**System Requirements**

**P01:Highway Racers**

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| --- | --- |
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# Introduction

Highway Racers is a 3D Game which is developed using flutter and unity. It will be supported in all types of mobile platforms.

1.1. Purpose

Smartphones are used widely all over the world. A big purpose of using smartphones is to get entertained and a major chunk of that entertainment comes from playing games. Video games became increasingly popular during the pandemic and the expansion is expected to make the [global gaming industry worth $321 billion by 2026](https://www.pwc.com/gx/en/industries/tmt/media/outlook/outlook-perspectives.html), according to PwC’s Global Entertainment and Media Outlook 2022-26. The purpose of making this game is to provide a good quality offline game to our users.

1.2. Scope

• This “Highway Racer” is a single player game.

• Different cars available.

• It can be a multi-player.

• It will consist of different levels.

• At each level the difficulty will increase

1.3 OBJECTIVES

1.4 Potential users

Potential users will be adults and teenagers.

# System Actors

| **Actor Name** | **Description** |
| --- | --- |
| Video Game players | They will interact with the videogame by playing it and modify game settings according to their preferences. |

# Functional Requirements

| **Requirements** | |
| --- | --- |
| **Sr#** | **Requirement** |
| 1 | As a game player I want real life different weathers according to the location of the track. |
| 2 | As a game player I want to modify my car’s color and design. |
| 3 | As a gamer I want the game to build up levels gradually. |
| 4 | As a game player I want race tracks to be similar to those in real life. |
| 5 | As a videogame player, I want to select between different cars. |
| 6 | As a videogame player, I want to control the speed and direction of the car. |
| 7 | As a videogame player, I want to be able to see my ranking at the end of the game. |
| 8 | As a videogame player, I want to play time-trial mode in which I can reach the finish line before the timer expires. |
| 9 | As a videogame player, I want to hear different background music when I am playing the game and when I have won the game. |

# Non-functional Requirements / Quality Attributes

| **Sr#** | **Requirements** |
| --- | --- |
| 1 | The game should load within 3 seconds from the moment it is launched. |
| 2 | The application should not take more than 10 seconds to process the users’ requests/inputs. |
| 3 | The game should have high resolution 3D graphics with resolution of upto 1080p to make a good user experience. |
| 4 | As a videogame player, the minimum frame rate must be twenty frames per second so that the game’s mechanics feel very fluid. |
| 5 | The game should have color blind filters so that players with color blindness can play without losing the gaming experience. |
| 6 | The game should not display any bright light flashes so as to not trigger seizures in people with epilepsy. |
| 7 | The maximum number of clicks for any function in the system should not exceed five clicks for an enhanced usability experience.. |
| 8 | The average response time between click and reaction must be less than 0.5 seconds. The maximum response time between click and reaction must be two seconds. |
| 9 | The game must not crash for irregular input such as a controller and all errors including runtime, should be catched and handled respectively. |
| 10 | As a videogame player, I want the game to be entertaining. |
| 11 | As a videogame player, I want the game’s UI to be attractive so that my experience is enjoyable. |

# 

# Security Requirements

| **Sr#** | **Security Risks** | **Potential Losses** | **Controls** |
| --- | --- | --- | --- |
| 1 | Hacking | Violating the integrity of the game by tampering with game files. | Anti-cheat software |

| **Sr#** | **Security Tool Name** | **Brief description**  (why the tool is suitable for your project) |
| --- | --- | --- |
| 1 | AppSweep | It is a free static security scanning tool for code analyzing Android mobile applications. |
| 2 | IndusFace | It is a free dynamic security scanning tool; It offers support for multiple platforms including mobile app security testing including Android, iOS and also web application security testing. |

# Who Did What?

| **Name of the Team Member** | **Tasks done** |
| --- | --- |
| Abeeha Ishfaq | Non-functional requirements, functional requirements (13), Introduction |
| Abdullah Ahmad | System Actors, Functional Requirements (requirements 1-4). Security Requirements |
| Amaan Tariq | Functional requirements (requirements 5-8), Non-functional requirements |
| Bakhtiar Rasheed | Security Analysis tools, non-functional requirement(4,5,6,9), functional requirements (12) |
| Muhammad Hamza | Functional requirements (9-11), Non Functional Requirements (1-3) |

# Review checklist

Before submission of this deliverable, the team must perform an internal review. Each team member will review one or more sections of the deliverable.

| **Section** **Title** | **Reviewer Name(s)** |
| --- | --- |
| Introduction | Muhammad Hamza |
| Actors | Abeeha Ishfaq |
| Functional Requirements | Abdullah Ahmad, |
| Non-functional requirements | Bakhtiar Rasheed |
| Security Requirements | Abdullah Ahmad |