# Introduction and background

Space Shooter 2D is a simple game implemented using the IDE Android Studio and the programming language Java. Nowadays the popularity of games in the google play store is undeniable as the top paid applications consist mainly of games (Google LLC, 2018). Thus, this coursework aims to create a video game for android from scratch. The idea is to build a simple two-dimensional game like space invader with a simple menu to navigate through the different screens.

Additionally, another important aspect this coursework aims to cover is to make use of android specific features and learn more about the native development process. Key features as Bluetooth controller handling and the use of accelerometer can be adopted for any other application as well. The simple game development framework created at the end of this work needs be altered and can then be reused as well. As Cho (2014, pp. 96-107) states, reusability is an important matter in software development, but it was neglected for this game framework to make the work feasible.

Android is provided on many different devices and hence many different screen resolutions need to be covered (Steele & To, 2010). If not handled, this issue will lead to different gameplay experiences on different devices. Horton (2015, pp. 89-97) explains that this issue can be solved by drawing the game objects at the same coordinates and scale appropriately regardless to the resolution. This solution would have gone beyond the scope of a simple game framework and was therefor omitted.

The key features of the application are:

* Graphics: Using bitmaps the graphics are drawn on the screen and animated.
* Audio: To produce sound effects and the looping background music.
* Persistence:
  + Shared preferences: Save the Boolean values for options like enabling sound or accelerometer.
  + Database: Connection to and population of a database is included for the high-scores.
* Sensor Input: The accelerometer can be enabled in the options for gameplay. Additionally, vibration is used to represent being hit by an enemy ship.
* Wireless Connectivity: Any gamepad, joystick or D-Pad can be used to play the game.
* Handling audio and video: In the options menu a tutorial button is available which opens a video player that shows the tutorial for the game.
* Simple game engine: A game engine with reusable classes for handling the game loop.

# Design: