

BECOME A BADASS GAME DEV



10 GAME PROJECTS

START

LEVEL 1: START UNITY

MECHANICS: Player Movement | Basic UI | Multiple Level

- CONCEPTS :
- Game Objects
 - Prefabs
 - Scene Management
 - Input
 - Collisions
 - Multiple Level

LEVEL 3: TOWER DEFENCE

MECHANICS: Wave System | Resource Management

- CONCEPTS :
- Scriptable Objects
 - Object Pooling
 - Event System



LEVEL 5: STEALTH AI

MECHANICS: State Machines | Vision Cones | Search Behavior

- CONCEPTS :
- State Machine
 - Strategy Pattern
 - Nav Mesh
 - Behaviour Trees



LEVEL 7: ENTITY COMPONENT SYSTEM

MECHANICS: DOTS | Job System | Entity Spawning

- CONCEPTS :
- Burst Compiler
 - Entity Management
 - Entity Queries
 - Performance Profiling
 - Thread safety
 - Race conditions

BONUS 9: OPEN-WORLD

MECHANICS: Large Scale Land | Day-Night Cycle

- CONCEPTS :
- Procedural Generation
 - LODs
 - Async Scene Loading
 - Culling
 - Lighting
 - Scene Streaming

LEVEL 2: 2D PLATFORMER

MECHANICS: Jump Physics | Enemy AI | Power-ups | Health

- CONCEPTS :
- Basic Animation
 - Physics2D
 - Advance UI
 - State Machine
 - Cinemachine
 - Sound

LEVEL 4: 3D CHARACTER CONTROLLER

MECHANICS: 3D Movement | Multiple Camera | Interactions

- CONCEPTS :
- Animation Rigging
 - IK (optional)
 - 3D Transform



LEVEL 6: MULTIPLAYER SYSTEMS

MECHANICS: Client-Server | State Sync | Multiplayer Gameplay

- CONCEPTS :
- Netcode
 - Network Architecture
 - SyncVar & RPC
 - Server vs Client
 - NetworkTransform



LEVEL 8: CUSTOM TOOLS

MECHANICS: Editor Extensions | Custom Inspectors | Build Pipeline

- CONCEPTS :
- Editor Scripting
 - IMGUI vs UIElements
 - Tool Development Lifecycle



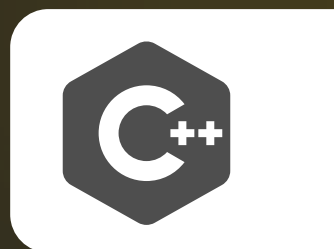
BONUS 10: VR or AR Project

MECHANICS: Movement | Object Interaction | Spatial UI

- CONCEPTS :
- XR Interaction Toolkits
 - AR SDKs: Vuforia
 - Controllers
 - Input
 - Grabbing
 - Plane Detection
 - Spatial UI



AAA CORE ROADMAP GAME DEV



BUILD THESE 12 PROJECTS

C++

Level 1: C++ RPG EASY

Combat | Health | Enemy AI [Text-Based]

- Data Types
- Loops
- Conditional Statements
- Classes & Objects

Level 2: C++ Pokémon CHALLENGE

Multiple Pokémon & Pokémon | Battle System | Inventory [Text-Based]

- OOP
- Structs
- Code Architecture
- Enums
- Pointers

Level 3: Save and Load HARD


Resource Loading | Resource Unloading | Asset Handling

- Memory Management
- Exception Handling
- File Management
- Smart Pointers
- Templates

Level 4: Classic Pong CHALLENGE

Paddle & Ball Movement | Collision | Scoring System

- SFML- Graphics Library



Algorithms

Level 10: Searching Visualizer CHALLENGE

Search Visualizer

- Linear Search
- Binary Search
- STL Search

Level 11: Sorting Visualizer CHALLENGE

Sort Visualizer

- Bubble Sort
- Insertion Sort
- Merge Sort
- Selection Sort
- Quick Sort
- Radix Sort

Level 12: Sudoku Solver HARD


Sudoku Grid Display | Solution Finding Algorithm

- Recursion
- Backtracking



Data Structures

Level 5: Classic Minesweeper EASY



- Arrays: 1D & Multidimensional

Level 6: Classic Snake CHALLENGE

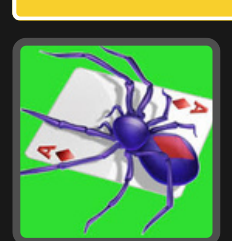


- Linked Lists: Single & Double

Level 7: Spider Solitaire CHALLENGE

Stacks


- Stack cards by suit/sequence
- Power cards



Level 8: Restaurant Sim HARD

Queues

- Cooking
- Customer Service
- Rating System
- Money Scoring



Level 9: Password Hacker HARD

Hashmaps

- Hash Calculation
- Password Deduction
- Progressive Difficulty

UNITY JUNIOR GAME DEV ROADMAP



11 GAME PROJECTS



LEVEL 1: Tic-Tac-Toe Text-Based | C#

MECHANICS: Win/Draw Detection | Grid UI Refresh

- CONCEPTS :
- Core C# Syntax
 - Data Types
 - Conditional Statements
 - Loops
 - Arrays vs Lists

LEVEL 3: Flappy Bird Clone

MECHANICS: Tap-to-flap | Scrolling Obstacles | Score UI

- CONCEPTS :
- Rigidbody2D
 - Colliders
 - Basic Physics
 - Basic UI



LEVEL 5: Pixel-Perfect 2D Movement

MECHANICS: 2D Movement | Sub-Pixel Jumps | Coyote Time

- CONCEPTS :
- Physics vs Kinematic Movement
 - 2D Animations



LEVEL 7: 3D Character Controller

MECHANICS: Basic 3D Movement | Orbiting Camera | Walk/Run/Jump

- CONCEPTS :
- Cinemachine Rigs
 - Blend Trees
 - New Input System
 - Camera-relative movement maths



LEVEL 9: FPS Weapon System

MECHANICS: Hitscan & Projectile Fire | Fire Rate | Recoil| ADS | Reload | Muzzle FX | Grenade

- CONCEPTS :
- Raycast vs Rigidbody Bullets
 - Scriptable Objects
 - Coroutines



LEVEL 11: Enemy AI

MECHANICS: Patrol → Chase → Attack FSM | LOS & Hearing Checks | Ragdoll Death

- CONCEPTS :
- NavMesh
 - AI States Machine
 - Dot Product Maths
 - Ragdoll Physics
 - Vision Cones



LEVEL 2: RPG Text-Based | C#

MECHANICS: Combat System | Health | RNG Enemy AI

- CONCEPTS :
- OOP Programming
 - Dictionaries
 - RNG Logic

LEVEL 4: Endless Runner 3D

MECHANICS: Auto-Forward | Lane-Switch | Slide/Jump | Procedural Tile Gen

- CONCEPTS :
- CharacterController
 - 3D Rigidbody
 - Basic Animations
 - Basic Procedural Gen.



LEVEL 6: Checkpoint & Respawn

MECHANICS: Save flag triggers | Death → Fade → Reload Loop

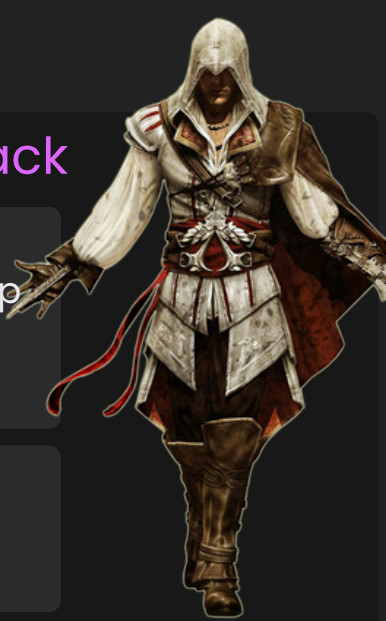
- CONCEPTS :
- Data persistence (JSON / PlayerPrefs)
 - Scene Management

LEVEL 8: Complex Movement Pack

MECHANICS:

- Stamina sprint
- Variable-height multi-jump
- Auto-ledge hang & climb
- Collider Resize Slide

- CONCEPTS :
- Raycasts
 - Animation events
 - Root-motion Animations



LEVEL 10: Inventory System

MECHANICS: Drag-and-drop grid UI | Equip Hotbar

- CONCEPTS :
- Scalable UI
 - Action Events

BECOME A BADASS GAME DEV

START

10 OPEN SOURCE PROJECTS

PROJECT 1: PONG CLONE

SDL2 + OpenGL/GLM

- Game Loop Fundamentals
- 2D Collisions
- Shader Basics
- Input Polling
- Score UI
- Matrix Math (GLM)

PROJECT 3: SIMPLE PLATFORMER

Godot/Defold/Cocos2d-x

- Tilemaps
- Player State Machine
- Checkpoints
- Jump Buffering
- Enemy AI
- Camera Follow

PROJECT 5: 3D PHYSICS DEMO

Bullet + ReactPhysics3D

- 3D Rigidbodies
- Character Controller
- Raycasts
- Collision Filtering
- Ragdolls
- Performance Profiling

PROJECT 7: 3D MULTIPLAYER

Urho3D + Mirror/Photon

- Networked Transforms
- Matchmaking
- Network Time Sync
- RPCs
- Hit Validation
- Authority Management

PROJECT 9: 3D ADVENTURE DEMO

Ogre3D + Eigen

- Asset Import
- Third-person Camera
- Interactables
- PBR Materials
- Skeletal Animation
- Lighting/Shadows

PROJECT 2: BREAKOUT GAME

OpenGL + bgfx + ImGui Debug Overlay

- Sprite Batching
- Collision Resolution
- Debug Overlay
- Tilemap Levels
- Power-ups
- Graphics API Abstraction

PROJECT 4: PHYSICS PLAYGROUND

Box2D + Chipmunk2D

- Rigidbodies
- Continuous Collisions
- Scene Saving/Loading
- Joints/Constraints
- Triggers
- Physics Performance

PROJECT 6: 2D MULTIPLAYER ARENA

ENet/RakNet

- Client-Server Model
- Prediction/Reconciliation
- Chat/Scoreboard
- Entity Sync
- Lag Compensation
- UDP Reliability

PROJECT 8: AUDIO-DRIVEN GAME

OpenAL + SDL_mixer + FMOD

- Spatial Audio
- Timing Windows
- Latency Calibration
- Beat Detection
- Audio Event Routing
- Music Synchronization

PROJECT 10: CUSTOM ENGINE

SDL2 + bgfx + Bullet + OpenAL + ENet + Lua

- ECS Architecture
- Lua Scripting
- Save/Load System
- Resource Manager
- ImGui Tools
- Cross-platform Build

