

# **Component Design and GUI Report**

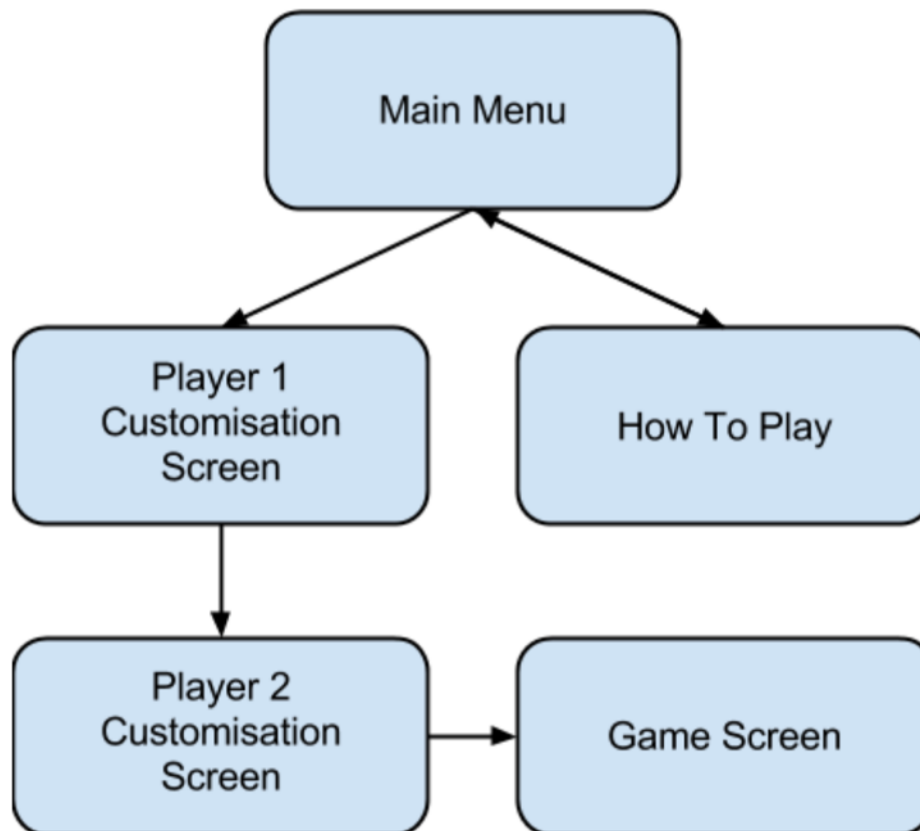
by

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This document discusses the relationships between the different screens within the game and the design of the games GUI components, which make up these screens. The components covered include the main menu, the map, train sprites and the game HUD (heads-up display).

### *Screen Components Layout*

The following diagram shows the relationships between all of the game screens. As can be seen from the diagram, the main menu screen is where the routes to all other screens start. The player customisation screens provide facilities for players to choose their name and pick an avatar. The game screen is where the actual game will be played. This game screen uses components such as tiles and train sprites to implement requirements, such as choosing routes and trains moving. It should be noted that the game can be exited from any game screen by clicking the 'x' button on the application window.



## *The Main Menu*

At this moment in time simple text art has been used for creating the menu buttons. All the buttons are created using the GeneralButton class which implements functionality such as the isPressed() function. The background of the main screen is an image based on the map design of the main game screen (green grass style map). Below are examples of the menu buttons, followed by the background image and a screenshot of the menu as displayed in the game.

Buttons which take you to the 'How to play' section and to 'quit' the game:

How To Play

Quit

The background of the main menu:



The final menu screen:

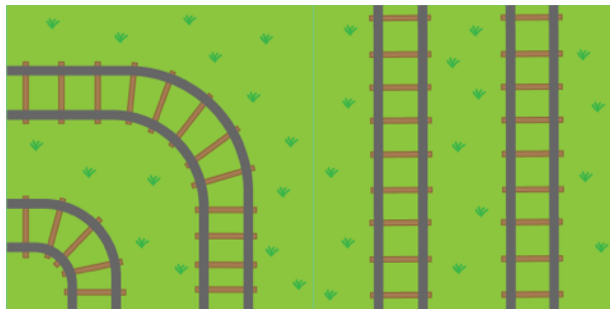


### *The Map*

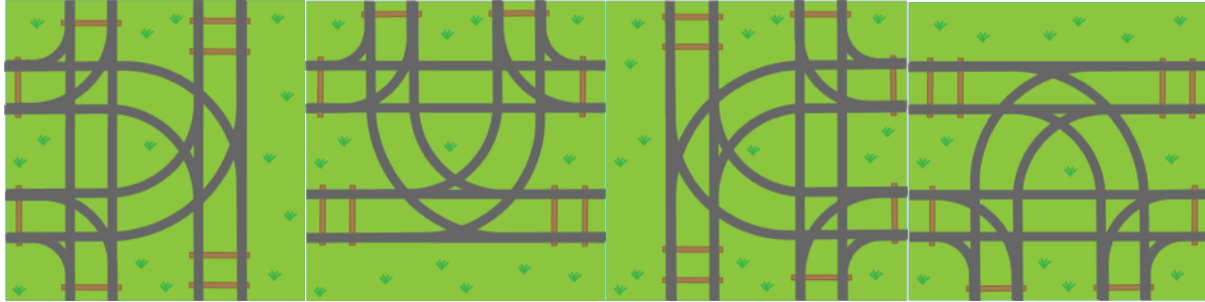
Our map is a grid based design which uses different tile types. Tiles can either be rail, empty, a tower or a city. For each type of tile a range of different tile graphics had to be created. All of the tile graphics were created in Adobe Illustrator and saved as 32x32 pixel png images.

There are 11 different types of rail tile as we had to account for trains entering any individual tile from multiple different directions. In all the rail tiles we have two lines of rail so that two trains can pass each other on a single non junction tile. Collisions can occur however, on tiles where the rails cross (junctions). Junctions also have variants for when they are being highlighted and for when they are selected. These variants are used when a player is selecting a route for their train to take. A blue highlight is given to junctions which are able to be selected along the route the player is creating. A junction tile will be coloured red once it has been selected, helping the player visualise the route they are creating. Examples of the different rail tiles graphics are show below:

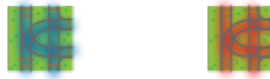
The following two tiles are example of the most basic rail tiles, where rail enters from one of four directions (Up, Down, Left or Right) and exits at one of the other three directions.



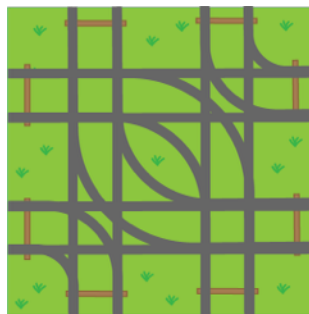
The following rail tiles are the junctions which allow entry and exit to the tile from three directions:



Examples of highlighted and selected junctions (displayed in their native resolution of 32x32):



This junction allows for trains to enter and exit the tile from any direction:



There are two variants of empty tile:

This is the standard empty tile.



This is the variant of the empty tile which is used to indicate which tile the cursor is hovering over.



At this moment in time we have only implemented the placement of one type of tower. The tile resembles a turret and is able to be rotated to different orientations. There are two colours of turret, one for each player, as shown below.



City tiles cover a 3x3 tile area so that cities are more prominent on the map and easier to select. The city tile is shown below along with variants which are displayed when highlighting a city and when selecting a city. Cities are highlighted using a red outline and when a city is selected it is given a blue outline.



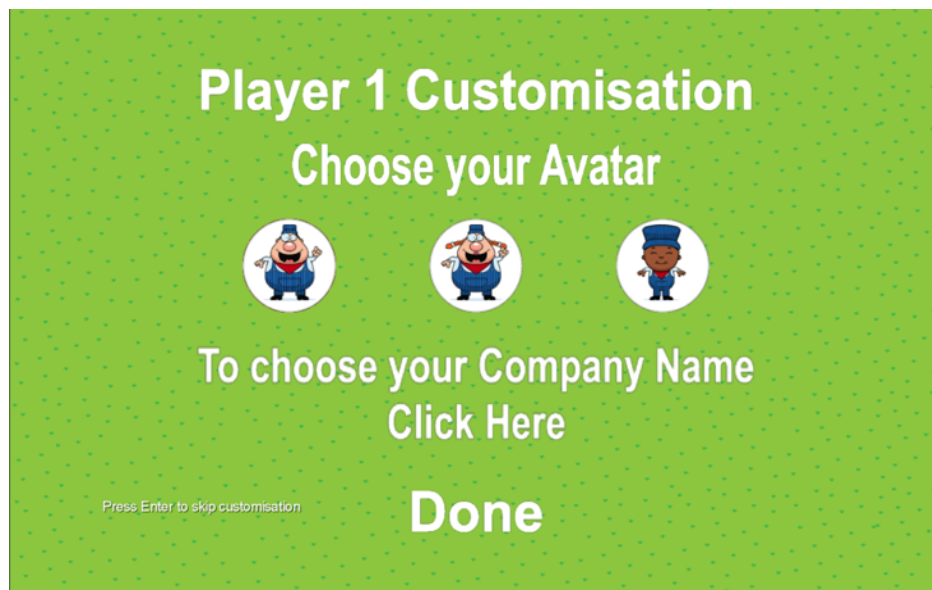
### *Train Sprites*

Currently the game supports only one type of train, for which we have sprites for each direction the train could be travelling (up, down, left or right). We have all of the different train sprites in two separate colours - red and blue. The trains are animated to appear as if they are moving along a route. Below are some examples of the train sprites in their native resolution (15x31):

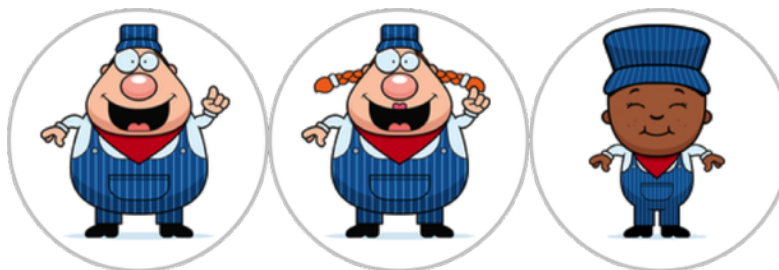


## Game HUD

The game has been designed with a minimal HUD so that less of the game screen is blocked when playing. Parts of the HUD are also context sensitive and so are only show when certain actions are done, for example the small pop up box for confirming route selection. The HUD displays information that each player needs to know such as gold, passengers delivered and each players name. The HUD is entirely text based apart from the player avatars. The player avatars are chosen just before the game starts and then displayed in the top corners of the game screen. A screenshot of the player customisation screen is given below, along with images of the HUD as displayed in the game.



Here are the avatar images used:



The main game screen HUD:

