

GADE6221\_Part 1

Individual

Name | ST10436103 Sufyaan Albertus

**Description**

1. The game is an endless runner set in a cyberpunk city inspired by the movie *Blade Runner*. The player takes on the role of a rogue replicant trying to escape from relentless enforcers. As they sprint through neon-lit streets, elevated highways, and abandoned industrial zones, they must dodge vehicles, leap over obstacles, and use power-ups to survive. The game features generated environments and randomized obstacles, like *Subway Surfers* but with a cyberpunk aesthetic.

**2. Rules**

**General Rules**

1. The player moves forward automatically in a continuous endless environment.
2. The player can move left, right, or jump but not diagonally.
3. The player must avoid obstacles like vehicles, barriers, construction works.
4. Colliding with an obstacle will end the game.
5. Pick-ups provide temporary effects and disappear after use.
6. The game logs the player’s high score and saves it.

**Pick-Ups**

1. Pick-up 1: "Speed Boost" increases movement speed for 5 seconds.
2. Pick-up 2: "Shield" allows the player to pass through obstacles without dying for 3 seconds.
3. Pick-up 3: "Gems" used to collect so players can earn the games currency.

**Environment and Prefabs**

1. The game world is procedurally generated using segments of the map to create a seamless endless runner experience.
2. The player progresses through different zones such as neon-lit streets, dark alleyways, industrial districts, and elevated highways.

**3. Game Scripts**

**C# Classes and Their Functions**

1. **GameManager.cs** - Handles game states, score tracking, and database updates.
2. **PlayerController.cs** - Manages player movement, jumping, and animator for charactor.
3. **GenerateSegments.cs** - Randomly generates segments for the player.
4. **PickUpManager.cs** - Controls pick-up effects and requirements .
5. **LevelManager.cs** - Handles audio, and level builder and prefab randomization.
6. **UIManager.cs** - Updates on-screen elements like score and health, and play through from scenes.
7. **DatabaseManager.cs** - Logs high scores and player data to an external database.
8. **CollisionDetect.cs** - Detects player interactions with obstacles.

**4. Prefab Types**

**Level Prefabs**

* **Prefab 1:** buildings
* **Prefab 2:** props
* **Prefab 3:** cars
* **Prefab 4:** lights
* **Prefab 5:** roads
* **Prefab 6:** materials such as power ups

**Obstacle Prefabs**

* **Hazard 1:** cars that speed toward the player.
* **Hazard 2:** Roadblocks and barriers requiring jumps or quick turns.
* **Hazard 3:** debris from construction that must be dodged.

**5. Script Relationships**

* **GameManager.cs** communicates with **DatabaseManager.cs** to store scores.
* **PlayerController.cs** interacts with **PickUpManager.cs** to activate power-ups.
* **GenerateSegments.cs** and **LevelManager.cs** work together for level generation.
* **CollisionDetect.cs** manages interactions between the player and obstacles.

**Reference list for project:**

* Baltieri, J., 2023. Mini Simple Characters | Free Demo. Available at:<https://assetstore.unity.com/packages/3d/characters/humanoids/mini-simple-characters-free-demo-262799> [Accessed 1 April 2025].
* Brick Project Studio, 2023. Apartment Kit. Available at:<https://assetstore.unity.com/packages/3d/environments/apartment-kit-124055> [Accessed 26 March 2025].
* Devtoid, 2019. Gold Coins. Available at:<https://assetstore.unity.com/packages/3d/props/gold-coins-1810> [Accessed 2 April 2025].
* Dredstudio. 2025. *Background (Online)*. Available at:<https://dredstudio.com/background/> [Accessed 3 April 2025].

Project Link GitHub: https://github.com/sufyaanAlbertus/GADE6221\_POE\_ENDLESS\_RUNNER.git