Module – 1 (Software)

B1. What is software?

* Software is **a set of instructions, data or programs used to operate computers and execute specific tasks**. It is the opposite of hardware, which describes the physical aspects of a computer. Software is a generic term used to refer to applications, scripts and programs that run on a device.

B2. Types of software

* There are mainly three types of software

1. System s/w or OS: - provides the basic functions for computer usage and helps to run the computer hardware and system. - is the s/w used by the computer to translate inputs from various sources into a language which a machine can understand. Basically OS coordinates the different hardware components of a computer. - Ex. Linux, window, macOS, Android, iOS
2. Application s/w: - is the general designation of computer programs for performing user tasks. - Types of application s/w 1) Mobile app: - Application that run on mobile - Ex. Instagram, facebook, etc 2) Desktop app: - That run stand-alone in a desktop or laptop computer. - Ex. Microsoft office suite which includes Word, Excel and PowerPoint. - Ex. Outlook for email, and firefox, Google Chrome, Mozilla are the web browser. - Anti-virus is an application and so is the media player. 3) Web app: - That run on a web browser - ex. google.com, facebook.com, etc
3. Programming s/w: - is the process of designing, writing, testing, debugging, and maintaining the source code of computer programs. - This s/w is written in a programming language. - The purpose of programming is to create a program that exhibits a certain desired behaviour.

B3. What is Software Development Methodology?

• SDLC is a structure imposed on the development of a software product that defines the process for planning, implementation, testing, documentation, deployment, and ongoing maintenance and support. There are a number of different development models.

• A Software Development Life Cycle is essentially a series of steps, or phases, that provide a model for the development and lifecycle management of an application or piece of software.

• The methodology within the SDLC process can vary across industries and organizations, but standards such as ISO/IEC 12207 represent processes that establish a lifecycle for software, and provide a mode for the development, acquisition, and configuration of software systems.

* SDLC Phases
* Requirements Collection/Gathering -> Establish Customer Needs
* Analysis -> Model And Specify the requirements - “What”
* Design -> Model And Specify a Solution – “Why”
* Implementation -> Construct a Solution in Software
* Testing -> Validate the solution against the requirements
* Maintenance -> Repair defects and adapt the solution to the new requirements

B4. What is Design Pattern?

-> Design patterns are used to represent some of the best practices adapted by experienced object-oriented software developers. A design pattern systematically names, motivates, and explains a general design that addresses a recurring design problem in object-oriented systems. It describes the problem, the solution, when to apply the solution, and its consequences. A design pattern provides a general reusable solution for the common problems occurs in software design. The patterns typically show relationships and interactions between classes or objects. The idea is to speed up the development process by providing well tested, proven development/design paradigm. Design patterns are programming language independent strategies for solving a common problem. That means a design pattern represents an idea, not a particular implementation. By using the design patterns you can make your code more flexible, reusable and maintainable.

1. What is the difference between Application software and system software?

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1. Explain the SDLC Each faceProcess