**Fundamental::**

1. What is Software? a set of programs
2. Software Works with configuration files and documentation file
3. Configuration file works with system documentation and user documentation
4. Software Engineering: a systematic, disciplined, and cost-effective way of building software and after build a software there are other operations to confirm that it is maintenance
5. What is Computer since?: build connection between software and hardware
6. What is CASE?: computer aid software engineering(it is a tool to design or implement a software)

**Essential attributes of a good software ::**

1. Functionality: requirements of the customer, what the user wants
2. Usability: easy to use not face any difficulty to use
3. Security: must be ensured to protect viruses and other threats
4. Maintainability: maintainability and scalability. After create one feature, can i change it or sacling
5. Reliability: trustable to user, backup data
6. Efficiency: not use unnecessary memory and must to have respone that meas response emidiatliy and take less processing time

**Fundamental Process of making a software::**

1. srs(software requirement specification) what client want

and what developer do take decision to see this srs

1. Design and development : base on srs design and program start
2. Software validation : check what client want that means functionality meats or not
3. Evaluation: if need change there must be a option

**Key challenge of facing software engineering::**

Legacy challenge: purano code noun vabe lekthte hoy jate noton tech er sathe manay nay

Hedaroginty challenge: day by day os chnage hole software jate kaj lore

Delivery challenge: less time er modde high quality software dite hobe

**SDLC phases:**

1. Requirement collections and analysis
2. Feasibility study
3. Design
4. High-level design(brief description and name each module)er diagram implement this phase
5. Low-level design (complete detail of each module, work on logic and database)
6. Coding and implementation
7. Testing and integration
8. Deployment
9. Maintenance
   1. Implement
   2. Update and bug fixing

**Different types of development models**

# Waterfall Model → no way to go previous phase

# Iterative Waterfall Model → have option to go previous phase

1. incremental/evolutionary model → specification → implementation→ validation (continuous integration check and development) error and check er maddome kaj kore 3 ta version thke initial, intermediate, final
2. spiral/meta model → this model works on 4 diffents part
3. Determining objects and alternative
4. Risk assessment and reduction
5. Develop and validation ( chose which model/life cycle we choose)
6. Review and planing(customer give feedback and if need change go to step a → b → c–d aivabe spiral er moto pur project cholte thake
7. Jei project e risk besi and project onek boro oi project er jonno spiral model valo kaj kore

**Cots → commercial of the software system(the software we made we have the authority to work on that software)**

Agile:: continuous incremental improvement through small and frequent releases.

RE(requirement engineering):: process to defining, documenting, and maintaining requirement. Sohoj kothai project er jonno ki ki requirement lagbe ta fixed kore document kore rakha.(example: customer need, our strength, weakness, technical resource., budget, )

Types of requirements:

1. user requirement → user ki chai

2. system requirement →(what,how diye question korle ja powa jai) specifically system e ki ki function thakbe, system requirements document called function specification it should be precise and specific because based on this further design and implementation start.

system requirement are 3 types

* 1.functional requirement (what ) system ki service provide korbe
* 2. Non functional requirement (how) sorasori system ar fuctionalityer sathe jodito na.quality attributes
* 3. Domin requirement : talks characteristic of software domin knowledge

Requirement feasibility study

Requirement elicit and analysis

Requirement specification (functional, nonfunctional domain)

Requirement validation