Group 13

Trainer Skills & Availability App

ECS506U Software Engineering Group Project

Problem/Domain Analysis Report

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1) Introduction

One of the main reasons employees quit their job is due to scheduling issues[1]. Currently, FDM requires course schedulers and trainers to individually communicate and schedule courses manually which means that trainers will have to let the schedulers know themselves whenever they are available or unavailable, potentially leading to more stress involved for them as well as a higher workload for the Schedulers. Manual scheduling also leads to a lower ROI[2] as it will require Scheduling Managers to spend a lot more hours checking when trainers are available, finding trainers with the appropriate skills and assigning them to a course as well as payroll being done purely manually.

Currently, most scheduling apps designed for businesses are not suitable for the purpose FDM requires. They are good for assigning shifts to individuals by a manager, however, they do nothing to automate the process, nor do they allow you to pick employees based on a determined skillset which is a key requirement for FDM, they will still require a lot of manual involvement from schedulers. There are apps on the market that do solve many of the above issues, however, they are quite expensive, with most pricing not even available for enterprise users unless contacted.

The motivation to create a bespoke application is that not only will it solve the current issue of manually scheduling trainers, but it will also be able to be further developed on as FDMs requirements may evolve. There may be features specific to their application that they may want to add in the future such as DBS check confirmations (which can be added as a requirement to some courses). It will be tailor made to their requirements, courses lasting for a week and each trainer assigned to a course with a suitable skillset. Additionally, this application can also provide an insight into what is required by the company to further develop their course structure, analysis can indicate more trainers with a certain skillset need hiring or what dates not many trainers are available, allowing the company to adapt around these newly generated statistics.

The Trainer Skills and Availability app is going to be a system designed to coordinate trainers with the appropriate skills with training schedules. This bespoke piece of software is designed to allow communication between FDM's Academy scheduling team and various trainers based on their availability and skillset. This app aims to streamline this process as well as provide a centralised service in which both course schedulers and trainers can reference to schedule and teach courses, prescribing each to an appropriate trainer as required, resolving the cumbersome nature of manually doing so as well as reducing the time required. Trainers are going to be able to specify their availability and Schedulers are going to be able to create module weeks, search for trainers who are available and assign them accordingly. We believe that this application will help in saving the costs involved with the many hours required for manual scheduling as well as making it exponentially easier for Scheduling staff to be able to find available trainers.

2) Personas or User Roles

Primary Users of the system:

There will be one main group of primary users of this system – primary users being those who will interact with the system the most and will use it to inform their work, rather than work to maintain the system. The primary group of users for this system are the trainers

Trainers

The trainers will not only be one of the primary user groups of the system, but also one of the most vital parts, providing the system and other user groups with the relevant information to allow the system to function as intended. Trainers will be from one of the several distinct locations FDM operates from, and will be highly specialised in one or more skillset, which will be linked to one of the modules taught. Trainers will work alongside the system, and upload their available schedules regularly so that the system can process them.

Trainers have a very simple interaction process with the system, and it is important to note that the system does not replace the trainers in any way, simply takes their availabilities and allows the scheduling team to create a course schedule from them. The system will also take which location the trainer is located at, as well as their speciality.

Therefore, a typical trainer will:

- · Have basic IT skills in order to upload their schedule, location and skills/certifications
- · Has a certification or specialised knowledge in at least one module/skill taught by FDM
- · Have a free week at least to submit to the system, in order to teach
- · Have a certification and relevant background checks in order to teach sufficiently

Secondary Users:

Despite the system being mainly used by the trainers, behind the scenes there are two important groups of users keeping the system running. They will not typically use the system as it is presented to the primary users, but perhaps use a mix of external/internal tools to provide the system with information and maintain and update it. These two groups of secondary users will be the administrators and the scheduling team.

Scheduling Team:

The scheduling team will take the information provided by each trainer, and organise a course with the relevant modules and availability. There could be one scheduler to each location, one to each module, or many schedulers working in tandem to ensure that courses are structured correctly and that the trainees are studying a new module each week of their course. Schedulers will need no actual training skills or first-hand experience, just data analysis skills to assign each module in a course correctly to an appropriate trainer, making sure there are no overlaps or gaps.

The typical scheduler will:

- Have high IT skills in order to update the system
- Have high data analysis skills in order to extrapolate from the available schedules and build course structures

Administrators:

The administrators will be the main group responsible for maintaining the system and ensuring it runs correctly. Administrators can include developers of the system, but also those with elevated roles and privileges such as user account creation/deletion, and verification roles of trainer's skills.

The typical administrator will:

- Have very high IT skills in order to maintain the system
- Have a great grasp on the workings of the system in order to identify issues and fix them
- Be trusted with user's accounts

3) Environment

This application will be developed as a web application for the following reasons:

1) Portability: As this application will run on a browser, it means that it will be able to run on most modern machines, without needing to worry about the operating system of the user. This will allow us to put all our effort into one system, without having to worry about OS compatibility.

2) Ease of access: FDM employees will be able to access the application wherever they are, as there is no need to download the application locally (because it will be hosted on a web server). This would also imply that users can use the service directly from their mobile device.

3) Responsive Design/User Experience: Being a web application, we can write CSS media queries to accommodate for various screen sizes. This is mainly concerned with mobile users, having a quality user experience. They will have access to full application functionality, through a simplified user interface catered towards smaller screen sizes.

4) Implementation of Web API's: Languages such as JavaScript have support for a number of Application Program Interfaces (API's) [1] that could be used to enrich both functionality of the application, as well as user experience. For example, the Notifications API [2] could display reminders to end users about a scheduled training session.

4) Tasks and Procedures

The Trainer Skills and Availability application will primarily aid the scheduling of training programs across all FDM academies around the world. There are three main users for this system: system administrators, the scheduling team, and trainers.

<u>System Administrator</u>

Maintain and update system: The system administrator will perform routine maintenance and will keep the application updated to ensure the system is working as intended.

Verify Trainer's Skills: Whenever a trainer has updated or added a new skill to their profile, system admins will be notified. The admins will be required to manually check whether the updated information is correct and then update the trainer's profile with the verified information.

Creating/Deleting User Account: System administrators will be able to create and delete both trainer and scheduling team accounts. New accounts will be created when a new trainer has been hired or if a new member joins the scheduling team. Accounts will be deleted when a trainer or scheduling team member is no longer needed or resigns.

<u>Scheduling team</u>

Logging In: Scheduling team members will be able to log into their account in order to use the system and carry out their tasks.

Create module-week: The scheduling team member will be able to view a list of modules that have not been allocated to a trainer yet. The scheduler will then be able to assign a module to a particular week in the training academy's calendar.

Search for trainer: The scheduler is able to search for a suitable trainer for a module by filtering the list of trainers by their skills, availability and location.

Assign trainer to module: When the scheduler has selected a qualified and available trainer for a specific module, they will be able to assign the appropriate trainer to the module. Once this is done, the module will appear on the trainer's personal timetable.

Change module trainer: If a trainer has been allocated to a specific module and they become unavailable for that week, the system shows the scheduler other qualified trainers they can be replaced by, given that the training week has not started yet. If a trainer becomes unavailable in the middle of a module, the module is cancelled.

View Trainer's Profile: A trainer's profile can be viewed by the scheduling team to assist their decision making when allocating a module to a trainer.

Trainers

Logging In: Trainers will be able to log into their account to view and edit their profiles as well as view their timetables.

Edit Profile:

This includes -

- add/change contact details e.g. phone number
- add/change personal information e.g. location and name.

Location information is crucial and required in profiles as the scheduling team will allocate modules to trainers according to the academy they work for and hence the country they reside in.

Request to add/change skills: Trainers will be able to submit a request form (with proof of certification) when they want to update their skill set on their profile in order to lead more/fewer modules. The request will be verified by the system administrator and changes will be made accordingly.

Update availability: To keep trainer availability information as accurate as possible, trainers will be able to update their availability and inform the scheduling team through the application when they will not be able to work on certain days. A trainer cannot teach a module if they are unavailable for even one day out of the week.

Check their teaching timetable: Trainers will have the option to view their schedule and see which modules (and weeks) they have been assigned to by the scheduling team.

5) Competing Software

Biz Library

Biz Library is a company that offers microlearning services to external companies that allow businesses to upskill their employees. Their award-winning video library engages employees of all levels and specialties, and actively encourages them to achieve bigger goals and aspirations in their career. Users interact with the service online through their learning management system (LMS), in which the employee's job role on the website has skills assigned to it to be completed

Pros (Competitive Advantages):

- Their course library – over 9,000 – means that many courses are already included, and no work is needed to prepare any new courses
- They have pre-prepared skills lists for employees to complete according to their job role (e.g., an executive would take management and finance courses). Job roles can be customised or added for a particular company
- They can enrol in other skills that fall outside of their profession by selecting job interests
- The program focuses on 'maximum ROI' which is good for the company as the employee may become more profitable after training
- Biz Library focuses on safety and compliance training which means they can easily adapt to changes in the law in the areas in which their clients work

Cons (Disadvantages):

- Since the library is so large, it may be outdated in terms of content and may be hard to manage. There is a risk of the site crashing with updates or new software, and time to repair may take a long time on account of the library size
- Customers who are using Biz Library for their employees may experience decision fatigue as they are overwhelmed by the size of the library and do not know which course(s) to pick.
- The website technology is buggy – for example the menus graphically glitch when hovering over them and the log in system is outdated. This is because the site is using potentially outdated frameworks to support the large library (including Flash). *This may be a serious security risk*

The skills development (and grading) scheme is automated, which is the mains selling point of the platform. This may not be good for some people who need a more holistic view on their results (autism/neurodivergence for example)

360 Learning is another learning management system that has been having success with household brands such as Toyota, Lego, Pizza Hut and many others. It distances itself from other competitors by focusing on collaborative/peer-to-peer learning as opposed to self-study which is the common learning method of many LMS systems. The system encourages peer-based learning by enrolling employees on courses in which they have to do work as a team, and where ownership of a major task is distributed among the members of the course.

Pros:

- The software assigns a number of daily tasks instead of mandatory courses; means a larger percentage of the course is completed
- Client-facing teams can be helped to over perform, by giving them access to coaching and interactive activities which make the adoption of new software faster
- There is impact-driven success instead of the deliverable-driven kind; essentially means success is measured based on desirable outcomes, not on how many courses employees complete
- Employees can elevate requests for learning as they confront hurdles in their day-to-day work.

Cons:

- The design is initially not user friendly and takes a while to understand how to navigate pages without onboarding.
- Limited scope of interactive learning features, missing key features such as peer reviews of completed work and more community tools to help students collaborate on tasks.
- The workspaces are not visible to users meaning that they lose out on opportunities for team collaboration.
- There is no option to add discussion threads on specific content which prevents questions being answered at the source of the problem.

ThinkFic

ThinkFic is ranked second on the people managing people's 10 Best Employee Training Software for Online Learning & Development, it enables independent experts to find and host training courses on their own site. ThinkFic pulls resources from a wide variety of resources to centralise online courses. It champions an all-in-one approach providing membership bundles and student assignments allowing businesses and individuals to scale their training to their varying business needs.

Pros:

- The courses that ThinkFic support an array file types, including video, PDF, HTML, quizzes, and surveys to mention a few. This allows dynamic training courses with more interactive and engaging content.
- It is integrated with industry leading assessment tool to provide robust examination processes that ensure accurate assessment.
- ThinkFic also provides analytics that allow business to quantify engagement in their courses, this helps business to refine courses to optimise engagement and learning.
- There is a collaborative learning model used through the community feature that allows others to aid fellow students on courses to help with understanding improving the outcomes for enrolled individuals.

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- Content on the courses is not fully customizable, therefore for very specialised courses this would not be appropriate.
- No ability to create personalised reminders which may mean that students that fall behind on learning are not notified to continue with training.

6) Domain Model