Project Objectives

## Project Goals

The end goal of this project is to have a fully working Monopoly computer game with advanced customisation options, with the following functional requirements:

* The standard UK Monopoly board will be fully playable with its original rules
* There can be any number of players combined with any number of computer players
* The game will support multiplayer
* The game will have full visual output with an interactive GUI
* Multiple boards will initially be available to select
* Rules that can be altered to change gameplay before a board is selected to play
* There will be a board creator where existing boards can be modified, or new boards can be created.
* Board customisation includes different place names, currency, available card decks, playable tokens, board sizes
* There will be a way to export boards so they can be shared with other people
* Boards can be turned into a physical printable format

The following non functional requirements will also be followed:

* The program will be written as a desktop application
* The main code will be done using the Java programming language
* The software will support the current versions of Windows

## Novel Aspects

Monopoly is a very popular game of which people love unique or customised versions. There are over 1400 variations of Monopoly, with many different locations, popular culture, and alternate mechanics featured. There are at least 7 UK counties and 25 UK places that have a version of monopoly based after them. With this many versions of monopoly, its clear that people like to play versions of Monopoly with things they are familiar with, whether it’s a location, TV series/movie, or based on a person/set of people. It’s not realistically possible for there to be a version of Monopoly that covers everything in the world, so providing people the tools of which they can make their own monopoly game is a novel solution so that everyone can have access to a monopoly board they really enjoy.

Since 2014, Hasbro has produced “My Monopoly”, a semi-customisable physical Monopoly board of which place names, chance and community chest cards, and playable tokens can be customised using by printing onto sticker sheets, then putting the stickers onto tiles which are used in the game. Even though this game has limited customisation options, with rent amounts, currency, card types and the board not being customisable at all, the game is still popular and continues to be sold today, which shows there is a market for custom monopoly. This project aims to go further by allowing people to have even greater control over their game, using a digital format.

## Risks

Monopoly is a copyrighted and trademarked work of Hasbro. The website states that “The MONOPOLY name and logo, the distinctive design of the game board, the four corner squares, the MR. MONOPOLY name and character, as well as each of the distinctive elements of board and playing pieces are trademarks of Hasbro, Inc. for its property trading game and game equipment. © 1935, 2021 Hasbro.” An exception to copyright is for “Non-commercial research and private study” with the purpose of this exception being “to allow students and researchers to make limited copies of all types of copyright works for non-commercial research or private study.” (<https://www.gov.uk/guidance/exceptions-to-copyright#non-commercial-research-and-private-study>). Creating a monopoly game could easily break copyright law if not done correctly which is a large risk. In order to avoid this risk and not break copyright this work must be used for study purposes only, with sufficient acknowledgement to Hasbro, the copyright holder, and this work cannot have any financial impact on the copyright holder.

Creating the software will involve a lot of using a computer screen, and there are risks associated with that. Extended use of a computer and looking at a screen can lead to eye strain and fatigue. Using a keyboard and mouse for extended periods of time can also lead to muscle fatigue and RSI (repetitive strain injury). To help prevent this, having regular breaks to relax muscles will help. Using a screen filter to reduce the brightness and amount of eye strain will help, as well as ergonomic mice and keyboards built specifically to reduce muscle strain.

Creating Monopoly boards based on other intellectual property is something else that needs to be managed and controlled carefully to avoid breaking any associated laws. To manage this risk, any board created with any intellectual property cannot be shared or redistributed. For the purpose of this project, I will also avoid using any non Hasbro intellectual property while creating custom boards

## Project management

This project will be managed using JIRA, a bug tracking and agile project management web application of which any issues and tasks will be recorded there. The foundation of the project has been created this week, and will be iterated upon every week until a final project that meets all of the requirements has been met.

This week a text based monopoly game has been created with all of the mechanics of the standard monopoly, with dice, houses, property development, card decks, player tokens, a jail system, sets and set bonuses, and a sample board. Computer players will take turns moving around the board buying any property they can afford but always maintaining a £100 safety net. Once they have collected a full set they will start building houses. The game will last for 100 turns or until there is one player remaining.

## Work plan

Now the fundamentals of the game have been created with computer players, there are 4 main objectives from this point onwards:

Player input: Allow an actual person, or multiple people to play the game providing relevant inputs to the game

Visuals: Have all parts of the game represented without any text, with visual elements representing a physical monopoly game that change with each action taken in the game

Customisation: Allow the game to support as much customisation as possible with options to export and import settings and boards

Board creator: A flexible GUI to allow the editing and customisation of boards

Up until week 11, the main focus will be on getting player input and visuals, and then after that the customisation and board creator will be done.

