

GAME GUIDE

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Summary

This game takes inspiration from popular games such as SimCity. In these games, the player is required to build a city and maintain it. This game focuses on business, the player instead owns a series of stores which they are required to maintain and manage. To assist the player, machine learning is used to forecast future sales, with the intention that these forecasts could help the player make decisions. Further, to mimic human purchasing behaviour, Q-Learning is used.

This version of the game focuses almost entirely on the machine learning and visualising the data.

The game is an alpha version and mostly focused on the machine learning perspective, and how it could be used to assist the player and create unique behaviour.

This document is a user guide about how the game works and how to navigate it.

Basic Concepts

In the game there are five product types and four seasons. The product types are Technology, Kitchen, Sports/Fitness, Home/Furniture and Outdoor. The seasons are the same as the seasons of our year.

Finally, the player can also own stores in a number of regions. These include: South and North America, Europe, Africa, East Asia, Middle East, Russia and Australia.

In this version of the game, the player is started up with randomised sales, product quantities and customer counts. This is simply to speed up the process in which certain things can be visualised. The game does work on a time counter, whereby every n second, n days pass and the API are called again to get new sales. Anything that happens as a result of this is also accounted for in the system as time passes.

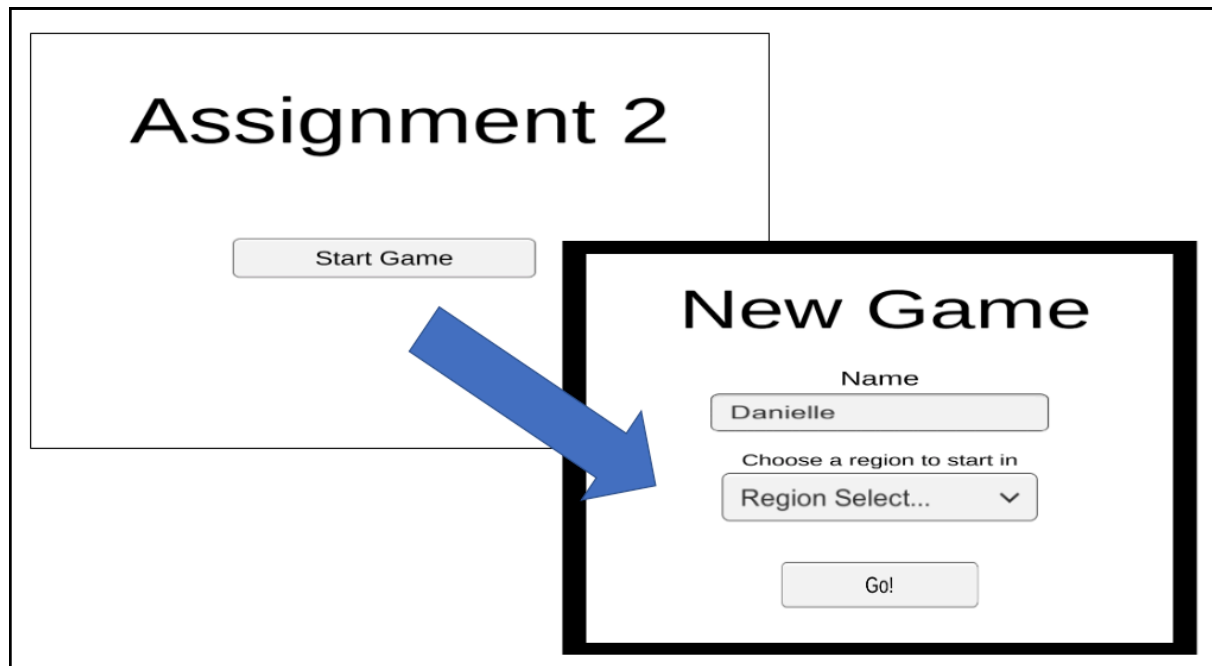
Starting a New Game

The first screen is a start screen. Selecting to start the game

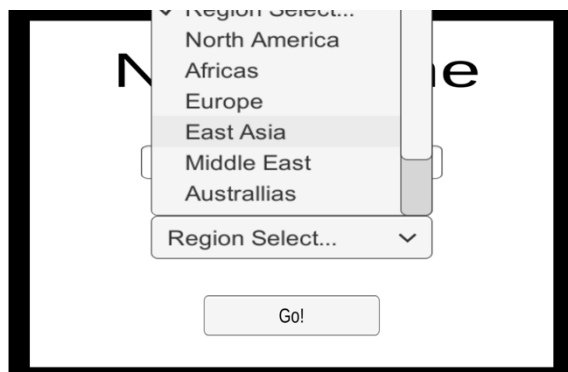
Assignment 2

Start Game

After selecting start game, the player is taken to a new screen where they can enter some information for the game.

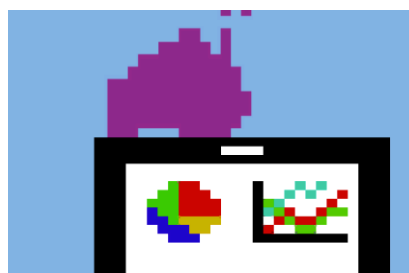
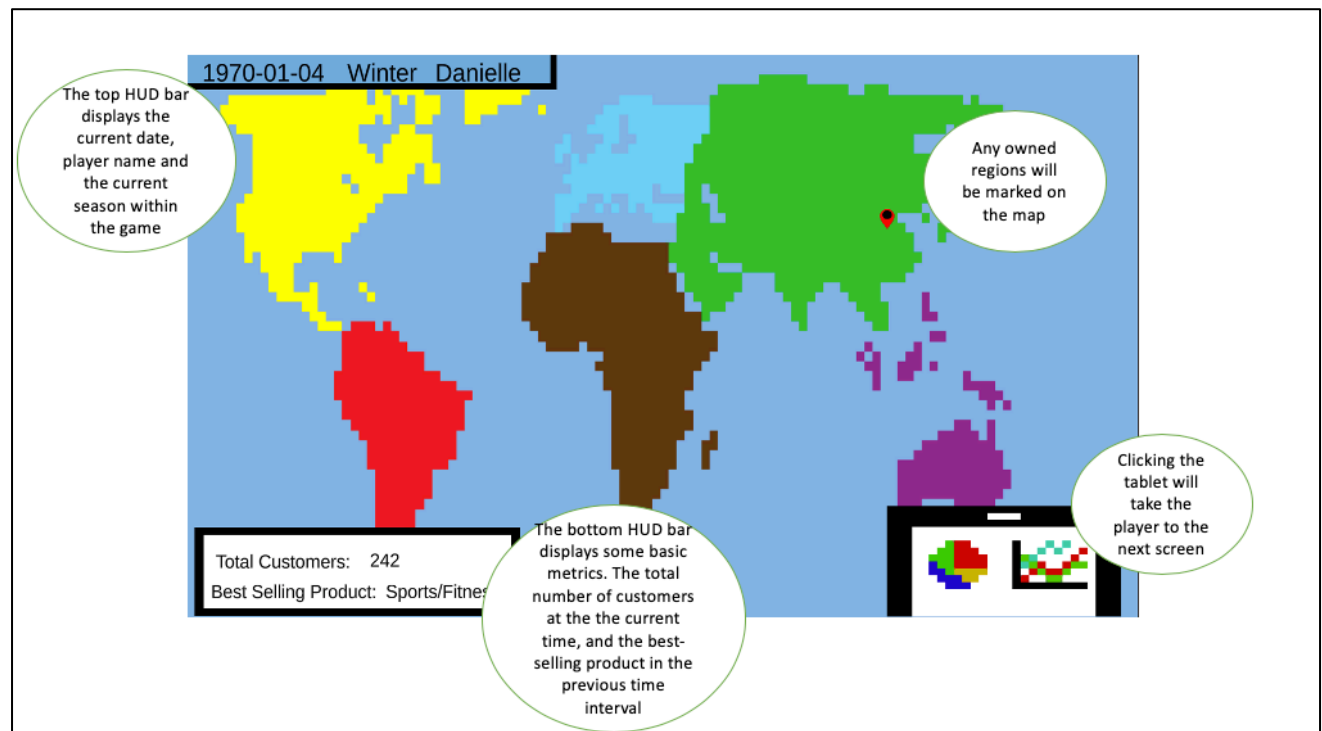


On this screen, the player is required to enter a name for their player and to select a region to start their business in. Any region is valid, and more regions can be purchased later. Once both conditions are met, we can continue.

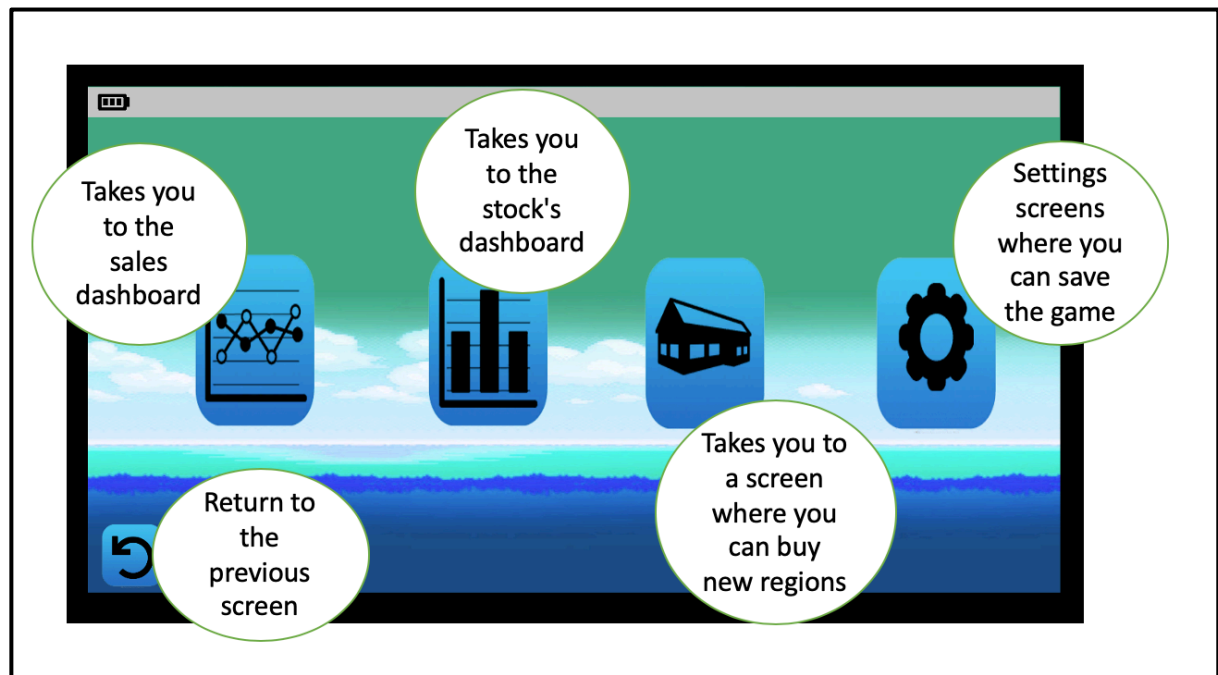


Main Game

The main screen displays a number of information pieces for the player to analyse. These are very raw views of the data, which are visualised further in different screens. When this screen is triggered, the reinforcement algorithm kicks in, the system starts to call the API where the model is triggered. Purchased products and customer counts are dictated by this part of the system. This logic is consistent as the player interacts with the game.



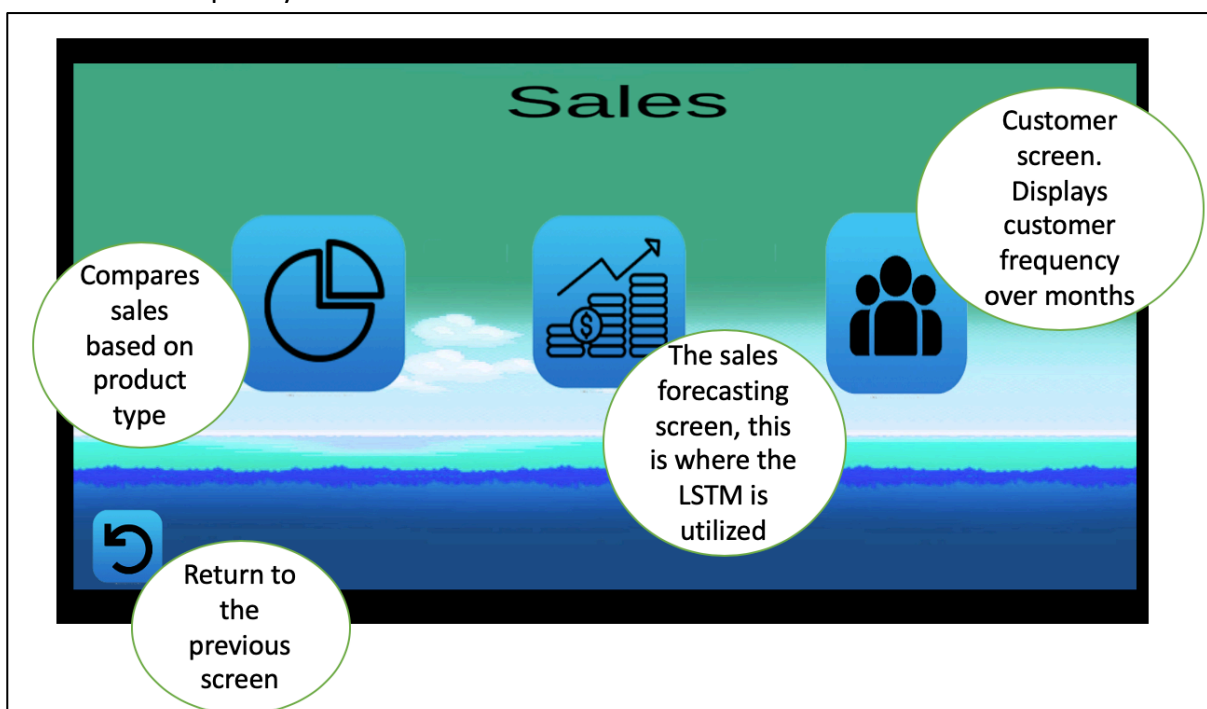
Click the tablet to move to the next screen.



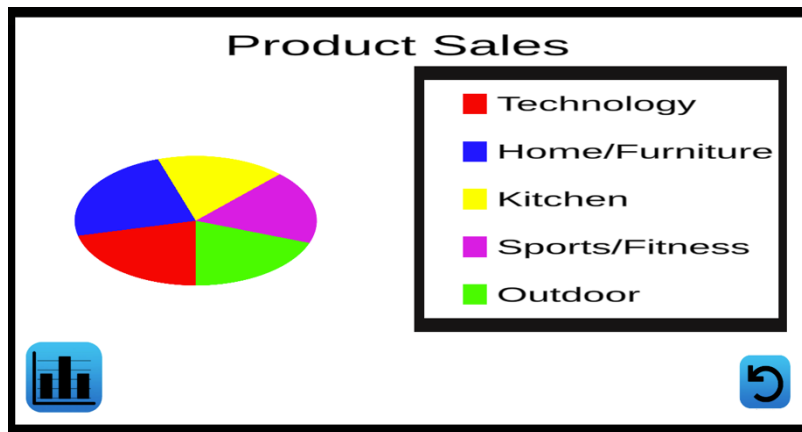
This is the master navigation page. Buttons are labelled in respect to what they do. Buttons all have tooltips to assist navigation.

Sales

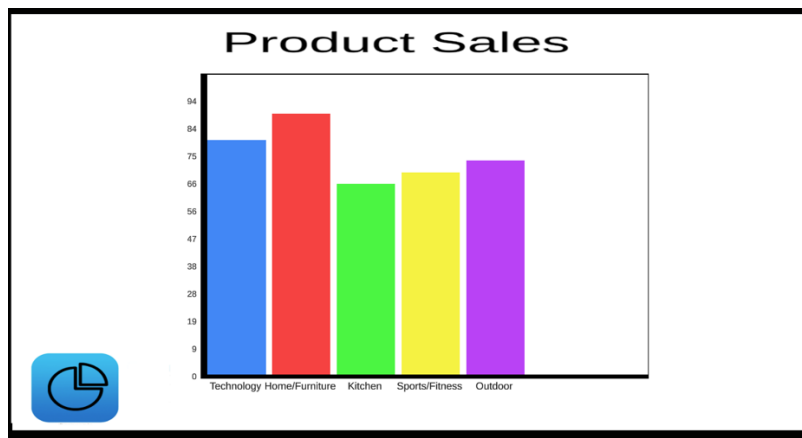
This screen lets the user visualise the sales in a number of ways and for different purposes. They can visualise sales based on product, forecast future sales and add filters, and visualise customer frequency.



Comparing Sales on Product Type

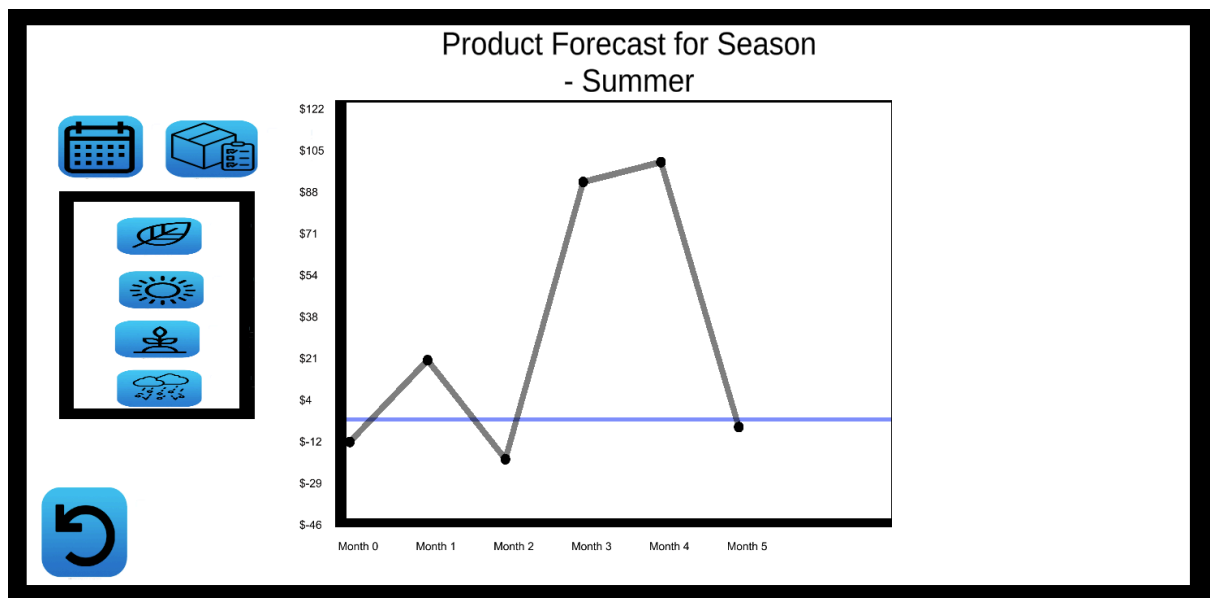
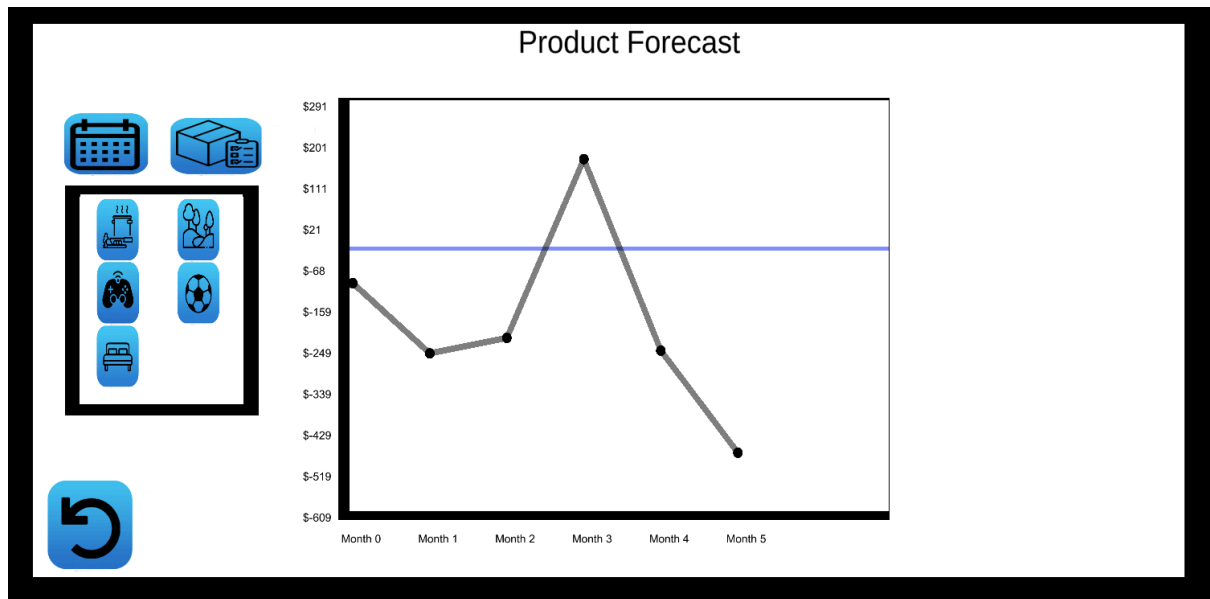


This screen lets the player visualise the product sales frequency in two different ways, by pie chart and by a bar chart. The default is pie chart, selecting the bar chart icon will swap the visualisation to the bar chart.



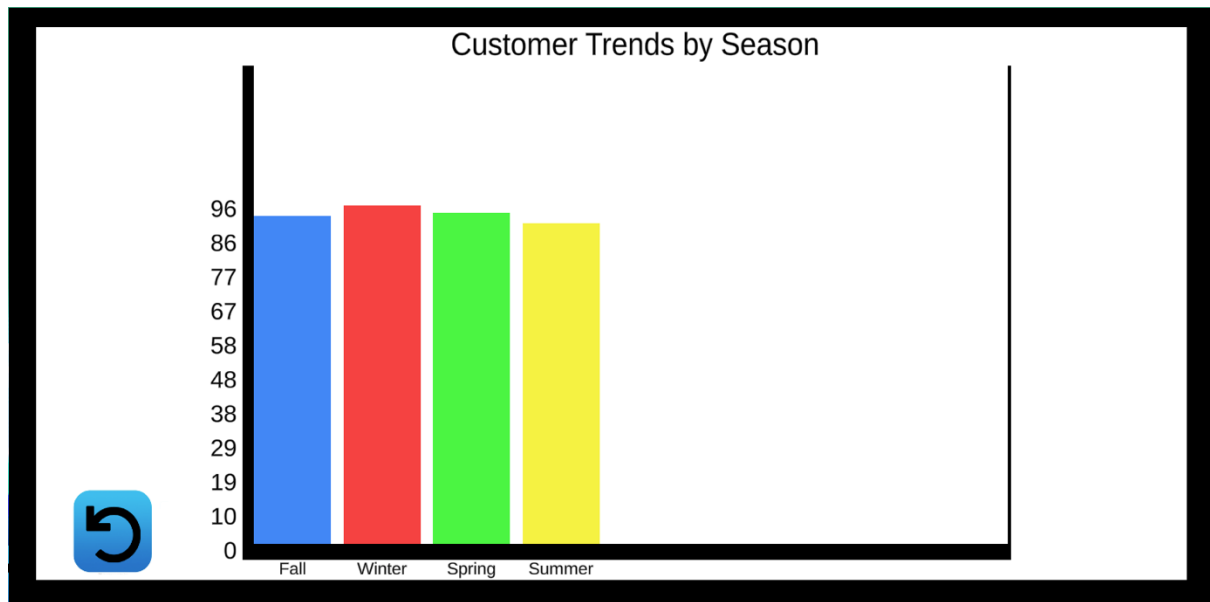
Forecasting

On this screen, the player will be met with sales forecasting. This part of the system interacts with the API to get the forecast. The player can filter the forecast on product type and on season. Selecting the button with the box sets the panel to show product types. The calendar button swaps it to show seasons. Selecting any one of these buttons will set the forecast to each filter respectively.



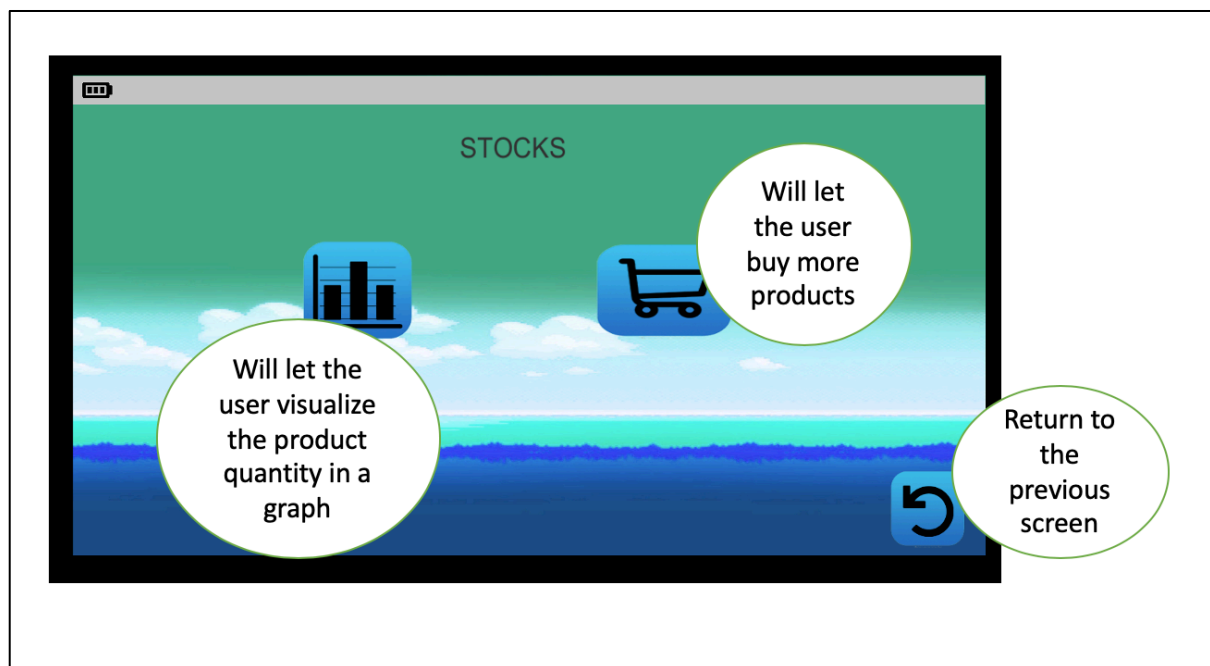
Customer Frequency

The customer frequency page simply displays customer count based on season.



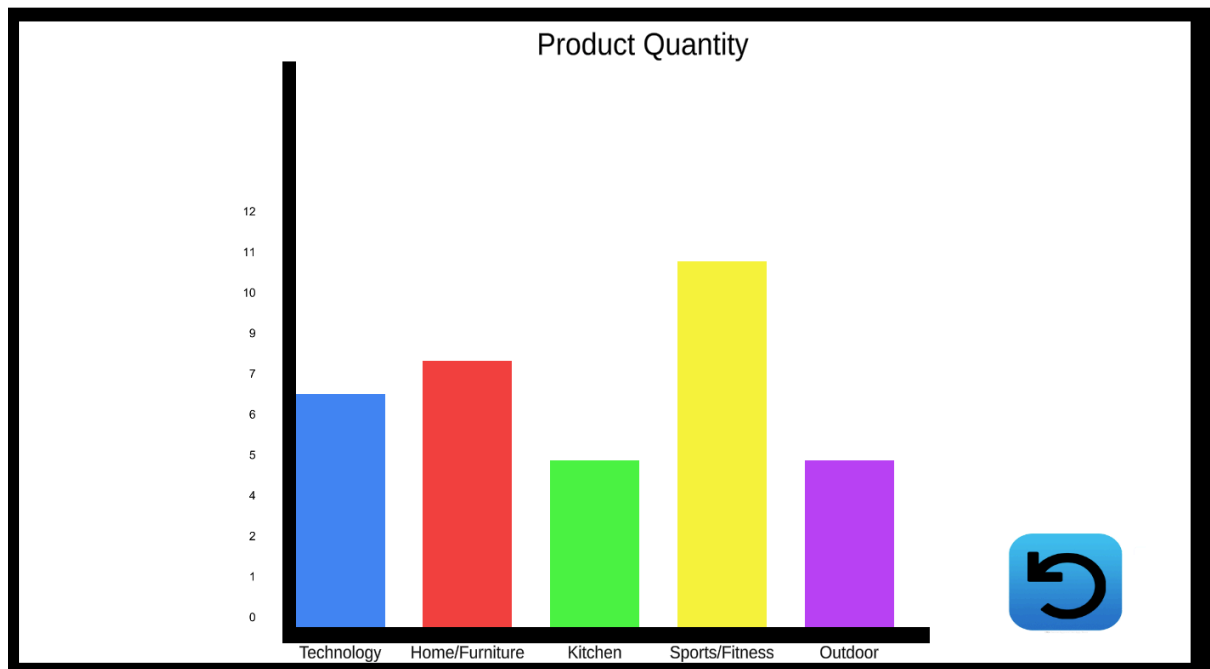
Stocks

In the below screen the player can choose to visualise products or purchase them.



Visualising Product Quantity

The player can visualise the product quantity in a graph.



Purchasing Products

The player can purchase products. They can select a custom quantity. Hitting the cart button lets them finalize the purchase.

A screenshot of a purchasing interface. On the left is a vertical list of product categories: Home/Furniture, Technology, Kitchen, Sports/Fitness, and Outdoor. The 'Technology' category is selected, and the word 'Tech' is displayed next to it. Below the category list is a large gray rectangular area. To the right of the category list, there is a 'Quantity:' label above a text input field containing the number '10'. At the bottom right, there are two blue buttons: a shopping cart icon and a circular arrow icon.



Regions

The regions pages let the player visualise what regions they have stores set up in, and which they do not. They can choose to purchase new licenses via the shopping cart button.





Clicking the cart button will trigger a modal which will let the player pick a region. Any regions they own will cause their respective buttons to be disabled. After selecting a button, the player should click the cart button in the modal, which will purchase them the license. Selecting the turn button will allow them to return to the previous page. The map showing the markers will be updated to reflect the new purchase.

Settings

In this screen the game can be saved. Currently, the game does not support dynamic loading.

