Project Definition Document

Xiang qi (象棋) is a two-player strategy board game, often known as Chinese chess. The board is 9 lines wide by 10 lines long. It is divided into 2 territories by a river in the middle. There are 32 pieces in total with 16 per player. The pieces include generals, advisors, chariots, cannons, horses, elephants, and soldiers. The objective is to capture the opponents general or marshal. Each piece has different rules for how it moves. There is no concept of stalemate in Xiang qi, unlike chess.

Why is the project being undertaken?

This project Is being undertaken for a multitude of reasons. One reason is skill development. Many games, chess and Xiang qi included, are designed to challenge player and help them develop various skills, such as problem-solving and strategic thinking. Social Interaction. Multiplayer games allow people to connect and play with friends or meet new people from around the world. This project will include a multiplayer element, where 2 players can play against each other. Games like chess and Xiang qi promote competition, for some the competitive aspect of games is very appealing. Whether its competing against other or trying to beat personal bests, the challenge can be highly motivating. Playing games, especially board games can be a way to unwind and de-stress after a long day. The immersive nature of games can help players take their minds off their worries and relax.

What is the background?

What will the project deliver?

The project will be a website. That will allow everyone to use the game, it will also allow people to easily play against each other. And mainly, so that everyone can play the game whenever they want to, wherever they want to.

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| Primary Objectives | | |
| Objectives | How will these be complete | Programme Competency |
| A website anyone can visit |  |  |
| A functioning game |  |  |
| A way to play a game with a friend |  |  |
| A database to store account information |  |  |
| A way to create an account |  |  |

|  |  |  |
| --- | --- | --- |
| Secondary Objectives | | |
| Objectives | How will these be complete | Programme Competency |
| A button Explaining all the rules |  |  |
| A button explaining how the pieces move |  |  |
| An Ai for the Player to play against |  |  |
| Cross-Platform Compatibility |  |  |

Complete Table

How will the project be delivered?

Agile has multiple benefits. It allows for iterative development, meaning adjustments based on feedback and changing requirements without derailing the entire project. Its iterative cycles, enable the delivery of functional parts of the game more quickly, allowing for early testing and feedback. This results in improved quality continuous integration and deployment results in a more stable and polished product.

However, when the requirements are clearly outlined well documented and unlikely to change, as this project is, the waterfall approach can be more efficient. The simplicity and controlled nature of waterfall makes it easier to manage and control, especially when working in small teams, such as just myself. It also provides a structured and sequential process, which can lead to more predictable outcome and easier project management. Which when working on a project with a strict deadline makes waterfall a better approach.

As this game will be a website, it forces me to use HTML, CSS and JavaScript. However, tools such as Typescript and react will also be used, as this will speed up the development process.

How will results be evaluated and used?

What is the timescale for the project?

Major Tasks

* Deploy website
* Implement continuous integration and continuous Deployment (CICD)
* Game with pieces that can move
* Limit pieces to move only how they are meant to
* Deploy database of accounts, and passwords
* Implement a way to create a new account / sign in to account
* Add button explaining all the rules
* Add button explaining how the pieces move
* An AI for the player to play against

To create a new account / sign in I will first need to create a database to store this data. Everything is dependent on a website being deployed. To join a friend’s game, an account will need to be made to connect to each other

Clear End date, but how will I use the time I have available?

What are the risks and constraints that might affect the completion of my project?

Without clear objectives and goals, the project can lose direction, leading to confusion and inefficiency. This links with scope creep, where changing requirements mid-development can derail project. Inadequate planning can lead to unrealistic timelines, budget overruns, and missed deadlines. Poor planning also encompasses technical issues. Where choosing the wrong technology or facing unexpected technical issues can cause significant delays. To avoid them / mitigate the consequences I will ensure that each step of the project has been thoroughly planned out. Objectives are clear, precise and measurable.

Creating an AI for the player to play against could be difficult, as Xiang qi is a very complex game, the ai will have to decide and evaluate each move possible. Implementing an efficient algorithm such as minimax or alpha-beta pruning is crucial. These algorithms help the AI to look several steps ahead and evaluate the consequences. The AI need to make strong moves quickly, which is a significant challenge.

What are the ethical issues?

Ethical concerns in developing and conducting the project?

Legal considerations (GDPR)?

(PDD doesn’t need to consider ethical issues resulting from the implementation of the project after is complete)

What are the commercial factors of the project?

How much will it cost?

How could it be commercially exploited?

What is the market for it?

Is there any competition?

How will the project be evaluated?

Criteria? (numerical)

Methods by which it will be judged.

(Effectively writing the exam questions before you take the test)