

Game Design

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Term C202209 Section 08

Game engine is the actual special software framework for games that runs the game play and it's in charge of its visualization. Like how it will appear when the game is initiated.

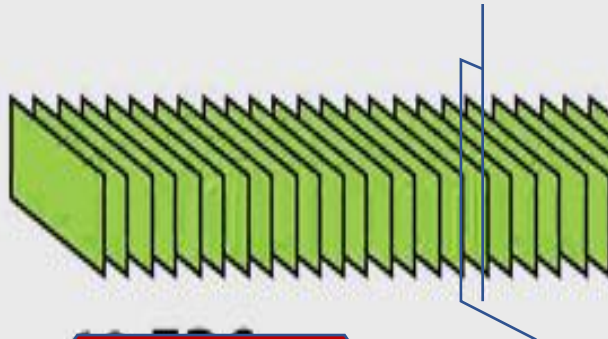
Game Engine

Programming: Game Engine: These engines are the systems for creating and developing your games. Most popular game engines use a software framework that lets game developers bring in assets, create functionality and publish their game for play. Popular game engines include the **Unity** game engine, **Unreal** game engine, **Godot** and more. **Game Loop:** The game loop is what lets a game run smoothly whether there is input from a player or not.

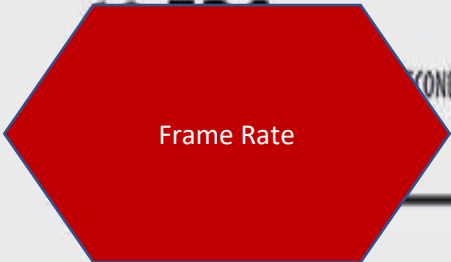
Revision control is basically a very important aspect in software configuration management it is the modification done to software applications, sites, documents, of any set of information.

Revision Control

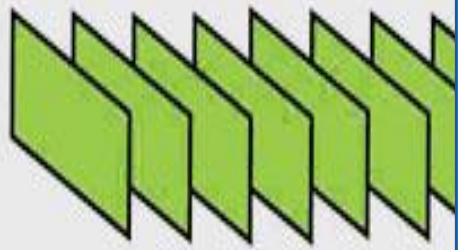
Revision control is provided in most software tools and word processors. As revision control is capable of reverting a modification done to its earlier state, it allows users to identify and correct errors and provide security to the data and information.



Frame rate in a video game is the frames per second that enable the viewer to see the simulation of the movement or motion.



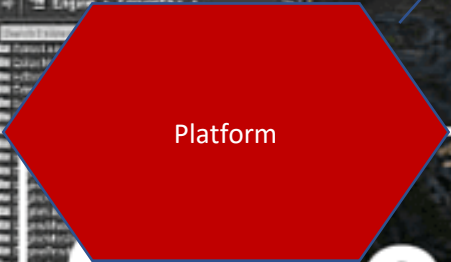
One of the most common benchmarks used in measuring the graphics performance of a video game is the frame rate or frames per second. The frame rate in a video game reflects how often an image you see on the screen is refreshed to produce the image and simulation movement/motion. The frame rate is most often measured in frames per second or FPS, (not to be confused with First Person Shooters).



24 FPS (FRAMES PER SECOND)



In video games, a game platform is a environment including software and hardware components which is design in specific for video games. Like a console.



A platform is a group of technologies that are used as a base upon which other applications, processes or technologies are developed. In personal computing, a platform is the basic hardware (computer) and software (operating system) on which software applications can be run. This environment constitutes the basic foundation upon which any application or software is supported and/or developed.

tree position - position

Vectors are fundamental mathematical objects that are used in every 3d game and game engine. Often used to refer to a virtual point.

Vector

Vectors come in many types, with the most common ones being 2D, 3D, and 4D. A vector is made up of n number of dimensions that describe the total number of axes it uses. For example, a 2D vector only has an X and Y axis, a 3D vector has an X, Y, and Z axis, and a 4D vector has the same axes as a 3D vector in addition to a W axis. A vector can generally be written as shown below.

```
_fps = fps;  
_lastUpdateTime = 0L;  
_updateDelta = 10000000 / _fps;  
Location = new Point( 0, 0 );
```

Source code is a set of instructions and statements written by a programmer using a computer programming language.

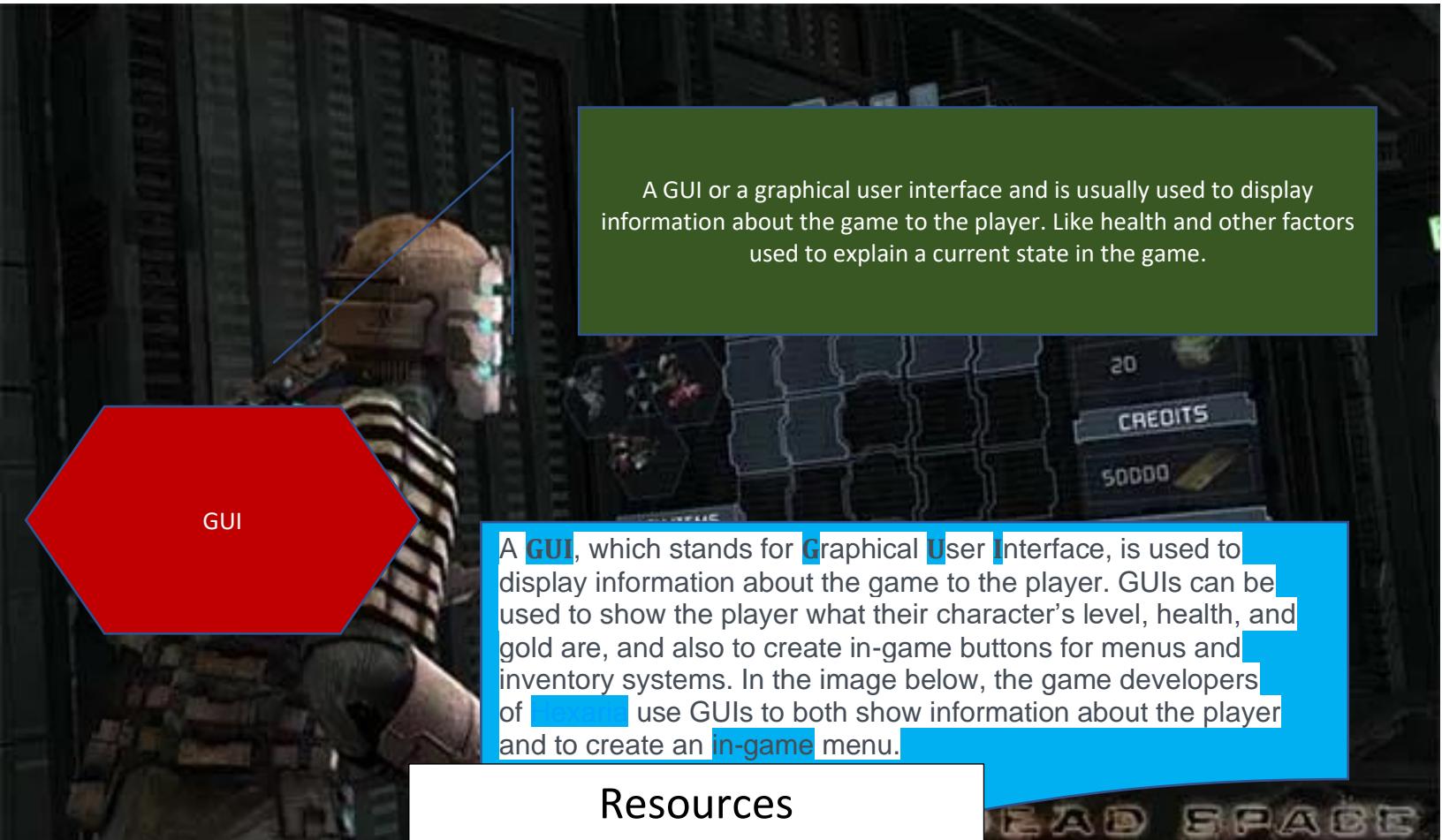
Source Code

Source code is the source of a computer program. It contains declarations, instructions, functions, loops and other statements, which act as instructions for the program on how to function. Programs may contain one or more source code text files, which can be stored on a computer's hard disk, in a database, or be printed in books of code snippets.

```
_lastUpdateTime = gameTime.To
```


```
int row = _currentFrame / Columns;  
int column = _currentFrame % Columns;
```

```
Rectangle sourceRectangle = new Rectangle( Width * column, Height * row, Width, Height );  
Rectangle destinationRectangle = new Rectangle( Location.X, Location.Y, Width, Height );
```

A GUI or a graphical user interface and is usually used to display information about the game to the player. Like health and other factors used to explain a current state in the game.

GUI

A **GUI**, which stands for **G**raphical **U**ser **I**nterface, is used to display information about the game to the player. GUIs can be used to show the player what their character's level, health, and gold are, and also to create in-game buttons for menus and inventory systems. In the image below, the game developers of  use GUIs to both show information about the player and to create an **in-game** menu.

Resources

Game design sources

<https://goodgamestudios.com/blog/the-good-glossary-game-development/2016/03/18/>

<https://www.pluralsight.com/blog/film-games/demystifying-game-development-terms-your-guide-to-understanding-industry-terms-and-working-like-a-pro>

Revision control

<https://www.techopedia.com/definition/24562/revision-control>

Frame rate

<https://www.lifewire.com/optimizing-video-game-frame-rates-811784>

https://link.springer.com/referenceworkentry/10.1007/978-3-319-08234-9_145-1

Platform

<https://www.techopedia.com/definition/3411/platform-computing>

Vector

<https://dev.to/fkkarakurt/matrices-and-vectors-in-game-development-67h>

Source code

<https://www.techopedia.com/definition/547/source-code>

GUI

<https://developer.roblox.com/en-us/articles/Intro-to-GUIs>

A DETAILED GUIDE



Mobile Development

A mobile developer is also known as a mobile developer that is a someone who designs, develops, and implements mobile applications. Like the software for different mobile devices.

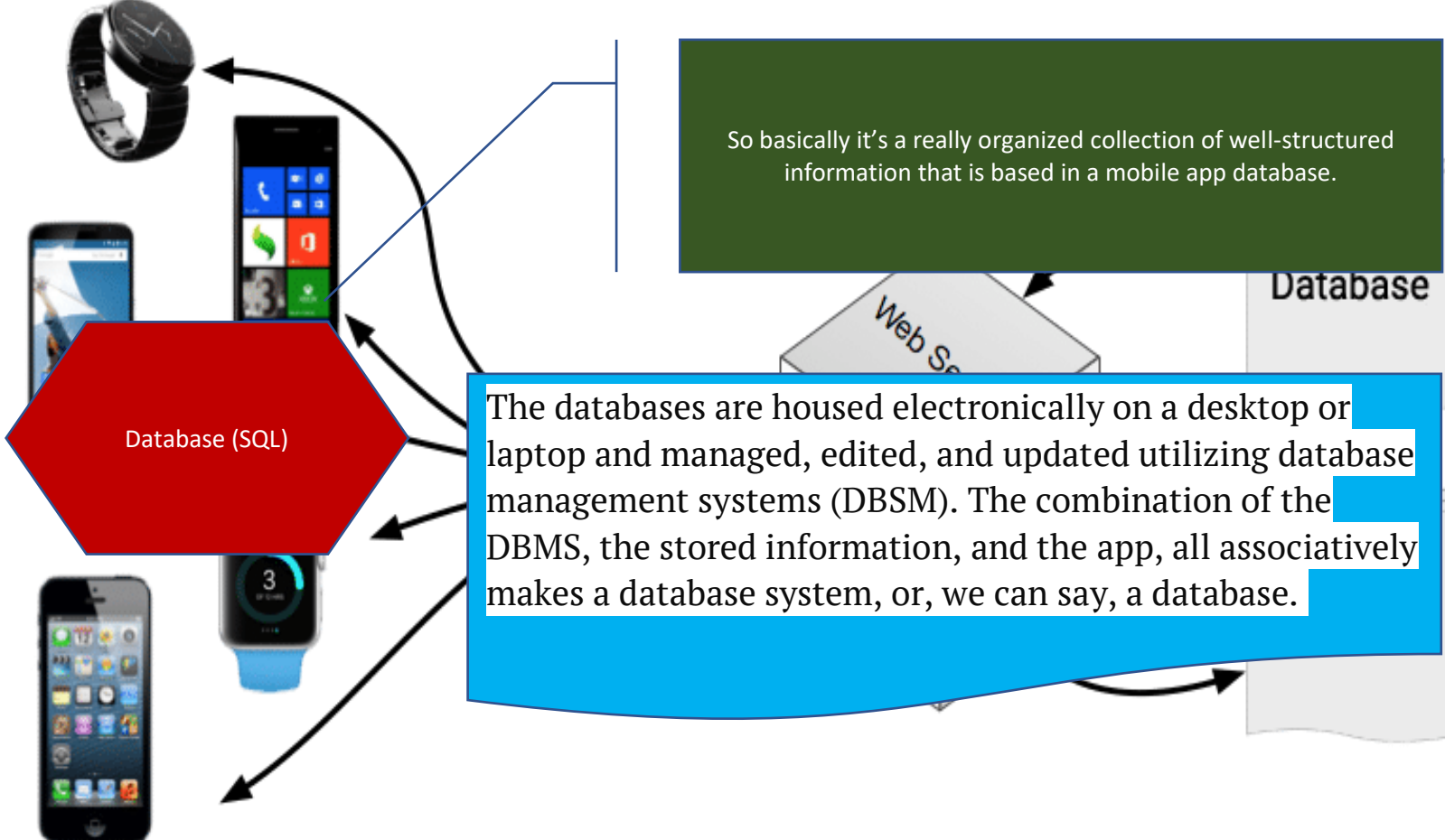
Developer

Every **mobile development project** starts off with an idea. The first task of a mobile developer is to understand this idea and what the client is trying to achieve with the application. This allows the **mobile developer** to determine what the **implementation should look like.**

A mobile designer is a person who develops apps for use on mobile devices such as tablet or cellular phones.

Designer

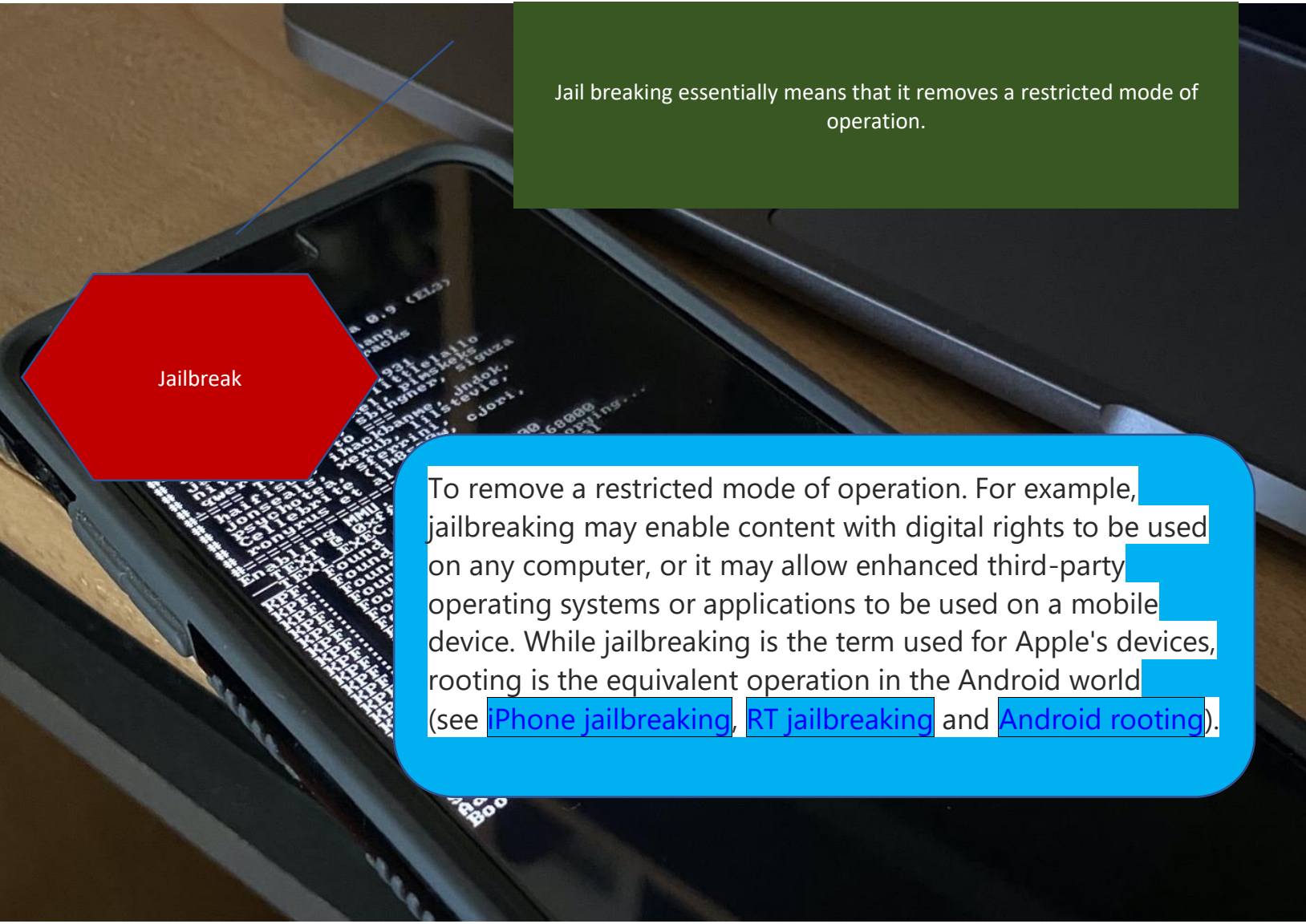
As a mobile designer, you develop apps for use on mobile devices such as a tablet or cellular phone. You may choose to specialize in a platform like Android or iOS, or design apps to work on multiple platforms. Your job duties include creating intuitive web application designs, developing fully functional apps, and testing the apps to ensure they work properly on all screen sizes. You also collaborate with cross-functional teams throughout the entire design process.



So basically it's a really organized collection of well-structured information that is based in a mobile app database.

Database (SQL)

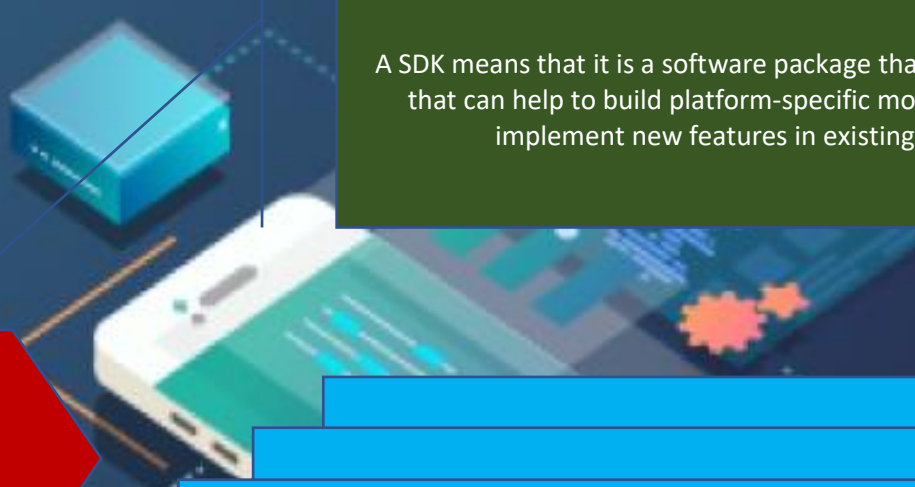
The databases are housed electronically on a desktop or laptop and managed, edited, and updated utilizing database management systems (DBMS). The combination of the DBMS, the stored information, and the app, all associatively makes a database system, or, we can say, a database.



Jail breaking essentially means that it removes a restricted mode of operation.

Jailbreak

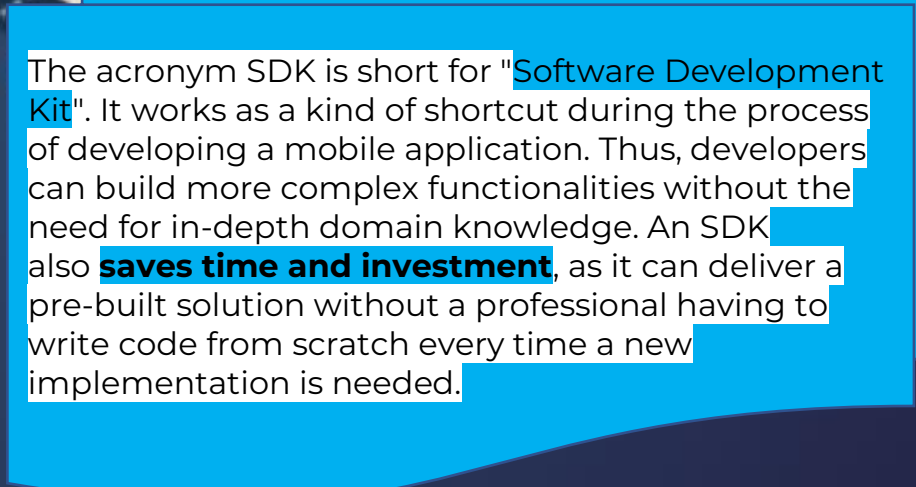
To remove a restricted mode of operation. For example, jailbreaking may enable content with digital rights to be used on any computer, or it may allow enhanced third-party operating systems or applications to be used on a mobile device. While jailbreaking is the term used for Apple's devices, rooting is the equivalent operation in the Android world (see [iPhone jailbreaking](#), [RT jailbreaking](#) and [Android rooting](#)).



A SDK means that it is a software package that contains a set of tools that can help to build platform-specific mobile applications and implement new features in existing mobile apps.



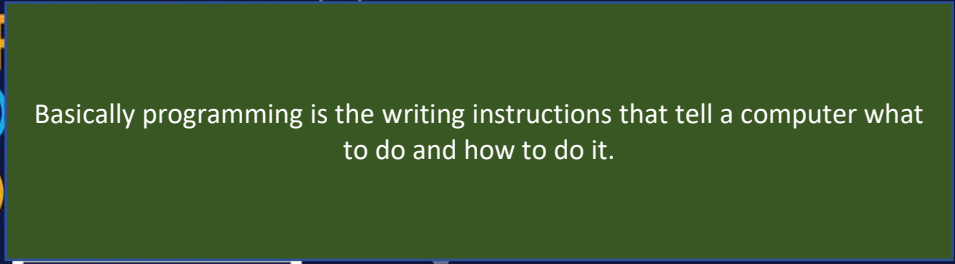
SDK



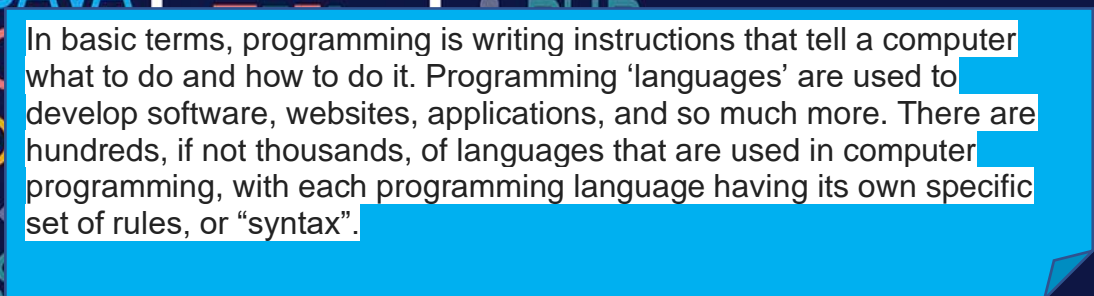
The acronym SDK is short for "Software Development Kit". It works as a kind of shortcut during the process of developing a mobile application. Thus, developers can build more complex functionalities without the need for in-depth domain knowledge. An SDK also **saves time and investment**, as it can deliver a pre-built solution without a professional having to write code from scratch every time a new implementation is needed.

PROGRAMMING

JAVA SCRIPT



Basically programming is the writing instructions that tell a computer what to do and how to do it.



In basic terms, programming is writing instructions that tell a computer what to do and how to do it. Programming 'languages' are used to develop software, websites, applications, and so much more. There are hundreds, if not thousands, of languages that are used in computer programming, with each programming language having its own specific set of rules, or "syntax".



Programming



Client-Side

Server-Side

Server-side development is a type of development that involves programs that run on a server.

HTTP Responses

MySQL Query Results

Server

Leased space on remote computer optimized for web hosting

WordPress Database

Stores all WordPress posts, metadata and permalinks

Server-side (PHP, Python, Ruby)

Browser makes HTTP requests to fetch server contents

Server's HTTP response that a browser renders

Browser can run JavaScript dynamically and interactively

Software developers, database administrators and web developers typically use server-side development. Server-side developers can use many different programming languages, including:

- **Java:** Java is an object-oriented programming language that developers can use for a variety of purposes, including software and application development. Java is one of the most popular server-side programming languages.
- **Python:** Python is an object-oriented, general-purpose programming language that developers can use for web development, application development, operating systems and other purposes. Python has applications in data science, finance, computing and other fields.
- **SQL:** SQL, which stands for Structured Query Language, is the industry-standard language for interacting with databases. Developers can use SQL to manipulate data in databases, including updating, retrieving and deleting data.
- **PHP:** PHP, which stands for Hypertext Preprocessor, is a scripting language developers use to create websites and web applications. PHP can connect to databases to display their content on websites.

HTTP Requests

MySQL Queries

developer

<https://www.freelancemap.com/blog/what-does-mobile-developer-do/>

Designer

<https://www.ziprecruiter.com/Career/Mobile-Designer/What-Is-How-to-Become>

Programming

<https://aws.amazon.com/mobile/mobile-application-development/>

Server-side

<https://www.indeed.com/career-advice/career-development/client-side-vs-server-side>

Database

<https://www.emizentech.com/blog/best-databases-for-mobile-apps.html>

Jailbreak

<https://www.pcmag.com/encyclopedia/term/jailbreaking>

SDK

<https://www.incognia.com/the-authentication-reference/what-is-a-mobile-sdk-and-how-does-it-work>