Employees

If the above companies and organizations start using the virtual office, the best character that will be used will be the employees. They will be able to perform their duties very easily from home or anywhere through this platform.

5. Project Description and Application Features

It was mentioned above that nowadays most of the companies and organizations have decided to do their work virtually. Accordingly, they will be able to do all the necessary work through the virtual office platform. It is created as a web application and MERN is used to develop that web application. Stacks like Mongo DB, Express js, React, node js are used. Through this web application, all their duties can be done virtually. For example, collaborations, communication, task management etc.

Application features-

- User Authentication

  Secure user login and registration capabilities.

  Authentication with many levels for various user roles (such as admin and team member).

- Dashboard:

  Each user has a customized dashboard with a list of tasks, events on the calendar, and announcements.

  Accessible in a flash to current activities, messages, and approaching due dates.

- Module for communication:

  a real-time messaging platform for private and group conversations.

  Capability for sharing files for simple collaboration.

  Integration of online meeting software with video conferencing.

- Project and task management:

  Within projects, create, assign, and track tasks.

  Kanban board for managing projects visually.

  Tracking of milestones and deadlines.

- Integration of the calendar:

  Calendars for each person and each team are used to schedule and monitor events.

  Synchronization with well-known calendar programs through integration.

- Management of Documents:

  Version-controlled central repository for documents.

  To manage document rights, use access controls.

- Informational updates:

  Share significant information with the entire team.

  News feed for notifications and updates.

- Attendance Monitoring

  Virtual check-in and check-out for tracking attendance.

  Analytics and reporting on attendance patterns.

- User Settings and Profile:

  Individual user profiles.

  Account options and settings.

- Reporting and Analytics:

  Produce reports on the status of the project, the efficiency of the team, and attendance.

  Analytics in visual form for rapid insights.

- Mobile Responsive:

  Make sure the program is user-friendly and available on a variety of platforms.

- Data privacy and security:

  Protect sensitive data by putting in place strong security measures.

  Conformity with data privacy laws.

- Integration of External Tools:

  Smooth interaction with widely used project management and teamwork tools.

  API support is available to increase functionality.

- Help and Assistance:

  Comprehensive instruction manuals.

  System for submitting support tickets to be resolved.

- Scalability:

  Create the application to scale with the organization's expanding needs.

The most important thing that can be concluded according to the data obtained and found when adding new features is that although the above features are already available through many web applications, it is not possible to do all of them through a single web application. This is why the virtual office project will be special. All the above factors can be efficiently and effectively achieved through a single web application.

6. Time Frame and Methodology

The methodology that has been selected for the project is the Agile Methodology.

The agile methodology is a project management technique that places emphasis on ongoing improvement and cross-functional collaboration. It breaks down large projects into smaller parts and leads groups through planning, carrying out, and assessing tasks in succession.

Agile techniques often consist of brief work cycles, known as sprints that span two to four weeks. The team plans the tasks it will perform during each sprint, and at the conclusion of it, it provides the customer with a working product increment. After receiving input from the client and reviewing their work, the team uses this information to enhance their workflow and strategize for the upcoming sprint.

Agile methodology offers a number of benefits, such as,

- Faster Delivery: This project can provide usable goods for clients faster than traditional project management techniques. This is a result of agile teams' usage of brief sprints, which enables them to gather consumer input frequently and make necessary adjustments (Al-Saqqa, 2020).

- Higher Quality: Focusing on providing high-quality products by regularly and early collecting client input. This enables them to recognize issues early on and address them before they become more costly and challenging to address.

18

- High Customer Satisfaction: Better at meeting client needs because those are in regular communication and feedback loops. This makes it easier to make sure that the product is being produced to satisfy the needs of the intended user base.

There are some most common disadvantages of Agile Methodology as well, they are,

- More Time and Commitment: The team, customers, and other stakeholders must commit a significant amount of time and energy to the project. Teams that are already overworked or that have stakeholders who are not accustomed to working in an agile manner may find this challenging (Agrawal, Ashish Atiq, Mohd Maurya, Laxmi, 2016).

- Lack of Necessary documentations: Project teams often focus on delivering working products to customers early and often, which can lead to a lack of documentation. This can make it difficult to maintain and update the product in the future.

- Projects easily fall off the track: The project team may quickly become distracted by new features and needs or lose sight of their goals if they are not vigilant. Projects may become off track as a result, and deadlines may be missed.

Using the agile process for developing a virtual online office platform can be highly successful. It enables teams to acquire regular feedback to make sure they are producing a product that matches the demands of the people who will be using it, and it enables them to deliver working product increments to consumers early and often.

Here are some ways of how agile methodology applies when developing the virtual office platform,

- Prioritizing the features: A backlog is a list of all the things that need to be produced, and project teams use it to priorities features. The backlog is ranked according to urgency, importance, and other considerations. This aids the team in prioritizing and delivering the most crucial features to clients as soon as possible.

- Continuous feedback and improvements: Customers and stakeholders provide agile teams with regular feedback during the development phase. The product is improved and made to better suit the needs of the intended user base thanks to the input provided.

- Flexibility and Adaptability: The project teams are meant to be adaptive and flexible. This implies that they can promptly adjust their goals and priorities as circumstances demand. This is crucial for intricate projects where requirements are expected to alter over time, like developing a virtual office platform.

- The idea is to implement agile methodology in order to finish this project within two months. Agile methodology places a strong emphasis on cooperation, communication, and ongoing improvement. It is an incremental and iterative approach to project management. Complex and dynamic projects like this one are a good fit for it.

The project will be divided up into smaller tasks under the agile methodology, and work will be done in short work cycles called sprints, which usually last eight weeks.

Below is an in-depth explanation of every one of the eight sprints.

1st Sprint:

Identify the problem and the solution - Have a meeting with the customer to learn about their objectives and specific requirements. Find the ideal virtual office platform for the client's needs by conducting research to understand the existing virtual office environment.

Identify the necessary technology and research - Evaluate the technologies required for platform development. Examine the many features and functionalities offered by various virtual office systems.

2nd Sprint:

Design the User Interface (UI) - Evaluate the requirements of the intended consumers while developing the platform's user interface.

3rd Sprint:

Create databases, ER diagrams and case diagrams - Create the databases that will be required for organizing the data on the platform. To represent the relationships between the various database elements, create ER diagrams and case diagrams.

Create the selected database using Mongo DB - Use Mongo DB, a well-liked NoSQL database, to create a selected database.

4th Sprint:

Develop the Front-End - Create the HTML, CSS, and JavaScript code for the platform's front end. Utilize a front-end framework like react to accelerate the development process.

5th Sprint:

Create the Back-End for the created Front-End - Create the platform's backend, implementing to include the endpoints that the front end will utilize. To improve the efficiency of the development process, use a backend framework.

6th Sprint:

Connect the both Back-End and Front-End and do testing - Link the platform's front end and back end together. Launch the platform's testing phase to detect any issues.

7th Sprint:

Fixing the bugs and solving the database problems - Repair any platform problems that have been found. Consider any recently identified database issues.

8th Sprint:

Final testing and handing over the project to the client - In order to ensure the platform is prepared for production, do last-minute testing. Turn the platform over to the client after deploying it to production.
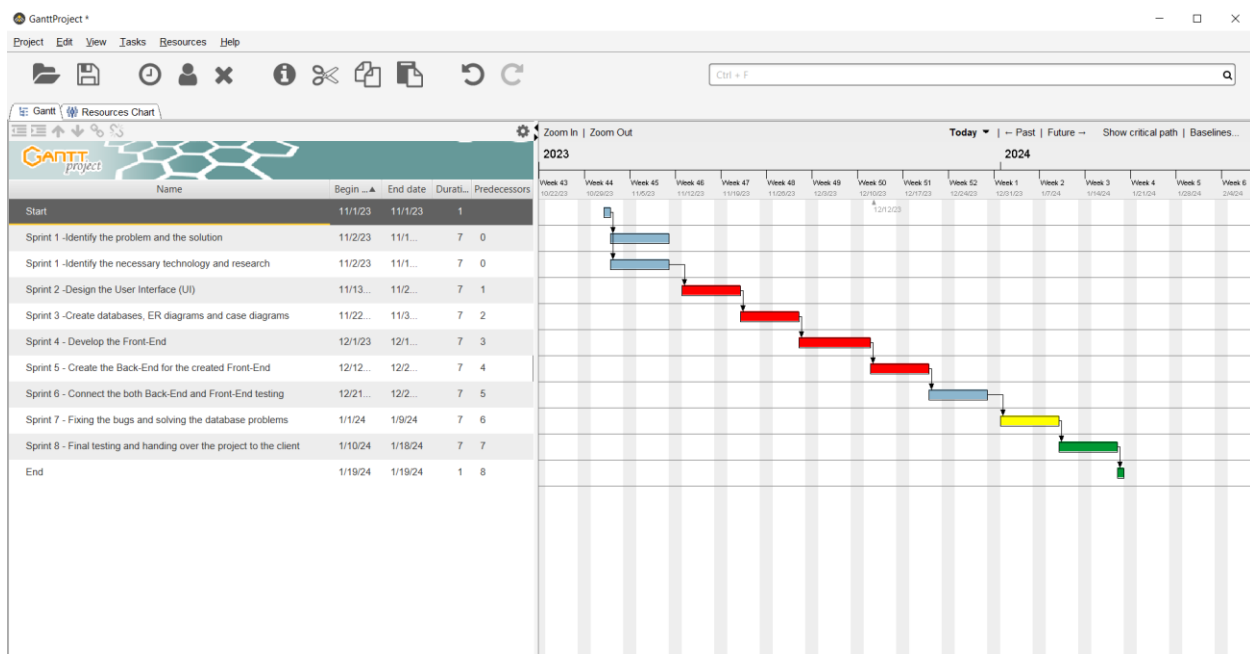

Figure 1 Gantt chart for the virtual office platform

7. Conclusion

In conclusion, team determined how virtual office platform effects a balance work life, and it was main purpose of this study. The Virtual Office platform is designed as an all-inclusive response to the problems along with possibilities that is rising popularity of virtual job presents. Only a limited number of experimental investigations have been carried out in Sri Lankan, even though different models have been utilized to explore various features of virtual office platforms and their impact on the balance between work and life. As all known aside from this, the virtual office platform was somewhat new and limited in the world workplace until the pandemic caused a change of traditional work routines for the survival of businesses and the country's economy. The primary goals of flawless interaction are effective task and management for projects, improved teamwork, and better time management demonstrate a commitment to creating a virtual workspace that resembles the efficiency and cohesiveness of an ordinary workplace. Also because of the use of this platform could focus on data security and privacy demonstrates a commitment to protecting private information in accordance with legal standards. The project requires to construct a strong web application using the MERN stack that not only fulfills but also exceeds the specifications of a virtual office environment. The project's conclusion involves a virtual office scenario that is not only technologically advanced but also flexible and responsive to changing business requirements. The Virtual Office Management System has become prepared to be an essential component in the development of telecommuting, providing businesses with a centrally controlled, successful, and trustworthy platform that will grow in the age of virtual offices.

8. References

Agrawal, Ashish Atiq, Mohd Maurya, Laxmi. (2016). A Current Study on the Limitations of Agile Methods in Industry Using Secure Google Forms., (p. 291).

Al-Saqqa, S. (2020, 7 10). Retrieved from https://online-journals.org/index.php/i-jim/article/view/13269