SOFTWARE ENGINEERING-I

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WEEK-1

- ✓ Introduction to Software Engineering-I
- ✓ Software
- ✓ Hardware
- ✓ Software Engineering
- ✓ Objectives of Software Engineering

Software

- Software is a collection of instructions and data that tell a computer how to work.
- Software is **a set of instructions, data or programs used to operate computers and execute specific tasks**.
- Software is a set of programs, which is designed to perform a well-defined function. A program is a sequence of instructions written to solve a particular problem.
- Software can be seen, but cannot touch it.

Hardware

- Computer **hardware** includes the physical parts of a computer, such as the case, central processing unit (CPU), monitor, mouse, keyboard, etc.
- **Hardware** refers to the tangible aspects of a computing device that are needed to store and run the software.
- Hardware can be seen and touch it.

Software Engineering

- ***Software Engineering*** *is a systematic, disciplined, quantifiable study and approach to the design, development, operation, and maintenance of a software system.*

Objectives of Software Engineering:

- **Maintainability –**
  It should be feasible for the software to evolve to meet changing requirements.
- **Efficiency –**
  The software should not make wasteful use of computing devices such as memory, processor cycles, etc.
- **Correctness –**
  A software product is correct if the different requirements as specified in the SRS document have been correctly implemented.
- **Reusability –**
  A software product has good reusability if the different modules of the product can easily be reused to develop new products.
- **Testability –**
  Here software facilitates both the establishment of test criteria and the evaluation of the software with respect to those criteria.

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- **Reliability –**
  It is an attribute of software quality. The extent to which a program can be expected to perform its desired function, over an arbitrary time period.
- **Portability –**
  In this case, the software can be transferred from one computer system or environment to another.
- **Adaptability –**
  In this case, the software allows differing system constraints and the user needs to be satisfied by making changes to the software.
- **Interoperability** – Capability of 2 or more functional units to process data cooperatively.