A'yaan Abdul-Mughis

Dulwich College | 2025

Trains

A Level Computer Science: Component 3

Table of Contents

[Analysis 2](#_Toc169172609)

[Problem Identification 2](#_Toc169172610)

[Stakeholders 2](#_Toc169172611)

[Research 2](#_Toc169172612)

[Solution 2](#_Toc169172613)

[Design 3](#_Toc169172614)

[Decomposition 3](#_Toc169172615)

[Solution 3](#_Toc169172616)

[Testing Approach 3](#_Toc169172617)

[Implementation 4](#_Toc169172618)

[Iterative Process 4](#_Toc169172619)

[Testing 4](#_Toc169172620)

[Evaluation 5](#_Toc169172621)

[Testing 5](#_Toc169172622)

[Solution 5](#_Toc169172623)

[Product 5](#_Toc169172624)

[Maintenance & Development 5](#_Toc169172625)

Analysis

# Abstract

(what goes here?)

# Problem Identification

* Arcade game
* Fun to play, humorous references and puns
* Simple to code and enjoyable to design

# Stakeholders

This game will be developed for very casual gamers who enjoy problem solving. The target audience would ideally be

* Teenagers or adult who enjoy casual gaming and light problem solving
* Saverio, named stakeholder, scope here for interviews and specific requirements
* Other interviews, forms and data collection
* Justify choices based on this information

## Requirements

### I Must

### I Should

### I Could

### I Won’t

# Research

* Website describing types of games
  + What does “casual” gaming mean?
* OpenTTD game, open source and nostalgic
  + Too complicated and quite technical, though fun to play once you understand how all the elements function
* YouTube videos that Saverio sent (understanding what is within my capability to code)
  + Understanding what makes a casual game fun
  + Other PyGame projects
* Gauging stakeholder interest with interviews, finding patterns between what young and older gamers enjoy playing, and what they used to play when they were younger

# Solution

There is some scope here to discuss the journey of the program development. I initially started off with an escape room idea, but realised there was not enough scope for an interesting game here. I do not play many video games myself, so talked a lot with other people who are avid gamers (this could be presented here in the form of an interview). I realised an idea much more aligned with my interests in real life would be more motivating. I have researched and discussed elements of game design with Saverio too, this can be mentioned here, though it shouldn’t sound like I was helped too much—this is an independent project after all.

Design

# Interface

* Draw, label, explain and **justify** choices made

# Data Structures

* Classes with attributes and their methods, **justify**

# Algorithms

* All algorithms made or used need their own pseudocode

# Decomposition

# Solution

# Testing Approach

* Any information here about how you plan to test the project and who you plan to test it with

Implementation

# Iterative Process & Comments

## Escape Room Initial Idea

I started

## Iteration 1

* Go back through Github log and take screenshots of code development and show the story of the code
* Screens, objects, classes and game loop changes all require a **justification**

### Error 1

* Show error
* Explain error
* Fix error
* Show error fix

## Iteration 2

* Movements, game logic etc.

### Iteration 3

* “AI” and how enemies react

Testing

# Executed Test Plan

* Use Computer Science textbook and approach testing formulaically

Evaluation

# Testing

# Solution

# Product

# Maintenance & Development

* How the product can be improved and maintained
* How effective was the development technique