Unit 4: Computer Software and Operating System

Computer Software
Introduction
Software is a set of programs, which is designed to perform a well defined function. A program is a sequence of instruction written to solve a particular problem.
A computer cannot do anything on its own. It must be instructed to do a job. Hence it is necessary to specify a sequence of instructions. A sequence of instructions written in a language understood by a computer is called a computer program. A program controls a computer's processing activity. The term software refers to a set of computer programs, procedures and associated documents.

Need for Software
Software is simply a set of instructions, telling the computer what to do. Software is needed because it provides the instructions that computers use to perform tasks and provide solutions to problems. We need software for following reasons:
1. **To interact with hardware:** A computing device is made up of many several components of hardware. All these hardware devices cannot work together on its own. To work all these components together we need to give instructions. So we need software to give instructions to all these components. Without software a computer or any computing device is just a piece of garbage. Any function of the computer is done by software.
2. **To perform tasks:** computer needs software to perform tasks, such as opening and editing documents, playing games and accessing the internet. Without software, a computer would simply be a collection of hardware components and would not be able to perform any useful tasks.
3. **To provide user interface:** Software provides the user interface that allows us to interact with the computer and its applications. This can be a graphical user interface, such as the one provided by Windows or mac OS or a command line interface.
4. **To manage data:** Software is also responsible for managing and storing data, such as files and documents, in a way that is accessible and secure.
5. **To run application:** A computer needs software to run applications, such as email clients, word processors, and web browsers. These applications provide the functionality that makes a computer useful for various tasks and activities.

Hardware Vs Software

Hardware	Software
Hardware provides the physical components that make up a computer	Software provides the instructions that tell the hardware what to do.
Hardware provides the basic computing power, storage and I/O capabilities	Software provides the applications and os that allow a computer to perform tasks.
Hardware components can be upgraded Or replaced as technology advances	Software can be updated or replaced to add new features or bugs fix.
Hardware components are generally fixed and cannot be customized	Software can be customized to meet specific needs and requirements
Hardware components are typically controlled by software.	Software interacts with the hardware to perform tasks and manage data.