# Module – 1 (SDLC)

## 1. What is Software?

Software is a collection of instructions, data, or computer programs that are used to run machines and carry out particular activities. It is the antithesis of hardware, which refers to a computer's external components. A device's running programs, scripts, and applications are collectively referred to as "software" in this context.

In a computer system, the software is basically a set of instructions or commands that tell a computer what to do. In other words, the software is a computer program that provides a set of instructions to execute a user's commands and tell the computer what to do. For example like MS-Word, MS-Excel, PowerPoint, etc.

### Types of Software

It is a collection of data that is given to the computer to complete a particular task. The chart below describes the types of software:

Above is the diagram of types of software. Now we will briefly describe each type and its subtypes:

System Software

Operating System

Language Processor

Device Driver

Application Software

General Purpose Software

Customize Software

Utility Software

## 2. What are the types of Applications?

Apps serve different purposes and needs depending on individual organizations and industries. They’re helpful across healthcare, banking, education, travel, retail, logistics, etc. The primary purpose of every application is to simplify a specific operation or help users get something done more effectively.

Today, users have a plethora of apps at their disposal, and they can determine which ones to use based on their requirements.

**The following are the different types of applications based on need:**

Database apps

Custom apps

Web-based apps

Low code apps

No code apps

Enterprise apps

### 1. Database apps

These software programs are created to retrieve, manage, and share information efficiently between multiple users. Businesses commonly use this application to create databases, such as mailing lists, customer contacts, employee records, transaction records, etc. Some advanced database software with programming languages, such as SQL Server, Oracle, and FoxPro, allows users to analyze and visualize the data they have saved on the system to generate valuable insights.

Database apps also have systems to organize and retrieve data seamlessly based on specific needs.

### 2. Custom apps

Custom apps are application software designed specifically for a user or group of users within an organization to help them accomplish their specific tasks. Custom application development ensures that you can create a tailored experience for each team or each member of a team. Instead of generic applications that tend to serve a broad class of users, custom apps have a more specific set of requirements based on the obligation it is meant to address.

### 3. Web apps

Web apps are application software accessible online through a browser. It behaves like a mobile app when it’s accessed with a browser from a mobile device, but it can also be accessed on any internet-connected device, including a desktop, PC, or tablet. The web app frontend is created with languages such as HTML, CSS, and Javascript, which are supported by most browsers.

The backend is created with server-side languages like PHP, Phyton, or Ruby. Unlike mobile apps, web apps don’t require a specific software development kit.

### 4. Low-code apps

Low-code apps are applications created with minimal code involved. These apps ensure that IT teams and business users can deliver fast digital solutions to solve specific business problems. The low-code application approach removes the need to write custom codes.

Instead, low code development platforms provide a robust collection of ready-made UI components and other user-friendly features, such as solution blueprints, boilerplate integration, and scripts that can be connected using visual workflow automation tools. Low-code platforms also offer the option to customize specific app components using custom codes.

### 5. No code apps

No code apps are applications built without any complex coding skills. You can simply use graphical user interfaces to create the software instead of writing several lines of code. This removes the barrier to app creation and allows more people to build functional applications.

### 6. Enterprise apps

Enterprise apps are applications that businesses use to solve problems within their organization. They’re designed to interface or integrate with other enterprise apps. Enterprise application development requires a high level of stability and reliability because they plug into core processes within an organization. A banking service app or inventory management application are examples of enterprise apps.

## 3. What is programing?

**Programming** is an exercise or practice that boost our logical thinking and improves a problem-solving skill. It teaches us how to accomplish a task with the help of a computer program or software. Therefore, in simple terms, **programming** is a task to implement a solution to a problem in the form of computer language. In this section, we will discuss the word **programming, programming languages, its type, advantages, disadvantages,** and their uses.

In computer science fields, the word program characterizes what a computer actually does and this process is known as **programming**.

We can also define the term **programming** as it is the process that models or structure the set of instructions that instruct the machine **how to perform a task** and **what to perform.** It can be done using a variety of programming languages such as **C**, **C++**, **C#**, **Python**, **Java**, etc.

Advantages of Programming

It enhances problem-solving skills.

Using programming, we can solve complex problems.

It is also learning with fun.

It can perform multiple tasks can be bundled into one module.

It saves time and effort.

Disadvantages of Programming

Knowledge of computer is mandatory.

Logical thinking should be strong.

## 4. What is Python?

Python is a general-purpose, interpreted, high-level programming language popularly used for website development, data analytics and automation.

Python is a general-purpose language which means it is versatile and can be used to program many different types of functions. Because it is an interpreted language, it precludes the need for compiling code before execution and because it is a high-level programming language, Python is able to abstract details from code. In fact, Python focuses so much attention on abstraction that its code can be understood by most novice programmers.

Python code tends to be short and when compared to compiled languages like C and C++, it executes programs slower. Its user-friendliness makes it a popular language for citizen developers working with machine learning algorithms in low-code no-code (LCNC) software applications.

Python has a simply syntax and is known for having a large community that actively contributes to a growing selection of software modules and libraries. Python’s initial development was spearheaded by Guido van Rossum in the late 1980s. Today, Python is managed by the Python Software Foundation.