
Assignment Part 1

OUA Building IT Systems (CPT111)
SP3, 2019

DietPepsiMaxUltraCreamingSoda

by

Duc Vinh Tran	S3500659
Caleb Tagliaferri	S3521944
Joshua Coppen	S3775648
Manh Cuong Tu	S3743565
Liam Chan-Wicht	S3803217
Paul Stubbs	S3609575

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1. What

1.1. Project Name

The Magnus Project

1.2. Project Description

Our project is to create a standard 2D chess game with the Western standards which uses Staunton chess set on a 64-tiled board (8 x 8).

After completion of the standard chess game, we will add a move timer to increase the competitive experience of the game. We will also increase the customizability of the game by allowing players to decide on a change board formation and allow them to spend an allocated amount of coins to create their unique chess set and format them on the board.

1.3. The Team

Duc Vinh Tran

Student Email Address: S3500659@student.rmit.edu.au
Your Locale: Sydney, Australia

Background & Passion in IT:

I have completed the below subject for this degree and aspiring to become a software developer in the future.

- Intro to IT
- Intro to programming
- UCD
- Programming 1

What are you good at / What you're interested in?

I currently only know Java, which was learnt from the programming 1 course, I believe I did very well in this course and would like to further develop my skills in this domain.

What are your weak-point in the context of the project?

Currently my knowledge in Java is not enough to complete this project, I will need to gain some additional knowledge through self-learning to create this project.

What role do you see yourself mainly playing in the team?

According to <https://www.123test.com/team-roles-test>, I have scored the highest as a 'Executive', see description of this role below. I believe this role is suited and match my personality.

Executive

The executive is sometimes also referred to as the organizer. The executive is generally disciplined and eager to get the job done. He or she is efficient, practical, and systematic. Executives are well organized and diligent, and quickly turn the ideas of a team into concrete actions and practical plans.

Liam Chan-Wicht

Student Email Address: S3803217@student.rmit.edu.au

Your Locale: Sydney, Australia

Background & Passion in IT:

I have always been interested in IT, from sticking my first pencil into a very early laptop, to making responsive websites. I have an interest in games and how IOT can improve daily life. I have recently completed Intro to Programming and Intro to Information Technology, with prior coding bootcamp experience that detailed MEAN/MERN stacks and Ruby/RoR.

What are you good at / What you're interested in?

Supplementing my current job, I also freelance as a graphic/web designer and have built portfolio websites for friends and helped tweak websites for businesses. HTML/CSS are my stronger points as I enjoy the design and aesthetics of websites.

What are your weak-point in the context of the project?

I believe my current knowledge of Java is lacking for the scope of the project, but I am more than willing to up-skill to meet requirements and fulfil my role in this team.

What role do you see yourself mainly playing in the team?

Through <https://www.123test.com/team-roles-test>, I have been classified as an Innovator, who is often the creative generator of a team. I believe this is a good assessment of my personality and my role within teams. The full description below:

Innovator

The innovator is often the creative generator of a team. He or she has a strong imagination and a desire to be original. The innovator prefers to be independent and tends to approach tasks in a scientific way. As a creative individual the innovator may play a crucial role in the way a team approaches tasks and solves problems.

Joshua Coppen

Student Email Address: S3775648@student.rmit.edu.au

Your Locale: Adelaide, Australia

Background & Passion in IT:

Ever since I was young, I have been passionate about I.T, from starting by playing video games, to building my first computer, to writing some very basic code, I.T has always fascinated me. Unfortunately, I do not have much of a professional I.T background at this moment, as I have never held a job in the industry.

What are you good at / What you're interested in?

I believe I work well with people and have led teams effectively in the past, in studies as well as in the workplace. I am interested in programming to the point that I may want to pursue it as a career. Although I am new to software development, only having completed a handful of courses here at RMIT, I still believe I can be a productive member of the team.

What are your weak-point in the context of the project?

I don't believe my programming skills are to the level needed to create such a project, like the one we are proposing here. Hopefully throughout this course I can further enhance my programming skills to deliver a quality product.

What role do you see yourself mainly playing in the team?

In the team roles test I was described as 'analysers', which I believe to be true. In addition to this role I also believe I could play the role of leader, as I have in the past. The main reason I wouldn't want to be the leader in this project is that I don't have the technical skills required for this project and believe the role would best be served by someone with that experience.

Analyst

The analyst has a tendency to be reserved and critical. The analyst will also react to plans and ideas in a rational and sensible way. He or she will favour a prudent approach to matters and will evaluate them according to their accuracy before acting.

Manh Cuong Tu

Student Email Address: S3743565@student.rmit.edu.au

Your Locale: Melbourne, Australia

Background & Passion in IT:

Always curious and interested in what's and how's of technology from early days. Even building the first personal gaming system back in 2009 which is still working till this very day. Recently completed the majority of first year units from RMIT's bachelor of IT and some units of Swinburne's Bachelor of Information Systems. Since learning different aspects and perspectives of information technology and how it influences day to day activities, curiosity in IT sector continued to grow throughout the process.

What are you good at / What you're interested in?

Main current programming language: Java and SQL. Learnt through RMIT's first year units have enabled me to better understand how data is structured and flows with the day to day jobs. With current employment in the gaming industry, this has resulted in greater overall understanding of gaming management systems. Looking forward to learning more on processes behind such designs and systems.

What are your weak-point in the context of the project?

Current Java programming knowledge will need to be upskilled in order to complete the current project while undertaking new collaboration approach and tools such as Trello, GitHub and Agile approach as all those mentioned are new concepts to me personally. Hoping to gain new insights as well as cover weak points throughout the project in order to complete the task at hand.

What role do you see yourself mainly playing in the team?

Taking the team roles test as a guide, I was placed evenly with both Executive and Analyst role. Combined with previous project experience, I believe this to be accurate as I see myself as a support member.

Executive

The executive is sometimes also referred to as the organizer. The executive is generally disciplined and eager to get the job done. He or she is efficient, practical, and systematic. Executives are well organized and diligent, and quickly turn the ideas of a team into concrete actions and practical plans.

Paul Stubbs

Student Email Address: s3609575@student.rmit.edu.au
Your Locale: Bacchus Marsh, Victoria.

Background & Passion in IT:

Ever since I got my first PC, I have had an interest in IT, within 2 years of buying my first PC I built my first custom PC. I have a reputation in my family as the go to guy to fix IT issues. I enjoy the challenge of finding the issues and resolving them, I just wish people would clear their search history before asking for help.

What are you good at / What you're interested in?

I have a basic understanding of Java, I am working on expanding that knowledge, I enjoy programming in Java.

What are your weak-point in the context of the project?

I have limited knowledge of programming (Java Basic) and I have never made a game before, but I am eager to learn how to do so.

What role do you see yourself mainly playing in the team?

I see myself in a support/entry position due to my lack of experience. I am able to do mundane tasks so being a tester would be a perfect fit.

Executive

The executive is sometimes also referred to as the organizer. The executive is generally disciplined and eager to get the job done. He or she is efficient, practical, and systematic. Executives are well organized and diligent, and quickly turn the ideas of a team into concrete actions and practical plans.

Caleb Tagliaferri

Student Email Address: S3521944@student.rmit.edu.au

Your Locale: Kambalda East, Western Australia

Background & Passion in IT:

Growing up in a mining town with a low population and my introverted personality meant spending time on the computer a majority of my spare time which was spent playing games initially before moving into hobby programming with a range of languages such as JavaScript, Python, Java and C++ although I've not chosen one to perfect yet. The passion for IT lies in the possibilities of programming and electronics and combining both of them to create tools for entertainment or productivity and make a lot of money.

What are you good at / What you're interested in?

I'm good at working in both team & isolated environments and leading a team if required. I'm good at finding resources to learn something on the internet and think very logically which is required when programming. I'm interested in combining programming & electronics as well as potentially incorporating Esports.

What are your weak-point in the context of the project?

In a team environment, I become unmotivated to participate if it feels like members are not participating as although I have no problems working with people, if they aren't participating it means we shift our focus to resolving issues instead of working on the project.

What role do you see yourself mainly playing in the team?

The role I see myself playing in the team is the programmer as I'm confident with programming. We have a solid foundation of leadership in the group with everyone holding each other accountable but if conflict arises, I will play the leader role in resolving the confliction.

Chairperson

The chairperson has a strong coordinating role. With an emphasis on procedures, the chairperson will try to bring and keep the team together. He or she is communicative and deals with the members of the team in a respectful and open-minded way.

1.4. Demonstrable Outcomes

1.4.1. Minimum Viable Features

1.4.1.1. **Piece Movement**

Pieces of a specific class must move accordingly within parameters.

Validation Test: Rooks must only move along the X-Y axis only without movement limit.

1.4.1.2. **Board**

Board will be an 8 by 8 grid which must be the visual representation and background foundation for chess piece movement (Coordinates).

Validation Test: Standard game upon load completion, an 8 by 8 grid in Checker board layout with chess pieces in their starting place.

1.4.1.3. **Piece Model**

Chess pieces represented with either 2D or 3D models for visual aesthetics, rather than using text-based identifiers.

Validation Test: Pawn's, instead of the standard piece accustomed to today's standard. It could be a soldier or a villager (Old village theme).

1.4.1.4. **Move Timer**

General timer, can be set to record time or implement a difference game experience.

Validation Test: Time attack mode. Every move must be within 5 seconds or else the player will suffer a penalty such as missed turn or loss of chess piece.

1.4.1.5. **Pawn Evolution**

In other words, Promotion. For this condition to be true and verified. While in game, a pawn piece must reach the end of the board and be prompted for promotion selection.

Validation Test: Promotion prompt can be via pop-up with a selection of potential pieces it can be.

1.4.2. Extended Features

1.4.2.1. **Additional Pieces**

Two versions of 'Additional Pieces' can be featured in this case. One being the pawn promotional aspect of replacing the pawn for a special piece. The other being extended via 'Purchase Decks', adding in a non-standard piece set.

Validation Test: In order to validate this, a prompt event will occur under the right conditions for the player to make changes or adjustments to the piece set.

1.4.2.2. **Different Boards**

An extension over the classic chess game. Rather than having a classic board we're the players generally move forward. Board may have terrain characteristics such as rivers where some pieces cannot pass and have to go around.

Validation Test: Custom boards to be selected after the home screen when choosing either classic board or custom.

1.4.2.3. **Purchase Decks**

In this custom mode, player is able to dictate what goes on the board within their own first 4 rows as well as a limited budget. So, the potential player can either have an army of pawns or a specialised piece set only. All for the user to decide based on their play style preference.

Validation Test: Within a budget of \$30: Pawns cost \$1, while Rooks cost \$2-3.

Must not exceed budget, will be refused and prompted on such occurrence.

1.5. Project Motivation

Many members have either recently or at one point completed Introduction to Programming which taught them how to create a console-based java application while introducing them to tools used by programmers to work on projects together, the main one being GitHub. Members were also introduced to IntelliJ IDEA and Eclipse which are IDEs used mainly for Java development.

Individually, everyone is interested in incorporating GUI into their projects so the 2D game option best appealed to all team members as well as all being interested in playing games so the 2D Project Stream both suited us furthering our knowledge in Java GUIs and also involves something that we are passionate about, games.

1.6. Project Justification

1.6.1. Justified Workload

Throughout this project, each member will be strengthening their knowledge of the Java language. Specific classes, methods and models need to be explored to successfully complete this project. As many of the members are new to programming/Java, having recently completed entry level courses, the relative skill level of each member is low.

Throughout the eight weeks, members will be interacting with unfamiliar IDE's, collaboration workspaces, and communication platforms. By following the BITS course, each member will become more familiar with these tools, upskilling for this particular project.

1.6.2. Beyond Current Capabilities

Our group has a wide range of knowledge/skills, but no one person has all the skills needed to create this application by themselves. We as a group will need to drastically improve our Java knowledge. We will need to learn how to create an application that uses a 2d board and moves pieces across the board based on user input, this will require an advanced understanding of Java and Java GUI.

1.7. Project Risks

We have identified six risks that could be detrimental to our project if we refuse to acknowledge their existence. By identifying these risks, we also will be better suited to dealing with them if they present themselves.

1.7.1. **Risk: Scope Creep**

Scope creep can be a risk for any project, which does not exclude ours. If not managed properly a project can grow in size to something that is unachievable in the given time

Example: We have decided to change our chess game from 2d to 3d, we also want to add really amazing visual effects whenever a user attacks another piece on the board, and we want to make 30 different visual chess boards. "How long do we have to complete this again?"

Mitigation: Sticking to developing our five minimum viable features and our three extended viable features for our project should keep us on track. That is as long as the features have been discussed and planned with thought.

Risk: High Complexity

When planning this project, the team need to be aware of our current programming capabilities and plan accordingly, that is not too say the team should not be pushing themselves to learn and develop new skills, but to understand it's not going to build the world best new game.

Example: The team has decided to use the programming language C++ to build the chess game. Pity everyone only knows Java at this stage.

Mitigation: Plan the project with each member skill levels in mind, aiming to grow each member skillsets, while not overbearing any one member with too much.

Risk: Poor Communication

Poor communication between a team is the lack of coordination between a team through discussion. Poor communication can lead to a substandard product or even no product at all.

Example: No member in the team has heard from Josh in three weeks, if he doesn't complete the minimum viable feature of piece movement, the project is in trouble.

Mitigation: The team has scheduled weekly meetings every Sunday at 7:30 PM AEST. In addition to the weekly meetings, each member is required to check the team discord and trello board daily.

1.7.2. Risk: Schedule Issues

If a schedule for the project is not set correctly, and continually referred to, a project can fall behind and in extreme circumstances fail altogether.

Example: The schedule states that the chessboard needed to be completed by week 6, it is already week 8. The project is falling behind.

Mitigation: Week to week team meetings which detail where the project is compared to the schedule, discussing the current weeks schedule and making the necessary changes needed for success.

Risk: Lack of Leadership

In any project leadership is needed to create a successful product. A project leader is needed to set the direction of the team, motivate each member, ensure the team is on schedule, manage conflict within a team and more. Without a project leader, motivation will drop, and work will come to a halt with no one taking responsibility.

Example: No one team member has put their hand up to lead the project, who needs leadership anyway.

Mitigation: Caleb has been delegated as This project's leader. Caleb has the greatest programming knowledge of the team.

Risk: Conflicts Between Team Members

People don't always get along and have disagreements. This is no different in a team project setting. If conflict is allowed to go on without intervention, it can cause division between a team, which will affect the outcome of a project.

Example: Two members of the team have been fighting and now there isn't a team meeting without them blowing up at each other. No one has said anything, and the work has been suffering.

Mitigation: Having a leader to help settle disputes will assist the team. Also training the team to understand that disagreements can also be opportunities for growth.

2. How

2.1. Resources & Tools

- GitHub – <https://github.com/>
 - GitHub is an open-source version control system and collaboration tool which enable developers to work together on the same project without overlapping each other. Developers can add or modify codes collaboratively which is then stored in a central repository.
 - We have chosen to use GitHub for our project as it's a hugely popular and proven collaboration tool. As there are six team members working on the same project, it would be difficult to coordinate our code implementation without some sort of collaboration tool, GitHub meets our need.
 - GitHub is open-source and is free to use, we will be using the latest version available
 - We will not be using an alternative to GitHub.
- Eclipse IDE – <https://www.eclipse.org/downloads/>
 - Eclipse is an integrated development environment used for developing applications mainly in Java but also supports other languages such as C/C++, Python etc.
 - Eclipse main purpose is to provide the developer with the tools and environment necessary to create great software. Eclipse is customisable via different available plug-ins which will come in handy for us.
 - Eclipse is open-source and free and we'll be using the latest stable version 4.12.
 - Some team members prefer to use IntelliJ as an alternative, see below for more info.

- IntelliJ IDE - <https://www.jetbrains.com/idea/>
 - Like Eclipse, IntelliJ is also an IDE for developing computer software. Developed by JetBrains, IntelliJ comes in both a free and paid edition.
 - IntelliJ provides the tool and environment which enable the developer to create many software's.
 - IntelliJ has a free and a paid edition. The paid edition is free for students if they sign up using their student email.
 - We will be using the latest stable version
- Discord – <https://discordapp.com/>
 - A free VoIP communication software designed for and used mainly by gamers. As this software gained popularity, its use is extended to other contexts that requires team work and collaboration.
 - We will be using discord as our main communication tool as it enables our team to communicate with each other via text and voice chat room for free.
- Office Suite - <https://www.office.com/>
 - The Office Suite encompass several software useful for all type of work. For this project, we will mainly be using Word Document for the writing and documentation of our project and One Drive for sharing and collaboration of the word document.
- Java Documentation - <https://docs.oracle.com/en/java/index.html>
 - Java doc provides help and documentation of the many API available to Java developers.
- YouTube – <https://www.youtube.com/>
 - YouTube is an American video-sharing website headquartered in San Bruno, California. Three former PayPal employees—Chad Hurley, Steve Chen, and Jawed Karim—created the service in February 2005. Google bought the site in November 2006 for US\$1.65 billion; YouTube now operates as one of Google's subsidiaries. <https://en.wikipedia.org/wiki/YouTube>
 - We will be using YouTube as a resource and guide to help get us started on building our project. Some team members are relatively new to programming in Java so YouTube will be a great resource for everyone.
- Lynda.com - <https://www.lynda.com/>
 - Lynda.com also known as LinkedIn Learning is an American website offering video courses taught by industry experts in software, creative, and business skills. It is a subsidiary of LinkedIn. It was founded in 1995 by Lynda Weinman as Lynda.com before being acquired by LinkedIn in 2015. Microsoft acquired LinkedIn in December 2016. https://en.wikipedia.org/wiki/LinkedIn_Learning
 - Unlike YouTube, Lynda provides short courses created by industry professionals on many subjects including Java programming. Lynda will be a great resource for us to turn to when required.
 - Lynda is usually a paid subscription service but fortunately it's free for RMIT students.

2.2. Collaborative Workspaces

Throughout this project, we will be collaborating via a variety of workspaces. For example:

- Trello (www.trello.com) / (<https://trello.com/b/8ynTLEwK>)
- GitHub (www.github.com) / (<https://github.com/JoshCoppen/Building-I.T.-Systems>)
- Office 365 (www.office.com)

Trello is an online collaboration tool that assists with project management. Through the use of cards and columns, each issue is clearly defined and easily sorted into specific groups. These cards can then be further detailed with a variety of modifiers such as due dates, colour coding, and pictures. In addition, we have also implemented the use of 'individual swim lanes' that have each team member's tasks and when they are due. Alongside these individual swim lanes, each group of cards are clearly labelled to ensure all group members are able to find collaborative workspaces within our board.

GitHub is a cloud-based version-control system that allows developers to collaborate and edit projects through specific actions. These actions such as pushing, pulling and merging, allow each team member to modify features that influence the whole. With this project, we are using GitHub to emulate a professional environment where version-control is an industry standard. With GitHub, it is also simple to assign features to members and have a review process of work done.

Office Suite 365 (Word) is a collaborative word processing platform that allows team members to access and edit the same file without having to transfer and collate individual files from each member. This particular workspace is easy to use as word processing is familiar to almost anyone that has touched a computer. As such, many employers look for experience in the Microsoft Office Suite as it has become such a standard across industries.

2.3. Communication Expectations

Discord is the major communicative tool we will use. We expect to message each other throughout the week, at least once a day. We will also have a weekly meeting every Sunday at 7:30 PM AEST.

As team members start their working days, they will check on the discord server as well as the team trello board to see if any actions need to be taken or ask for any assistance that a team member needs help with.

If a team member does not respond to any communication, the first step would be to mention them in a message to the group discord. The next step would be to privately message the person in question. If there is still no response, sending through an email to the individual would occur and finally if the person still will not answer, mentioning our mentor Echo.

2.4. Decision Making Processes

The decision-making process used will include incorporating two known **electoral systems** which will start with the Majoritarian system followed by the Plurality voting system. If neither of these systems can provide a conclusion to the decision, the team leader will select an option.

The **Majoritarian system** allows team members to vote for all the options they wish to and the option(s) with the most votes will move onto the Plurality system, if only one option has the most votes, the decision has been made and there is no reason to move onto the Plurality system.

The **Plurality system** allows team members to only vote for **one** option, the option(s) most voted will move on and the team leader will make the final call on which option will be elected.

3. When

Title	Planned Start	Planned Due	Lead by
Designing and Programming the board	23/9	29/9	Caleb
Modelling the chess pieces	23/9	29/9	Josh
Piece movement	30/9	20/10	Vinh
Attack movement	30/9	20/10	Manh
Pawn evolution	30/9	20/10	Liam
Check/ checkmate	21/10	27/10	Paul
Move timer	28/10	10/11	Liam
Additional pieces	28/10	10/11	Paul
Different boards/ setups	28/10	10/11	Caleb
Purchase decks	28/10	10/11	Team

References

123test.com. (2019). *Team roles test | take this free team roles test online at 123test.com.* [online] Available at: <https://www.123test.com/team-roles-test> [Accessed 22 Sep. 2019].