UNITY

Zetlan Technologies

E-LEARNING COURSE

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ZETLAN TECHNOLOGIES

COURSE MODULES

Beginner Level

1. Introduction to Unity

- Overview of Unity & its interface
- Setting up a new project
- Understanding scenes, game objects, and components

2. C# Basics for Unity

- Variables, data types, and operators
- Functions and methods
- Conditional statements and loops

3. Game Objects & Transforms

- Creating and manipulating objects
- Using the Transform component (position, rotation, scale)
- Understanding parenting and object hierarchy

4. Materials, Lighting, and Cameras

- Applying textures and materials
- Types of lights and how to use them
- Setting up and controlling cameras

5. Physics and Collisions

- Rigidbodies and gravity
- Colliders and triggers
- Basic physics interactions

6. UI and Player Input

- Creating UI elements (buttons, text, sliders)
- Handling user input (keyboard, mouse, touch)
- Creating a start menu and HUD

7. Scripting Fundamentals

- Creating scripts and attaching them to objects
- Understanding MonoBehaviour functions
- Coroutines and event handling

Intermediate Level

8. Character Movement and Animation

- Moving a character using physics or transform
- Animating characters with the Animator Controller
- Blend trees and animation transitions

9. Game AI and NPC Behavior

- Implementing basic AI (patrolling, chasing)
- NavMesh navigation for NPCs
- State machines for AI behavior

10. Audio and Sound Effects

- Adding background music and sound effects
- Implementing spatial audio
- Controlling audio with scripts

11. Object Pooling and Optimization

- Understanding performance optimization
- Object pooling for better performance
- Reducing draw calls and optimizing textures

12. Prefabs and Modular Development

- Creating reusable assets
- Using prefabs for efficient game design
- Prefab variants and overrides

13. UI & Game Managers

- Implementing a game manager
- Saving and loading data (PlayerPrefs, JSON, files)
- Scene management and transitions

Advanced Level

14. Multiplayer & Networking (Photon or Netcode)

- Understanding networking basics
- Setting up multiplayer functionality
- Synchronizing player data across clients

15. Procedural Generation

- Creating randomly generated levels
- Generating terrain and objects dynamically
- Using Perlin noise for procedural design

16. Advanced Physics & Interactions

- Physics-based puzzles
- Raycasting and complex collision detection
- Implementing ragdoll physics

17. Virtual Reality (VR) & Augmented Reality (AR)

- Setting up a VR/AR project
- Implementing VR interactions
- AR object placement and tracking

18. Mobile Game Development

- Optimizing for mobile devices
- Touch input and UI scaling
- Implementing ads and in-app purchases

19. Publishing Your Game

- Exporting for PC, mobile, and consoles
- Playtesting and debugging
- Submitting to app stores and Steam