SOFTWARE ENGINEERING

* The term **software engineering** is the product of two words, **software**, and **engineering**.
* The **software** is a collection of integrated programs.
* **Engineering** is the application of **scientific** and **practical** knowledge to **invent, design, build, maintain**, and **improve frameworks, processes, etc**.
* **Software Engineering** is an engineering branch related to the evolution of software product using well-defined scientific principles, techniques, and procedures. The result of software engineering is an effective and reliable software product.

Software Engineering is required due to the following reasons:

* To manage Large software
* For more Scalability
* Cost Management
* To manage the dynamic nature of software
* For better quality Management

Need of Software Engineering

* **Huge Programming:**It is simpler to manufacture a wall than to a house or building, similarly, as the measure of programming become extensive engineering has to step to give it a scientific process.
* **Adaptability:**If the software procedure were not based on scientific and engineering ideas, it would be simpler to re-create new software than to scale an existing one.
* **Cost:**As the hardware industry has demonstrated its skills and huge manufacturing has let down the cost of computer and electronic hardware. But the cost of programming remains high if the proper process is not adapted.
* **Dynamic Nature:**The continually growing and adapting nature of programming hugely depends upon the environment in which the client works. If the quality of the software is continually changing, new upgrades need to be done in the existing one.
* **Quality Management:** Better procedure of software development provides a better and quality software product.

Characteristics of a good software engineer

1. Exposure to systematic methods, i.e., familiarity with software engineering principles.
2. Good technical knowledge of the project range (Domain knowledge).
3. Good programming abilities.
4. Good communication skills. These skills comprise of oral, written, and interpersonal skills.
5. High motivation.
6. Sound knowledge of fundamentals of computer science.
7. Intelligence.
8. Ability to work in a team
9. Discipline, etc.

# **Software Processes**

**Software**: set of computer programs, procedures and associated documents (Flowcharts, manuals, etc.) that describe the program and how they are to be used.