“What” Section

Github Repository hyperlink

https://github.com/s3717624/BIT---Assignment-1

Project Name

Our team is creating a web service called “RMIT Timetabler”.

Project Description

RMIT Timetabler is a timetable scheduler that automatically provides various timetable options depending on user preferences. These could include time constraints and class availability to name a few. RMIT Timetabler is a web service that will take the user’s course data and make a timetable suited for the user. The first version of the service will simply display interactive class times, allowing the user to construct a personal timetable.

The functions of RMIT Timetabler are to provide a service to students that pushes efficiency and organisation. This service will provide university students with an automated system that creates a personally tailored timetable depending on the user’s desired requirements. It will take a user’s class times, check them against their personal preferences and then return a working timetable.

The Team

Nitaf Bar

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I moved to Australia with my family when I was 6 years old from Israel, where I was born. Therefore, I speak fluent Hebrew and English.

My favourite pastimes include playing computer games and occasionally going to the gym. Additionally, I am interested in learning about new innovations in technology such as Artificial Intelligence, robotics, cybersecurity or virtual/augmented reality.

My strong points are working on tasks early and always striving to produce high quality work. I am interested in learning programming to help with our group project and also contribute to the design of our web service and how it will function.

My challenges in the context of the project is to make sure that work is consistently being done and that our group's RMIT Timetabler idea is always progressing and being improved upon.

The specific types of tasks that I see myself contributing to my team are working on the assignment documentation, programming and designing.

Linus Cheung

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I was born in Hong Kong and can speak English and Chinese. I've enjoyed working with computers since early on, mainly for playing video games, which has led to my passion in IT.

My current abilities are mostly from learning programming from my time in high school. These include Visual Basic on Visual Studio and python. Currently I am building on these abilities further to help with this project. I am interested in A.I and mobile application development.

The challenges I will be facing in the project are primarily learning how to code with python and setup a web server to host our program.

I see myself contributing to the programming of our project and the design, along with any writing needed for our reports.

Will McPherson

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I’m from Alphington in Melbourne and my family is Scottish-Irish-Czech. I like computers, the internet, music and chess.

I really liked HTML & CSS when I was in year 8. Since then, all I've done is a small website (last semester). I also know some Java from Introduction to Programming.

I’m mainly interested in programming, design and audio.

For this project I need to learn a few programming concepts and web services. One of the biggest challenges specific to this project is the design and usability of our service. I will also need to learn to work with data.

The main work I see myself contributing is designing the website, writing the assignment and programming some back-end.

Joshua Labita

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I am an Italian and professional UAV operator, I speak both english and Italian. My background with Information Technology mainly revolves around high school VCE information technology and software development. My enjoyment and ability to complete these subjects with enthusiasm brought me to find great interest within the industry and eventually choose to apply for a degree within IT.

Throughout high school I became proficient with the Visual Basic programming language and came to find an interest within program past the completion of the course. I find that I enjoyed it as it allowed me to create programs that I wish already existed. For example; as my major assessment for VCE software development, I created an electronic learner logbook to calculate my hours, log my data and then tell me when I was ready to apply for my probationary license.

My weaker points in this regard are that sometimes new concepts often take me a day or two in order to master and or comprehend. For example, in regards to web scraping which we have been utilizing to collect data for our assignment, it took me a day to learn and apply the skills required to compel such practice. However, once my

initial comprehension of the method is previsedI find myself able to extend my ability more simply.
Within this project I expect to be performing the shared role of analyzing tasks at hand and learning how to use the technology required to complete our goals and work towards our projects completion by utilizing these methods. Within the group I do not expect to perform any specific role as the delegation of tasks will come as we find each individuals strengths and weaknesses within the creation of our calendar solution.

Kevin Nguyen

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I am an Australian born Vietnamese and can speak English and little Vietnamese. I have been interested in technology ever since I was young and only recently started to do coding. I enjoy learning about the new things that we can do with technology as well.
Right now, I have basic knowledge of Python, CSS, Java and HTML. I am interested in cyber security and wish to pursue it as a career. I believe one of my strong points is that I am able to communicate well with my team members in order to get the job done.
The project will challenge me to learn new languages such as PHP and more broadly, new coding concepts that may come up in the project as well as learning how to interact with web services through programming.
I hope to contribute any programming skills that are needed.

Jeffrey Ma

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I am an Australian born Chinese that can speak English and Chinese. I enjoy working with and around computers and have previously done Software Development which used Visual Basic as the coding language.
Currently I have basic knowledge of the Java coding language, substantial knowledge in Visual Basic and experience with CSS. I am interested in the design

within CSS and the various coding languages that respectively put together webpages and programs.
Challenges of this project towards myself include the requirement to self learn and navigate various new services and using these services to produce this project.
I hope to contribute to the designing and programming of this project.

Demonstrable Outcomes

1. Features

a) RMIT Timetabler's primary demonstrable feature is the ability to transform user preferences into a personalised timetable. This will involve the user entering login information and course codes, which our website will use to create a schedule. The display of the information will most likely involve arranging classes as layers and using opacity so that the user can see each selectable option. User inputs and preferences will also be demonstrable.

b) Login - can the website access course details?
Course input - can the website reliably retrieve specific class times?
Display - can the user clearly see all of their class times?
Class input - can the user select their prefered classes? (First version)
Automated timetable creation - can the website reliably create a timetable based on user preferences? (Second version)

2. Extended Features

User-specified start times (nothing before) - does the website reliably exclude all classes that run before the user-specified start time?
End times (nothing after) - does the website exclude all classes after the user-specified end time?
Maximum break time (time between classes) - does the website prevent classes from being scheduled too far apart?
Maximum hours per day - does the website produce a schedule with days of a certain length?

Excluded days - does the website exclude certain days from the schedule?

Project Motivation:

Our group was motivated to choose this project because we all found it to be very tedious and sometimes overly complicated to create the perfect timetable each semester. All of our group members wished for a service that could automatically piece together a timetable based on temporal requirements and other preferences such as class availability.

This project relates to our individual and collective interests of technological innovation and thinking of ways to make life more convenient through the use of technology. Furthermore, all of the members in the group have found it very laborious to create a timetable. Many members have had to hand write or use another program to assist them in piecing a perfect timetable together and we want to create an easy to use service that can solve this issue.

Project Justification

Justified Workload

Our workload has been divided up between the team members based on our individual capabilities and prior experiences. Two of our team members, Linus and Josh, were put in charge of coding with Python to web scrape as they both had prior experience with the language. Will was assigned as the member working on implementing Django and getting the front-end of the website up starting Week 4. Nitaf, Jeff and Kevin started on writing our assignment while the other members were figuring out how to use the required resources and tools.

Progressing into the future the workload will continue to be split between each of us and completed individually. We have found a good balance between the work and ample time to complete them within the time constraints. This work has been specifically divided between each of our specialties or experience to maximise the efforts and reduce time required to complete. Whilst current programming techniques and software tools are being used for the development of our project by some group members, others such as Will are off learning and gathering the required resources in order to further progress our product. The ability to concurrently work on the project means that the workload is kept the same for each member of the group as the implementation of features requires the same effort as learning how to create new features, both of which all members of the group are managing simultaneously.

Beyond Current Capabilities

Currently as a collective, we all only have basic knowledge of Java and HTML5 programming. This knowledge alone will not let us be able to do things such as web scraping, automating a script that logs in automatically and incorporating that script into a functional server-side web application. However, we hope to learn new skills such as programming in different languages, including SQL, CSS and Python, as well as advance our current skill set, to meet the requirements needed in building our time table web application.

Project Risks

- **Python as a coding language**
  The challenge of being required to use a different coding convention other than Java allows us to be more flexible with the outcome. Although the risk of using Python includes the countless amount of testing and troubleshooting, this can be mitigated with the use of online tools and help that is widely available from the common use and knowledge of Python.

- **Hosting**

Hosting is going to be a major concern for us when we are close to finishing the project. We are going to be running RMIT Timetabler on a website and it will not work without an active hosting solution. Currently, we are not focusing too much on hosting as we want to get RMIT Timetabler working before getting it online but when the time comes we could host it on a personal computer using Apache and Django. If, for some reason, we cannot host it ourselves, we will look for a company's server to host it on.

- **Security Issue**

  With the use of web scraping to collect the data of the respective students' timetables to formulate a timetable, they are first required to provide their credentials to log into the RMIT system. We will be using those credentials in our system which imposes risks that include the safety and privacy of the user's data. To prevent any breaches of privacy and legal action we will be looking to encrypt the data received and dispose of it when it is not required

- **Scope Creep**

  Currently, the scope of the project is rather focused as we are only looking to get the main part of RMIT Timetabler working, but the scope of the project could expand while and/or after we get the basic component of RMIT Timetabler working. To combat this issue, we will only take on workloads that we are sure we are going to complete a week before the deadline. That way, if we miscalculated the time needed and close to finishing a feature, we can still have some time reserved to complete it. This ensures that we will be ready to submit the project in time without widening the scope of the project to the point where it will not be complete in time.

Team-dynamics related challenges:

- A challenge that may occur during our project could be that some team members may provide less communication than others. This may hinder the team's ability to judge the progression of the project and how close or far we are to achieving our goals and working within the scope of the project. This issue will be monitored by having all group members be encouraged to communicate during meetings and discussions. A lack of communication will be minimised by making sure that each member of the group is giving feedback to one another in each class session and also reporting the work that they completed at the end of the week.

- Another team-dynamics related challenge might be that every team member may have a different end goal in mind for RMIT Timetabler and the group can end up working on different things without realising it. This issue will be monitored and minimised by having each member of the group assist other members each week to ensure that our individual goals and visions do not get too out of control.

- A third team-dynamics related challenge that our group may face would be a lack of work completed by some group members which may result in other group members being forced to do extra work. This issue will be monitored and minimised by providing the group with clear goals that they must complete each week. An example of this would be to outline to the group that they must finish writing two sections of the documents each by the end of a certain week.

Additional Explanation:

- **Time and Work allocation**
  A challenge that is proposed to us is the allocation of work and time to manage research and development to have a well balanced and not heavily

one sided output. With 6 people in the team, initially we had plans to all begin our tests and return results but had realised that beyond this required more effort and insight to effectively move on. Instead of risking the time constraint and workload, we split the group into 3 teams to specialise in each area of the project to reduce potential workload and foresee problems earlier.

- **Team Communication and Availability**

  Besides being together in class as a full group, outside of class it is difficult to find time to sit down together and have group discussions on the direction of the project and potential problems. With various personal commitments, we find ourselves progressing in work but are often notified of progress later after the fact. The risk of this in the future could impose various problems that may unexpectedly arise and indefinitely lead to failure. Mitigation of these risks will require us to find a perfect time in our schedule to come together as a full group to discuss these and keep each other posted.

"How" Section

Resources and Tools

- **W3schools**
  - https://www.w3schools.com/
  - W3schools is a website for learning various web technologies online.
  - We're going to be using it to learn skills such as HTML, CSS, PHP and Python for the project.
  - There is no cost of using W3schools.
- **Django**
  - https://www.djangoproject.com/
  - Django is a 'high-level Python Framework'
  - We will be using Django for hosting RMIT Timetabler.

    - No cost for using Django.
- **PyCharm**
    - https://www.jetbrains.com/pycharm/
    - PyCharm is an IDE for Python
    - We're using this IDE as it contains all the necessary tools and packages in one place so it is more convenient
    - The version we're using is PyCharm Community 2018-2

Collaborative workspaces

- **Trello**
    - https://trello.com/
    - Used to keep track of what we are doing at what time and when.
- **Facebook Messenger**
    - Used to contact each other for notices or just basic communication.
- **Google Docs**
    - Used to collaborate on reports.

Communication Expectations

A tool that we will be using to communicate is Facebook Messenger.

- **Facebook Messenger**
    - Team will communicate and put up notices on a Facebook Messenger group chat. Any concerns or questions will be sent to the team chat to be answered. Additionally, the team will be using Facebook Messenger to coordinate times to work on the assignment together.

- **Expected frequency of responses**
    - It is expected that each member provides at least 1 response per week about what they are currently working on and how long it will take.

- **Use of tools in the context of weekly workflow**
    - Facebook Messenger will be used during each week to make sure that enough work is being done and that we are all updated on each other's individual progress on the project.

- **Frequent team meetings/ discussions**
    - The team will have (at least) weekly meetings and discussion time where we will discuss where everyone is at with the project.

- **Action plan for lack of communication**
    - The action plan for our team if a member does not respond to communication would be to try and contact them using email or ask any of their friends to talk to them if they do not show up to class or respond to messages. If none of these work then our team will contact either our mentor or lecturer for assistance in this matter.

Decision Making process

- **Team meeting/ discussions**

    - We will be using messenger to communicate and discuss ideas with one another, and then discuss the viability and appropriate implementation of the idea together.
    - We use the time in class where we can all reliably meet as a group to discuss current and future implications of the project to bring the best ideas to the finished product.

“When” Section

Trello Board Hyperlink:

https://trello.com/b/34skHR5X/timeboys-group

Title	Planned Start	Planned Due	Lead by
Week 3			
Basics of Web Scraping	23/7	30/7	Linus Cheung
Writing assignment 1	31/7	12/8	Nitaf Bar
Set up Trello Board	31/7	31/7	Nitaf Bar
Design Logo	30/7	30/7	Will McPherson
Week 4			
Automate Login and Scraping	6/8	15/8	Linus Cheung
Learn How to use Django	6/8	13/8	Will McPherson
Week 5			
Start design of web application	13/8	20/8	Jeff Ma
Start learning how to use a hosting service	13/8	24/8	Kevin Nguyen

Implement Django on Home PC	13/8	27/8	Will McPherson
Week 6			
Start coding back end of website	20/8	31/8	Kevin Nguyen
Scrape data into an array	20/8	26/8	Josh Labita
Week 7			
Complete version 1 of application	27/8	3/9	Nitaf Bar
Week 8			
Implement user specified requirements	3/9	13/9	Josh Labita
Complete Version 2 of application	4/9	9/9	Linus Cheung
Week 9			
User Testing	10/9	14/9	Jeff Ma
Week 10			
Addressing issues from user testing	17/9	23/9	Will McPherson
Complete Version 3 of application	17/9	25/9	Kevin Nguyen
Week 11			
Add Extended Features	24/9	1/10	Nitaf Bar
Week 12			

Final Testing	1/10	7/10	Josh Labita