GROUP 52
FDM EMPLOYEE PORTAL

ECS506U Software Engineering Group Project

Problem/Domain Analysis Report

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1.Introduction:

The FDM employee portal will be a new and innovative way for both FDM employees and consultants to easily navigate tasks and deadlines between internal or global employees, or to tend to any personal needs and requests within FDM, as many do not work in FDM offices. This employee portal application will be hosted on a secure site, allowing users to access it from any location, at any time, and on any device that has an internet connection. This software is intended to address the issue of inefficient and time-consuming manual task management. Individuals and organisations are looking for an effective way to manage their tasks, projects, and personal needs within an organisation as the demand for productivity grows.

According to a OnePoll Survey, 26%[1] of an employee's day is wasted on avoidable administrative duties, unnecessary activities, and outdated ways of working, with unnecessary administrative tasks accounting for 42 minutes[1] of this. Many employees would appreciate the opportunity to be more productive through more efficient methods of administration.These findings indicate that the FDM employee portal would be an excellent option for combating both low productivity and inefficiency in the workplace.

We would build a self-service category within the FDM employee portal where individuals could request time off, view pay, update, and add personal information on employee files, and avoid utilising traditional techniques such as requests via email or paper files. Furthermore, transferring administration tasks to a digitised framework will result in a greener workplace inside FDM and help them to save money on office materials such as ink and paper.

Considering FDM hires a significant number of individuals into its three programmes each year, these new hires must perform a wide range of training and development duties. Implementing a component within an FDM application would enable the organisation to track the progress of new staff. This would be a more efficient method of completing the training process because it would eliminate the need for numerous third-party applications, as well as the staff could view the entirety of their tasks within one application, decreasing the time wasted navigating through different applications and misunderstandings over what work they are required to complete. As a result, the system would allow for a continuous workflow, leading in a more successful form of training.

An Employee Portal is more than merely a means for employees to access company information. Incorporating a communication feature within the portal can have major organisational benefits. Employees may operate more efficiently together because they can communicate and collaborate in real time, which improves teamwork and productivity. The portal improves the procedure and minimises the possibility of

misinterpretation by centralising communication. The portal could also be utilised for company-wide announcements and conversations, which can aid in increasing employee engagement and promote a positive business culture. Furthermore, by having a centralised communication platform, staff may reduce their dependence on email, which can be overwhelming and time-consuming.

A study conducted by Ringcentral showed 68%[2] of workers toggle between apps up to 10 times an hour[2], and 31%[2] of workers said toggling causes them to lose their train of thought. The organisation would decrease the number of applications necessary by incorporating the communication function within the employee portal. Integrating a communication function into an Employee Portal would, in the end, enhance cooperation, simplify communication, encourage transparency, and increase employee engagement, resulting in a more efficient, productive, and engaged workforce.

To summarise, the FDM Employee Portal is an essential tool for employees to manage their tasks and personal requirements inside the firm. Its implementation creates several opportunities for greater productivity and efficiency by eliminating manual administrative procedures and introducing self-service options. The incorporation of a communication tool within the site has the potential to improve teamwork, consolidate communication, and increase employee engagement. Employees will appreciate the ability to access the portal from any place and device, as well as the opportunity to arrange their work in a seamless and efficient manner. In conclusion, the FDM Employee Portal offers a solution to the challenges faced by organizations and their employees and its successful implementation will bring a multitude of benefits to the organization, its employees, and its overall success.

2. Customers and Users

The software is designed to improve the operations of FDM by managing and assisting employees of the company. The system will have 3 main user groups: the Administrator, Developers and Consultants. The employee portal will facilitate employee communication and the completion of self-service tasks. Administrators and Developers will be responsible for the maintenance of the system whilst the consultants will be the main users.

The Administrator:

The system administrator is the employee of FDM who is responsible for the maintenance of the employee portal. Therefore, the administrator would be in control of adding/removing employees based on their employment status. Moreover, the

administrator would be responsible for resolving any bugs that may occur when the software is in use. The administrator would be required to a high level of computer knowledge to ensure the system runs as efficiently and smoothly as possible. Additionally, the administrator will be responsible for ensuring the data is up to date. For example, ensuring the correct available days for annual leave are displayed and keeping track of this data to ensure you have enough employees on site at any given time.

Developers:

Developers are sub-users of the administrator. These are employees who would assist the administrator in performing major system changes/updates. For example, if a brand-new feature was to be implemented, the developers would be responsible for assisting the administrator in the programming of this. Therefore, the developers would also need a high level of computer knowledge and to be highly proficient in programming.

Consultants:

The main users of this software are FDM's employees who work with clients in the business and technology sectors. Most of FDM's employees are graduates, people returning to work, or ex-military who are hired through FDM's respective programmes. Consultants can be categorised into external and internal depending on where they are based. The employees of FDM will be the main user/customer for this software and therefore it will be important to meet their needs. Consultants should be able use the system to manage their personal requests and communicate with employees. They should also be able to report any issues with the system to the administrator so they can be resolved as quickly as possible.

External Consultants:

The Consultants are employees of FDM who consult with clients across the globe and aren't necessarily working from one of FDM's locations (such as those certain European countries and South Africa). The system is particularly vital for these employees as this would provide them with a way to communicate with other employees even when they aren't physically present in one of the centres. Using this system, the external consultants will be able to book annual leave and update their personal info. Moreover, the portal should provide them with an environment to share queries and to communicate with internal employees to be updated on internal changes in the company.

Internal Consultants:

The internal consultants who are based at one of FDM's centres will also be users of the system. The system might not be quite as vital for them as the external consultants, but it will still provide them with a convenient way to complete self-service tasks without having to arrange it with their manager etc. Moreover, the system will facilitate communication between the internal and external employees which will be beneficial for both parties.

3.The Environment:

The FDM employee portal will be developed as a web application to allow for greater flexibility. Since FDM is a global organisation with several different regions, a web application will enable it to be more accessible and have a wider reach since it can be used on any device with an internet connection, regardless of operating system or device type, whereas desktop apps require separate developments for each operating system and can only be accessed on desktop devices.

Furthermore, since all users access the same version, it would be easier to swiftly modify and maintain the portal, whereas desktop applications require each user's device to be updated separately. As the portal must be accessible to a broad range of individuals, integrating many languages and accessibility features on a web application would be both quicker and more straightforward compared to a desktop application. The primary motivation for developing this portal was to improve efficiency and productivity within FDM, so designing it as a web application is more effective because it eliminates the requirement of time-consuming downloads for each update, which could impede the users' workflow and make them less productive.

A large number of portal software run as desktop applications, with the progress in technology and increase in cloud services, website applications are becoming more and more common as local software doesn't have advantages in security or speed as it used to in the past. One leading global company in the movement is Microsoft which has been working and improving their online platform Office 365[3] and Teams[4] to an incredible standard where It becomes an easy pick for working or learning environments in the present. Office 365 is a prime example of a global web application that is widely accessible and platform compatible while providing a high level of security.

The web application will be developed with HTML and CSS to generate a responsive design and introduce accessibility features. JavaScript will be used for the dynamic and interactive elements and to validate data entries to reduce the stress on the servers. PHP will be used to generate Dynamic web pages and manage the content to be

displayed. It also provides a secure database integration so tasks like updating personal information can be carried out.

Feedback can be provided by employees through a feedback form on the website, allowing the system to be improved over time. The system will be designed to improve the quality of life of employees, its purpose is to provide an easy and convenient way to perform simple tasks such as booking annual leave or updating their personal info.

In conclusion, building the FDM employee portal as a web application offers numerous advantages over a desktop app. With its wider reach, accessibility from any device with an internet connection, and ease of maintenance and updates, it provides a more efficient and productive platform for employees. The use of HTML, CSS, JavaScript, and PHP will ensure a responsive design, accessibility features, dynamic interaction, and secure database integration. The shift towards web applications, as seen with the success of platforms like Office 365, highlights the importance of this choice for the FDM employee portal.

4.Tasks and procedures currently performed:

The FDM Employee Portal Project is intended to be a secure location where employees can quickly exchange and discuss information within FDM, keep everyone up to speed and provide assistance with many potential questions. Administrators and staff will primarily use it; other actors, such as developers may only interface with it as needed. The software will allow all users to carry out a variety of tasks.

Admin:
- **Managing user accounts:** Administrators are often in charge of creating, editing, and deleting user accounts if there was to be a breach in rules, in addition to managing access levels and permissions.
- **Updating and maintaining the portal:** The task of maintaining the functionality and accuracy of the portal's features and content falls to the administrators. This may require adding or deleting pages, eliminating FDM members from the system, updating personal information or changing the portal's look and feel if needed.
- **Monitoring portal usage and performance:** Administrators will likely need to monitor usage and performance to ensure the portal is working successfully and efficiently. This can mean monitoring user activity, keeping a watch on system logs and looking through data to find any potential issues or future development opportunities.
- **Company announcements/news:** Administrators would be able to post announcements or news to other users efficiently within the system. Users would

be much more likely to see the announcements made as they will use the system frequently, thus making communication within FDM more efficient.

Employee:

- **Booking annual leave:** Users would be able to examine their leave histories and balances, as well as make requests for annual leave.
- **Personal information update:** Users might change their contact information, emergency contact information and other details.
- **Time off requests:** Users would be able to submit time off requests, such as those for sick leave or personal time off and check the progress of those requests.
- **Viewing pay stubs and benefit information:** Users would be able to access their pay stubs, tax returns and other financial information, as well as benefit data such as retirement and health plans.
- **Accessing company documents:** Users would have access to and the ability to download vital company papers, including policies and procedures, training materials and other resources.
- **Logging in:** Users will be able to log into the system to ensure that they will be able to access the system and use its features. This would increase security measures and allow users to use the system safely.
- **Communicating with other employees:** Users would be able to interact with other employees via the portal, e.g. instant messaging or email.
- **Graduates/new recruits training tasks:** Both graduates and new recruits must complete the training tasks so they become accustomed to using the system in the near future.

Developer:

- Developers of the software will not assist in keeping it running during action daily, however if bugs are identified by administrators, the developers will act accordingly and repair them.

5.Competing Software:

Microsoft teams:

Microsoft Teams[4] is a sophisticated collaboration platform that caters to the needs of the modern workplace. It has features such as real-time messaging, file sharing, and integrated apps; it provides a centralised hub for teams to communicate and collaborate effectively. With over 270[5] million, it has established an incredibly strong reputation and has proven to be particularly useful during the pandemic as it enabled remote work and maintained productivity levels.

Advantages:

- No additional cost for Microsoft 365 users, a licence that many companies already have.
- Ability to video and audio call as well as work on files and set up conference meetings all in one place.
- Useful file management features allowing users to quickly search, backup and edit files within a workspace

These features would allow an employee to easily be kept up to date with events created by the employer as well as make it easy to communicate with an employer to ask for things such as time off.

Disadvantages

- There is a heightened security risk with using teams as guests are capable of uploading malicious files to team channels
- There is nothing preventing a user from making a new team with preexisting name with can cause confusion

The main issue here is that teams aren't really optimised for the task at hand. Even though you could easily gain access to files with personal information, communicate with employers to ask for time off and receive notifications on events there are serious security and privacy concerns regarding all of these actions.

Google workspace:

Google Workspace[6] is a comprehensive productivity platform that helps individuals and businesses optimise their workflow. With integrated tools such as Gmail, Google Drive, and Google Calendar, users can effortlessly manage their email, file storage, and scheduling needs all in one place. The platform's collaboration features include real-time document editing and seamless video conferencing which enable team members to work together with ease, regardless of location.

Advantages:

- User friendly interface it's easy to use and has an intuitive GUI making it simple for employees to access and understand how the system works.
- Integration with other google products meaning you can easily access and work on tools such as google docs and google sheets.
- Real time collaboration meaning every at the company can keep up with what's going on real time

A company could use google workspace as a method to allow employees to access discussions and receive event information. This could also allow employees to access

files with their personal information which they can edit and get in touch with people to ask for leave.

Disadvantages:

- You need an internet connectivity to use most of the features which limits accessibility of the app
- There's a chance that employees have access to sensitive information of coworkers if the system is set up correctly
- More of a work collaboration system than an employee management one

Google workspace has the capability to share files and company information to employees but represents security risks as it is not optimised for this exact task. The fact that the software mainly exists to collaborate on work is its greatest weakness as the GUI and information access won't be set up in a way that is ideal for an employee portal.

Confluence:

Confluence[7] is an online workplace allowing for business teams to create, organise, and share documents, messages, and comments all in one platform. This enables better teamwork and communication. The platform has many useful features like blogs, scheduling, and commenting that make it a powerful tool for managing projects and group collaboration.

Advantages:

- Confluence has a robust content management system allowing the company to easily and intuitively store necessary files and information for an employee to access and edit
- There is a high degree of data security
- There is also a mobile app allowing for remote access

Confluence is a useful tool as it can easily store information on an employee which they can access easily through its GUI. The information stored on the system is well protected and on top of all this easily accessible making it possible for employees to access and communicate with employers from remote locations.

Disadvantages:

- Limited integration with other tools
- More expensive than other potential options
- Needs an internet connection for full functionality
- Performance issues with larger amounts of stored data

Slack:

Slack[8] is a digital workplace that allows for real-time messaging, file sharing, and collaboration, thereby reducing the reliance on traditional email and in-person meetings. With its versatile nature, Slack integrates with various tools and services and is suitable for teams of different sizes and industries. Slack organises communication with private and public channels, direct messaging, and threaded conversations, ensuring that teams remain connected and organised, regardless of their location or time zone.

Advantages:
- It reduces the need for chains of emails and hence increases the overall productivity, allowing for quick and efficient communication.
- It provides a single platform for communication, allowing employees to stay connected and updated more easily.
- The search tool makes it simple to access important information and messages, even in large team chats.
- It has the ability to connect with a variety of different products, including project management softwares, making project administration and tracking easier.

Disadvantages:
- Slack's real-time notifications can be a source of distraction, reducing focus and productivity.
- Teams that rely too heavily on Slack for communication can struggle to coordinate effectively without it.
- There are limited customization options which might be an inconvenience for teams with specific needs or preferences.
- Slack having a centralised form of communication raises several privacy concerns, especially for organisations in industries with strict regulations.
- Slack does provide a free version, however its premium would be much more beneficial but at a higher cost compared to other platforms. This makes it harder for smaller organisations such as start-ups to afford it.

6.Domain Model:
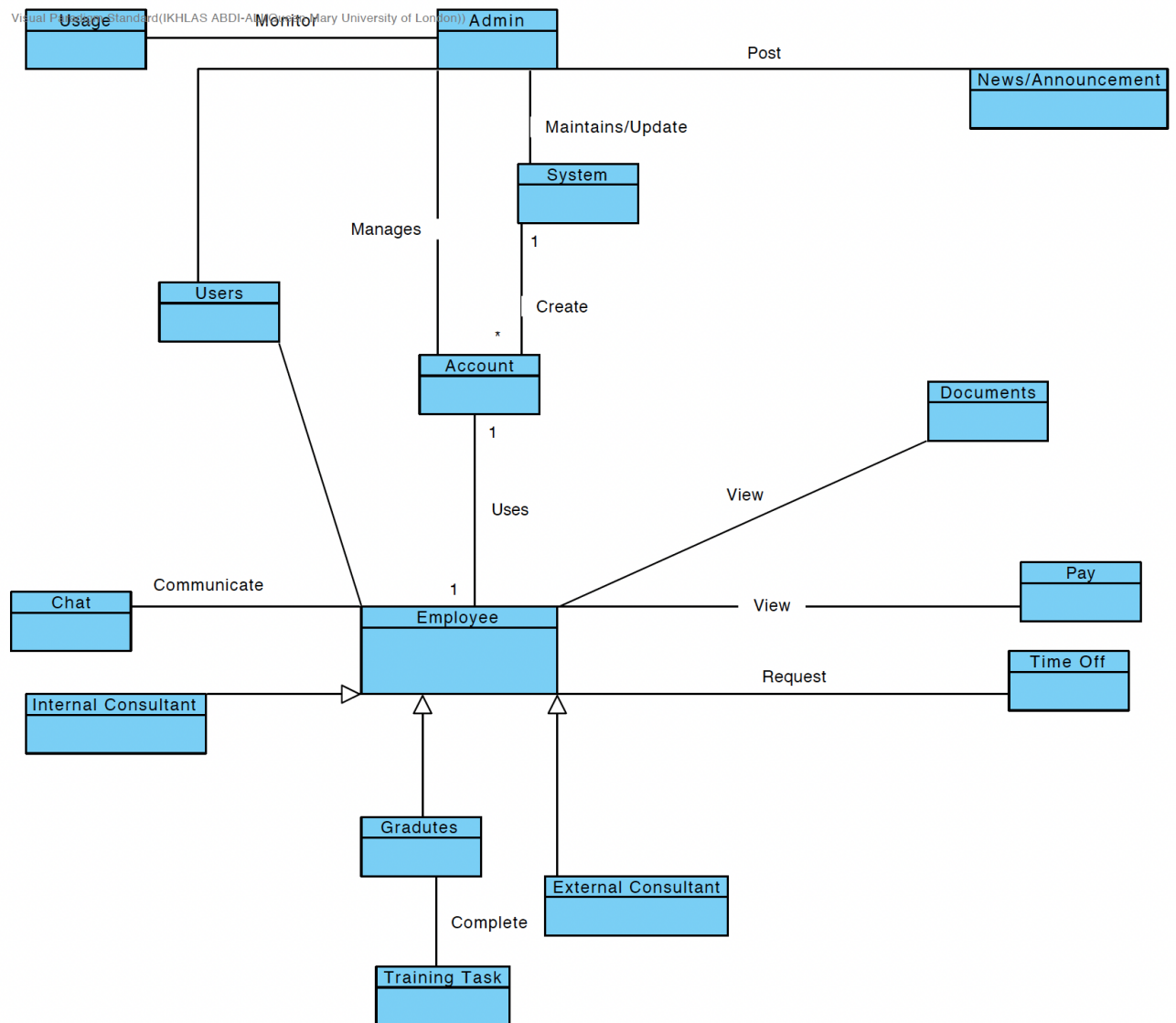
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