

# Coursework Report

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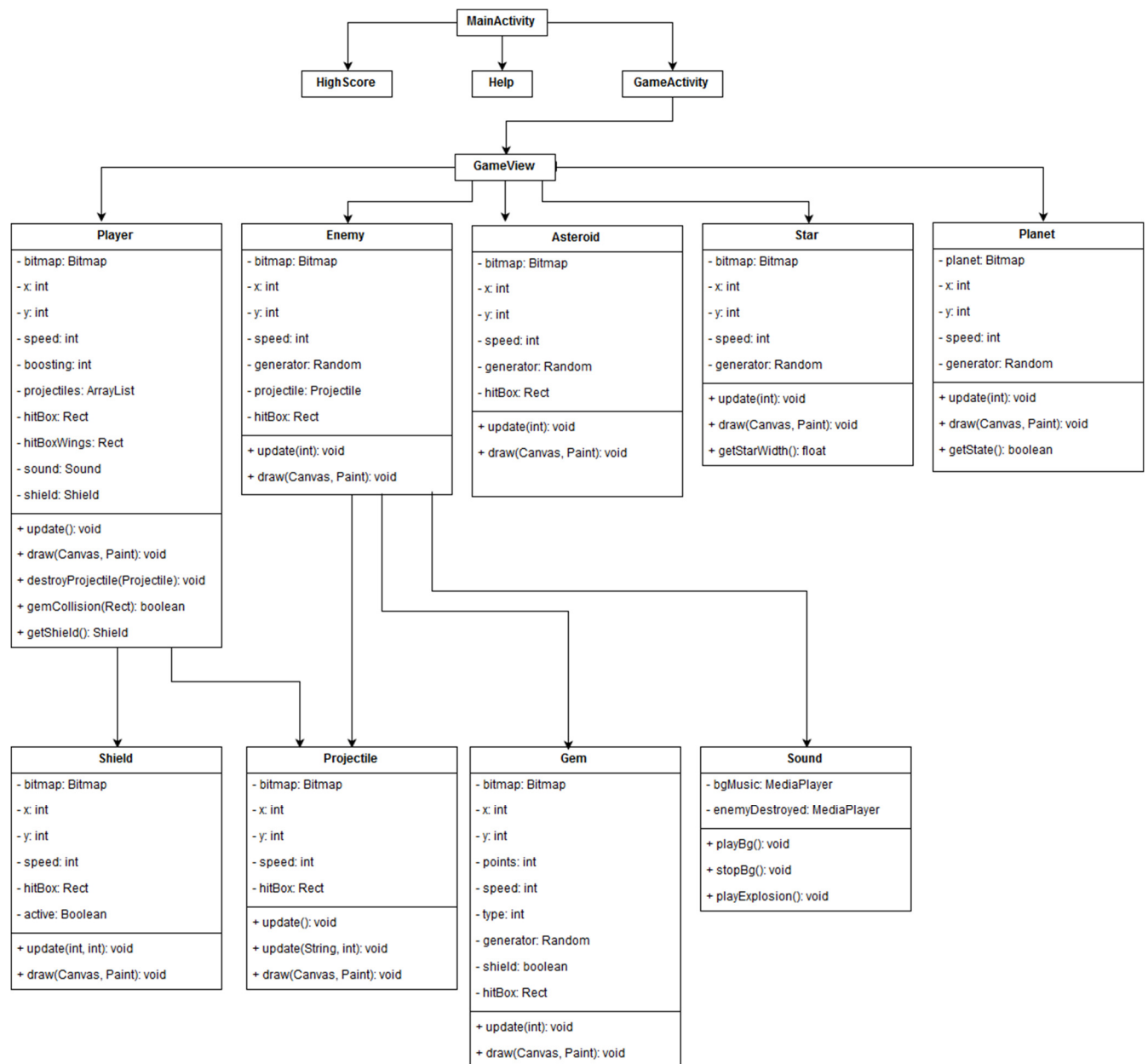
## 1. Introduction

The aim of this project is to apply the skills gained from the Mobile Applications Development module by creating a game for the Android OS. The inspiration for it came from the NES game called "1942". However, since numerous very similar games exist, many design decisions were made to differentiate it and make it an original idea. Ultimately, the resulting game turned out to be completely different. Furthermore, utilising an android device's touch screen capabilities proved to work very well with the type of game.

## 2. Software design

Diagram 1 shows the structure of the app.

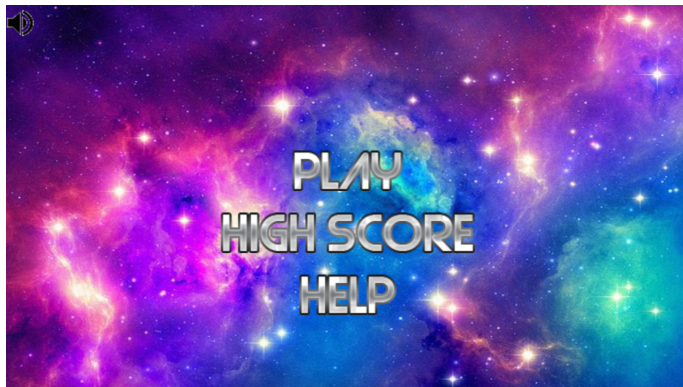
*Diagram 1. UML class diagram of the project*



### 3. Implementation

The first screen the user is presented with is the main menu. It allows them Start a new game, see a brief tutorial or see the 3 highest score they have achieved. Another feature is the ability to turn the game sounds on or off. The screen is displayed in Figure 1.

*Fig. 1 Main menu*



Tapping the "Play" button presents the user with the gameplay screen shown in Figure 2. It also allows them to play the game.

*Fig. 2 Gameplay screen*



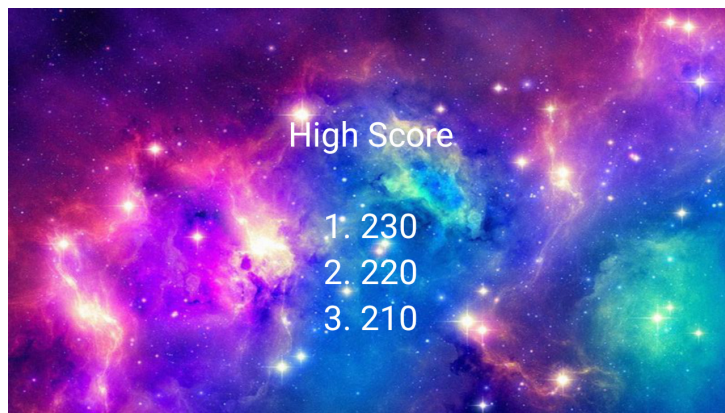
If the user's spaceship is destroyed, they are shown the Game Over screen, which can be seen in Figure 3.

*Fig. 3 Game over screen*



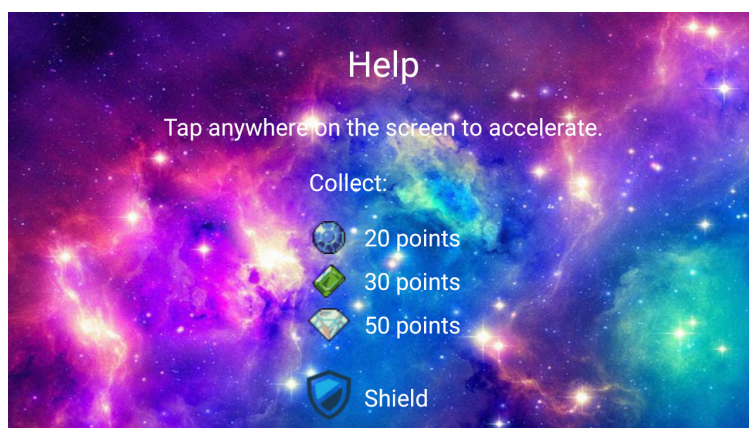
The "Highscore" button in the main menu shows the user the three best score they have accomplished since they installed the game as it can be seen on Figure 4.

*Fig.4 High score screen*



The last option for the user is to read a short tutorial. It intentionally does not explain all the details of the game, allowing users to explore it themselves. It is shown in Figure 5.

*Fig. 5 Help screen*



## 4. Evaluation

Although the main inspiration for the project was the game 1942, in the end the app became an original game vaguely resembling 1942. Being made for android, the controls used for it are only the touchscreen of the device, while the original game uses a physical controller. The result is a more engaging and enjoyable experience. What is more, the random nature of the game makes it more interesting as the user does not know what to expect as opposed to playing the same level. However, this could result in the game being too easy or too hard at times. Another improvement on the original game is the ability to see the high score which increases the replayability of the game. Furthermore, changing the setting to space and adding sci-fi elements in the project differentiates it from the original game and makes it look more modern. Finally, targeting the android platform allows user to play the game whenever and wherever they want as long as they have their smartphone.

Another inspiration for the project was the Android game "Flappy Bird". This is evident from the similar character movement which was altered to better suit the type of game. Furthermore, the addition of items and power-ups made the app more interesting.

During the development of the project, a number of users tested it. Their feedback proved to be invaluable. It greatly improved the game's balance and aided in finding and fixing a number of bugs and problems.

Although all planned features were implemented, there is still room for improvement for the project. For instance, hitboxes for round objects are not pixel-perfect. Another desired feature is more weapons for the player and the ability to upgrade the spaceship. More enemies could be added as well. What is more, an options menu button could be implemented, allowing the user to change certain settings such as difficulty and sound volume.

## 5. References

All sprites used in the game were found on <http://opengameart.org> and edited to better suit the project.

All sounds used were found on <https://www.freesound.org>.

Used resources:

- *OpenGameArt.org. (2012). Spaceship image. [online] Available at: <http://opengameart.org/content/spaceship-tutorial-0> [Accessed 15 Mar. 2017].*
- *OpenGameArt.org. (2014). Fighter spaceship. [online] Available at: <http://opengameart.org/content/fighter-spaceship> [Accessed 17 Mar. 2017].*
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- *<http://freesound.org>. (2010). Medium explosion. [online] Available at: <https://www.freesound.org/people/ryansnook/sounds/110113/> [Accessed 20 Mar. 2017].*
- *<http://soundimage.org>. (2017) Fantasy game background. [online] Available at: <http://soundimage.org/fantasywonder/> [Accessed 20 Mar. 2017]*