UNIVERSITY COLLEGE OF ENGINEERING NAGERCOIL

(ANNA UNIVERSITY CONSTITUENT COLLEGE)

KONAM, NAGERCOIL - 629 004

PROJECT REPORT

NM1034 – GAME DEVELOPMENT

Register No : 962821205037

Name : NIJAL KUMAR S S

Year/Semester : IV/VII

Department : INFORMATION TECHNOLOGY

UNIVERSITY COLLEGE OF ENGINEERING NAGERCOIL

(ANNA UNIVERSITY CONSTITUENT COLLEGE)

KONAM, NAGERCOIL - 629 004

Register No: 962821205037

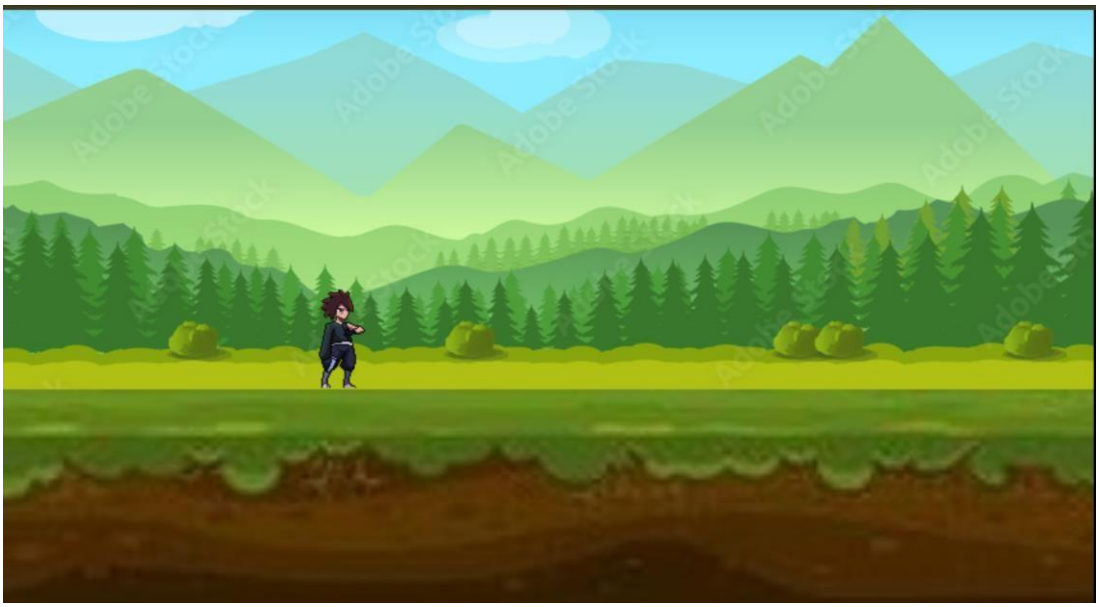
Certified that, this is the bonafide record of work done by ***Ms./Mr. NIJAL KUMAR S S*** *Of VII Semester in Information Technology of this college, in the* ***NM1034 – GAME DEVELOPMENT*** *during academic year 2024 – 2025 in partial fulfilment of the requirements of the B.Tech Degree course of the Anna University Chennai.*

Staff-in-charge **Head of theDepartment**

This record is submitted for the University Practical Examination held on……..

Internal Examiner **External Exam**

2D Game Design - Constructer



Overall Scene

The background features a scenic, layered landscape with green hills, pine forests, and distant mountains beneath a bright blue sky with soft clouds. The vibrant colors and layering create depth in the background, adding to the atmosphere of a classic platformer game.

Game Elements

Background:

- The background is illustrated with multiple layers of hills, mountains, and tall pine trees, giving it a sense of depth. There are bushes in the foreground, adding a touch of detail to the landscape.

Ground Layer:

- The ground layer consists of grassy terrain on top and a brown soil layer below, which appears to be the main pathway for the character.

Character:

- A dark-haired, ninja-like character is positioned in the center of the screen. The character has an anime-inspired look with spiky hair and a black outfit, giving a sense of agility and readiness for action.
- In the second screenshot, the character appears to be running, suggesting different animation frames to simulate movement.

Possible Game Mechanics

Based on the visual elements, the game could include mechanics such as:

1. **Running and Jumping:** The character's design suggests anemphasis on agility, possibly allowing players to navigate various platforms or avoid obstacles.
2. **Combat or Attacking:** The ninja-like appearance hints that the character might have combat abilities, potentially to fight enemies or break objects.
3. **Scrolling Camera:** The camera may follow the character's horizontalmovement, keeping the action centered on the screen.

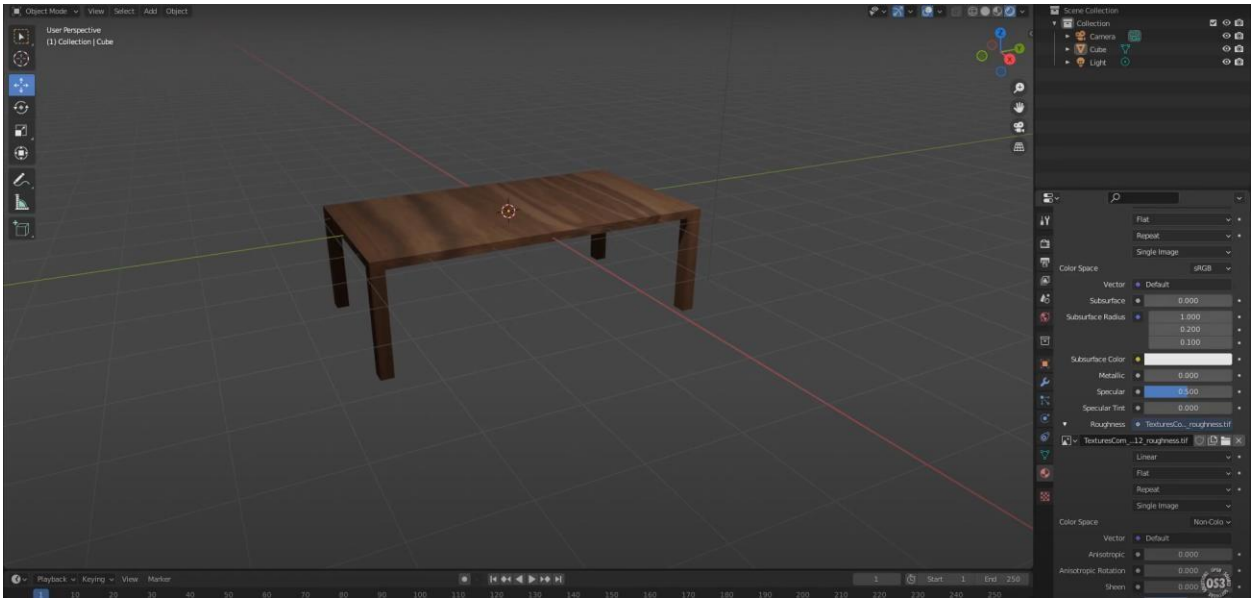
Additional Considerations

1. **Obstacles and Enemies:** While not present in this scene, the game might include enemies or traps that the character must dodge or defeatto progress.
2. **Platform Variations:** Future levels could incorporate platforms ofvarying heights, moving platforms, or other interactable objects to addcomplexity.

Overall Impression

This scene creates a vibrant and immersive atmosphere for a platformer game, with a visually appealing background and a character that stands out. The setup suggests potential for engaging mechanics and various types of interactions as players explore the game world.

Blender 3D



Overall Scene

The scene shows a minimal 3D workspace in Blender, featuring a wooden table model placed in the center of a large, empty grid. This grid represents the floor of the Blender environment and helps visualize the table's scale.

Objects and Elements

Table:

- The main object in the scene is a simple rectangular table with a smooth wooden texture applied to it.
- The table has four straight, sturdy legs and a flat tabletop, showcasing a basic but functional design.

Lighting and Materials

Lighting:

- The scene appears to be using Blender’s default viewport lighting, which is usually a soft, evenly distributed light that helps visualize objects without specific light sources.

Materials:

- The table has a wood texture applied to it, which is visible on the tabletop. The material has a slight reflection, giving it a realistic woodenappearance.
- The Material Properties panel on the right shows adjustments for properties like Metallic, Specular, and Roughness, which control the table's surface reflectivity and texture detail.

Possible Use Cases

Based on the current state of the model, this table could be used for various purposes, such as:

1. **Interior Visualization:** This table model could be a part of a room or office scene, serving as a base for furniture arrangements.
2. **Product Design Showcase:** The table could be part of a furniture collection, allowing viewers to see the details of its material and design.
3. **Game or Animation Asset:** This simple, low-poly table could be usedas an asset in games or animations where realistic but efficient modelsare needed.

Additional Considerations

1. **Lighting Setup:** Adding dedicated light sources, such as area lights or spotlights, could enhance the table’s material appearance and emphasize its wooden texture.
2. **Environment Context:** Placing this table in a room or outdoor setting would provide context for the object and make it look more immersive.

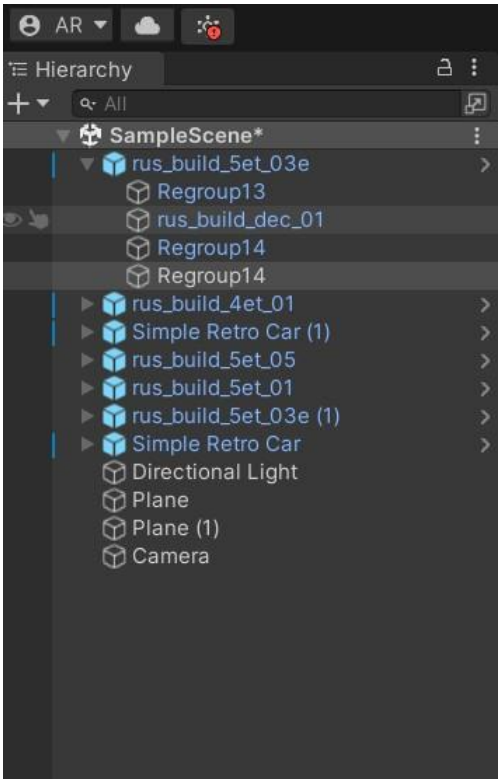
3. **Texture Details:** Adding more texture detail, such as subtle imperfections or wood grain variations, could improve realism.

Overall Impression

This is a clean and simple 3D model of a wooden table in Blender. The model's minimalistic design and realistic material settings make it versatile and suitable for a range of scenes, but additional context or detailed lighting would enhance its presentation.

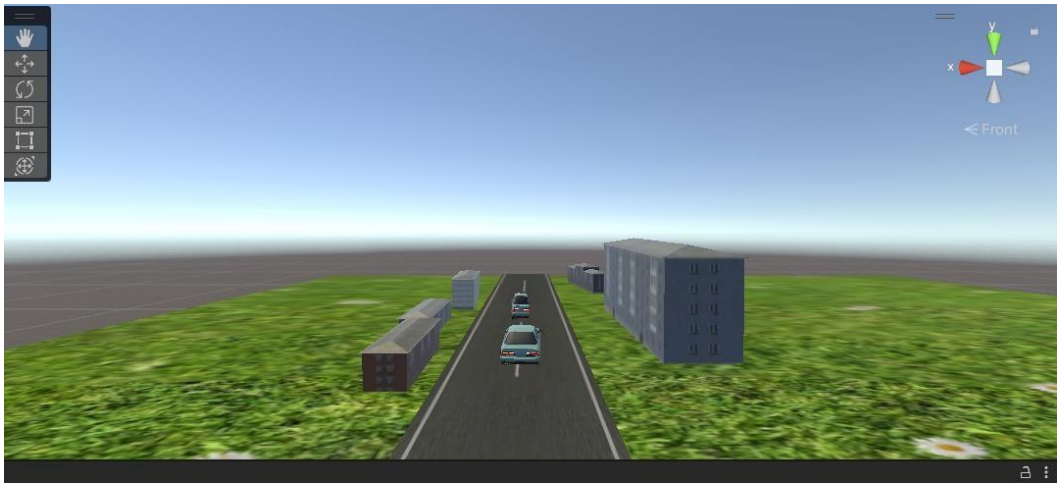
Unity 3D

HierarchyWindow

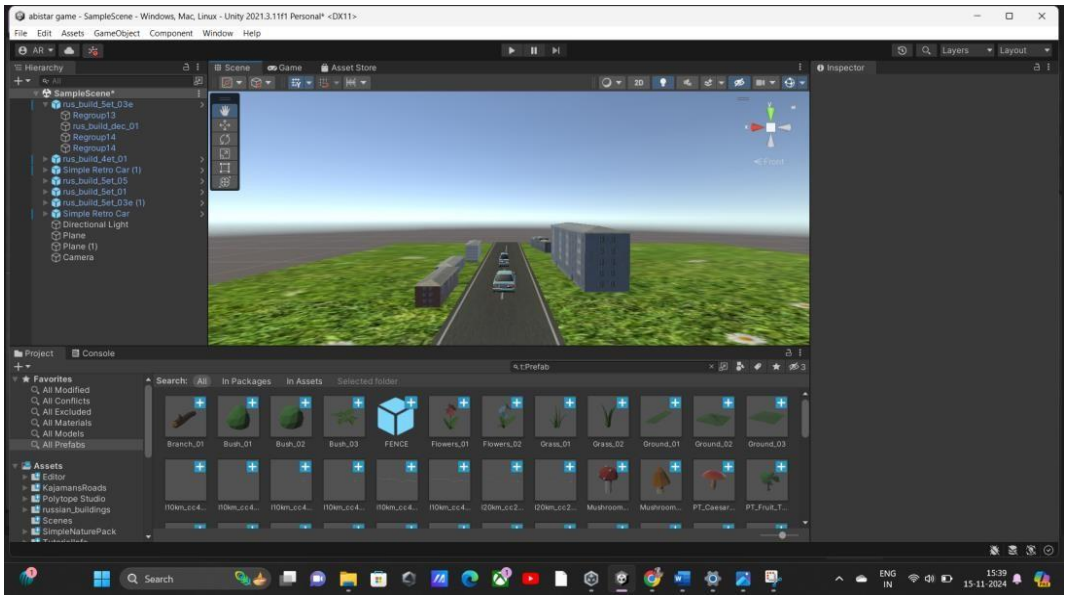


:

Scene Window



Game 3D Environment



Main Camera

Scene Overview

The image showcases a low-poly, stylized outdoor environment with afocus on urban elements. The scene appears to be a city block, with buildings, roads, and vehicles.

Objects and Elements

- **Buildings:** There are multiple buildings with varying heights and styles, including a large building with a flat roof and smaller buildingswith pitched roofs.
- **Roads:** Roads with lane markings wind through the scene, with carsand trucks driving on them.
- **Vehicles:** Several vehicles are present, including cars, trucks, and abus.
- **Trees:** A few trees are scattered around the scene, adding greeneryto the urban environment.
- **Sky:** The sky is a simple blue color with no clouds.

Possible Game Mechanics

Based on the scene's composition, several game mechanics could be implemented:

- **Vehicle-based gameplay:** The player could control a vehicle,navigating through traffic and completing objectives.
- **Exploration:** The player could explore the city block, discoveringhidden areas or interacting with non-player characters.
- **Platforming:** The scene could include elements like rooftops orledges for the player to jump on, adding a platforming element.
- **Puzzle-solving:** The player could solve puzzles involving the environment or vehicles.

Additional Considerations

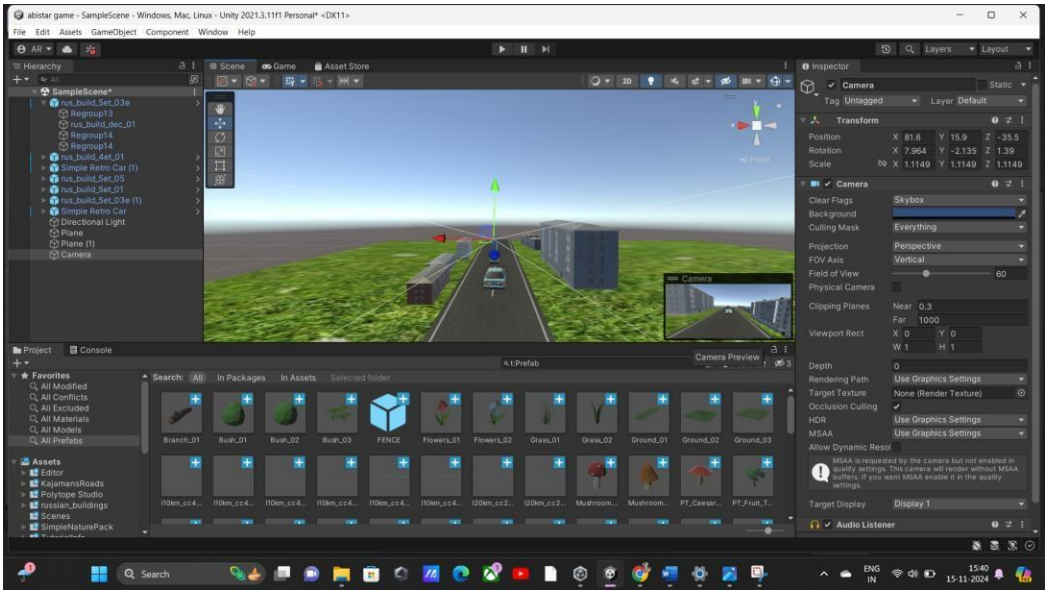
- **Camera:** The current camera angle offers a top-down perspective. Other angles, such as a third-person perspective, could provide different views of the scene.
- **Lighting:** The scene could benefit from more dynamic lighting, such as shadows and reflections, to create a more immersive atmosphere.

- **Sound:** Adding ambient sounds like traffic noise, wind, and bird chirps could enhance the scene's realism.
- **Level Design:** This scene could be part of a larger game with multiple levels, each with unique challenges and objectives.

Overall Impression

The scene is well-designed and has the potential to be used for various game genres. The combination of urban elements and stylized graphics creates a visually appealing setting.

Game Window



C#:

```
using System.Collections;
using System.Collections.Generic;using UnityEngine;

public class OpponentCar : MonoBehaviour
{
[ Header("Car Engine")] public float movingSpeed;
```

```
public float turningSpeed = 50f;public float breakSpeed = 12f;

[Header("Destination Var")] public Vector3 destination; public bool destinationReached;

private void Update()
{
Drive();
}

public void Drive()
{
if (transform.position != destination && !destinationReached)
{
Vector3 destinationDirection = destination - transform.position;destinationDirection.y = 0;
float destinationDistance = destinationDirection.magnitude;

if (destinationDistance >= breakSpeed)
{
// Steering destinationReached = false;Quaternion targetRotation =
Quaternion.LookRotation(destinationDirection);

transform.rotation = Quaternion.RotateTowards(transform.rotation,targetRotation,
turningSpeed *
Time.deltaTime);

// Move Vehicle
transform.Translate(Vector3.forward * movingSpeed * Time.deltaTime);
}
else
{
// Destination reached destinationReached = true;
}
}
```

```
}
public void LocateDestination(Vector3 destination)
{
this.destination = destination; destinationReached = false;
}
```

Conclusion:

These projects have boosted my game development skills in both 2D and 3D. The Construct 2 platformer helped me learn the basics of game mechanics, while the Unity Character Controller (Remy) gave me more experience with 3D movement, physics, and animation. The Unity Car Controller taught me how to work with vehicle physics and camera controls.