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# Game Development

# Game Development

Game Development is the art of creating games and describes the design, development and release of a game

It may involve concept generation, design, build, test and release.

it's the process of designing, creating, and releasing games for a variety of platforms.

# Game Development High Level Breakdown

- Scenes & Cameras
- Assets
- Code
- System

[How Video Games Are Made | The Game Development Process | CG Spectrum](#)

# Stages of game development

- Pre-production,
- Production
- Post-production

# Pre-production

Pre-production defines what the game is about, why it should be made, and what it's going to take to make it.

## Game Design Document (GDD)

**Prototyping**

Prototyping happens in pre-production to test whether or not the game idea will work, and if it is worthwhile to pursue. Many ideas do not make it past this stage

# GDD

- The idea or concept
- Genre
- Story and characters
- Core game mechanics
- Gameplay
- Level and world design
- Art and/or sketches
- Monetization strategy

# Production-Post-production

Production is the longest stage of the pipeline, and it's all hands on deck.

Once production is complete and the game has shipped, the game development process continues with some team members being relegated to maintenance (fixing bugs, creating patches) or creating bonus or downloadable content (DLC)

# STAGES OF GAME DEVELOPMENT

- Planning
- Pre-production
- Production
- Testing
- Pre-launch
- Launch
- Post-production

# components

- Story
- Characters
- Audio
- Art
- Lighting
- Levels

Game Design

**Vs.**

Game Development

# Game Designer vs. Game Developer

Game designers are the visionaries who see the whole process from beginning to end. Game developers are the ones who make the magic happen; they work together for hours to ensure that the coding is correct.

Graphic designing, programming, art, and animators are all used by game designers. They come up with and conceptualize the structure of the game, as well as its plot.

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**Game Designer**

A game designer is often referred to as the **captain of the ship** as they use their creative flair and imagination to decide what the final product would look like and how it would behave

**A game developer**

is a person who uses tech to transform the game designer's ideas and sketches into a digital product that users can interact with. Game developer is an umbrella term that includes everyone involved in creating game art and assets.
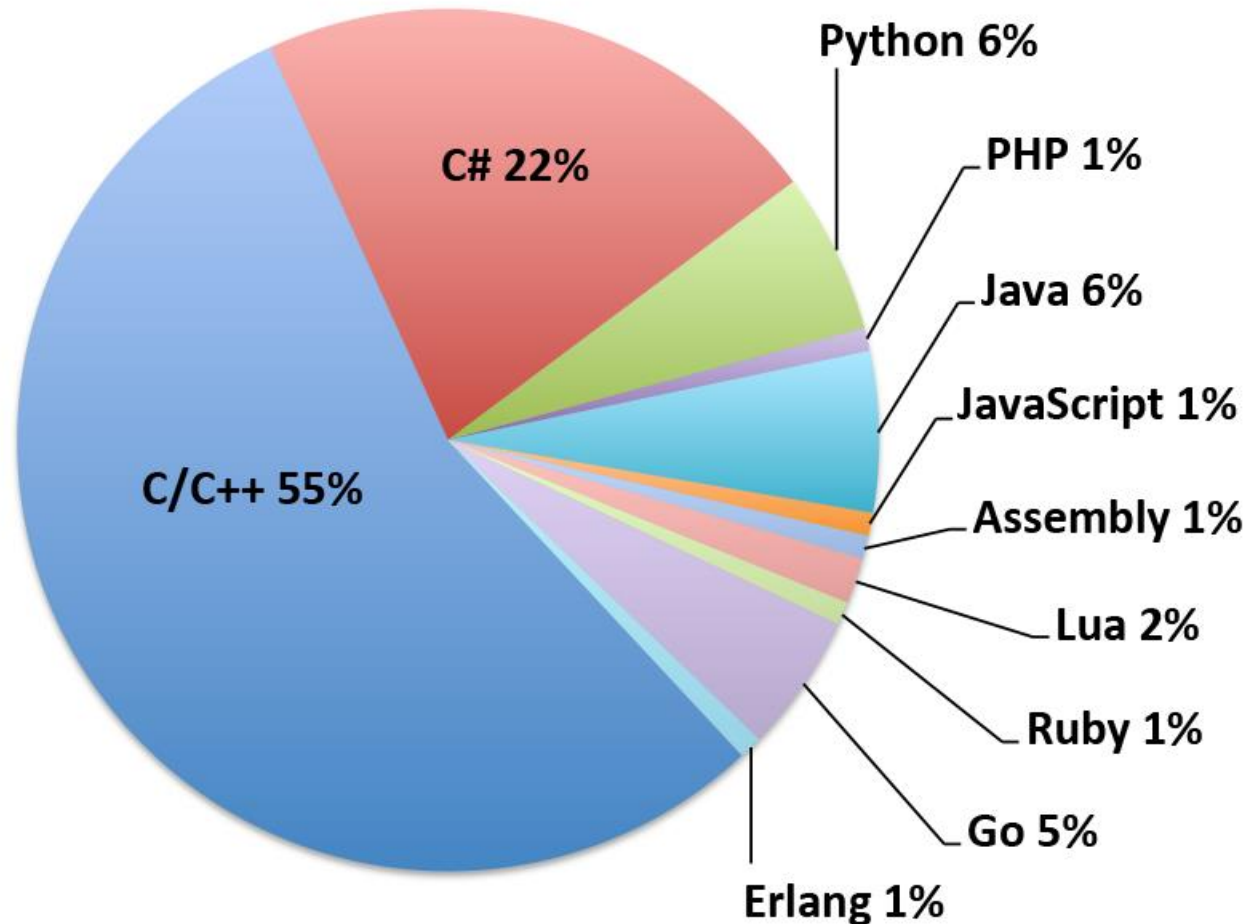
[Top Game Development Tools of 2022 - Incredibuild](#)

[Link](#)

# Game Development Tools

# Programming Language for Game Development

| Game Engine | Popular Games | Supported Languages | Features |
|---|---|---|---|
| Unity | •Pokémon Go<br>•Cuphead<br>•Fall Guys: Ultimate K.O. | •C# | •Cross-platform<br>•Powerful 2D & 3D graphics<br>•Large & active community |
| Unreal Engine | •Fortnite<br>•Gears of War<br>•Mass Effect | •C++ | •Support for AR & VR<br>•Advanced networking & multiplayer support<br>•Active developer community |
| CryEngine | •Far Cry<br>•Hunt: Showdown<br>•Prey | •C++ | •Multi-platform<br>•Buoyancy & water simulation<br>•What you see is what you get (WYSIWYG) sandbox |
| Godot | •Endoparasitic<br>•Dome Keeper<br>•Blastronaut | •GDScript<br>•C++ | •Visual editor with simple UI<br>•IDE with integrated offline documentation |
| Source 2 | •Artifact<br>•Dota Underlords<br>•Half-Life: Alyx | •C++ | •Cross-platform<br>•Advanced physics simulation<br>•Dynamic lighting |

# Game Development Using Python

# Generative AI Tools for Game Development

- **GANimator for Animation**
- **Hidden Door for Text-Based Games**
- **Latitude for Immersive World-Building**
- **Hotpot.AI**
- **Scenario.GG**
- **AI Texture Generator**
- **Sloyd.AI**
- **Promethean AI**
- **Midjourney**
- **Dall-E 2**

[Text To Image - AI Image Generator API | DeepAI](#)

[AI-Generated Facial Photos For 3D Human Creation | Headshot Plugin | Character Creator (reallusion.com)](#)

[Stable Diffusion 2-1 - a Hugging Face Space by stabilityai](#)

# Pygame

Pygame is a free and open-source cross-platform library for the development of multimedia applications like video games using Python. It uses the Simple DirectMedia Layer library and several other popular libraries to abstract the most common functions, making writing these programs a more intuitive task