**A Level computer Science**

Component 3

Space Game



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Chapter One: Analysis of the problem

## 1.1 Introduction

In this project, I aim of entertaining children and teenagers by providing them with a 2D videogame for recreational use. The main goal of the game should be to help teenagers relax in their free time. My game will be suitable for college students and even children. Its theme is science fiction and space. The game will have both options for a single player fighting an AI and multiplayer for one player versus another locally, allowing users to play the game how they prefer. The game has the theme of space and science fiction and will involve each player controlling a spaceship on each half of the screen and shooting enemies approaching them. There will be a number of levels in single player, increasing in difficulty as the player progresses. The multiplayer versus mode will be more customisable, allowing the user to change the amount of enemies, damage dealt, and health to some extent. My stakeholders for this project will include a college student at Stoke Sixthform College, a child and a young adult.

## 1.2 Problem Identification

Many teenagers become stressed or worried about exams and schoolwork. Videogames could help relieve this stress in their free time by providing a means of escapism from their school life. Stress is also a major problem for young adults, so my project would not only be targeting teenagers. Videogames have also been proven to have other benefits. For example, improving focus and reaction time.

Most retro games are fully single player experiences, with no way to interact directly with another human player in the game aside from competing for a spot on a scoreboard after game completion. My project aims to go against this convention by allowing players to directly compete against each over in real time with their scores being tracked and displayed clearly on screen.  
In addition, most 2D videogames that feature a 1vs1 format are usually fighting games, a genre that most people are turned away from because it can be too competitive, forcing players to learn specific ‘combo’ moves reducing the ability for people to play casually and for fun. This could either put people of retro videogames entirely due to frustration or make younger users shy away from multiplayer gameplay entirely. There is also a limited number of retro shooter games with such a format and even fewer with a sci-fi theme.

Furthermore, a lot of 2D shooters feature either just a single large level, a limited number of levels or there is little variation between levels. If there is little change in enemies or combat between levels then the user will become bored due to lack of challenge or stimulation. However, if there is no visual variation between levels then the user can also become bored.   
My game would feature a unique background for each level. This would not only help to keep a user’s interest high (particularly for children) but also make the give the player a sense that they are travelling through different places a galaxy as they progress through the levels.

## 1.3 Why the problem is suited to a computational solution

This problem is amenable by a computational approach because it is a videogame, thus has to involve the user interacting with a computer. My project upon being a videogame rather than a non-computational solution such as a board game has numerous advantages. Firstly, the computer can process the user’s inputs and perform tasks much faster than a human can interact with a non-computational game. In addition, animations and movement for a videogame can be easily displayed by a computer screen whereas in a normal game they cannot. Colours in videogames can also be adjusted, allowing the option to enable a colour-blind mode. Finally, most people with disabilities are still able to play because usual input methods such as mouse and keyboard do not require much movement.

## 1.4 Stakeholders analysis

My stakeholders for this project will be, a college student at Stoke Sixth Form College, a high school student and a young adult. I will give each of my stakeholders a demo version of the game and interview them for feedback and criticism. If any of the stakeholders suggest a way to improve the game or a new feature to add to the game, I will try to implement it.

The high school and college students I have selected are gamers, playing a variety of videogame genres, whereas the adult is not a gamer. Doing this will allow me to gather a wider range of feedback and to find out if the game will be intuitive and easy to learn even for someone with little experience in PC gaming.

## 1.5 Research

## 1.6 Features of the proposed solution

## 1.7 Limitations of the solution

## 1.8 Stakeholder Consultation

## 1.9 Hardware and software requirements

## 1.10 The requirements of the solution

## 1.11 Success Criteria