Lec 1

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Introduction

① Software

Software is not only
↓
the computer programs
↓
but also

Associated documentation & Configuration files

> YISI, IP - Those were only Programs, not softwares

Program	Software products
① Small	① Large
② Single developer	② Team of developers
③ Single user (Author)	③ Multiple users (Customers)
④ Simple UI	④ Complex UI
⑤ Sparse documentation	⑤ Detailed documentation
⑥ No user manual	⑥ User manual
⑦ Ad hoc development	⑦ Systematic development.
⑧ Small in size	
⑨ Limited functionality	

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Software products

Generic

- Standalone systems that are produced by development organizations and sold on the open market

Customized

- Systems that are developed for a particular customer requirement.

How do we develop a real software.

1. Feasibly study (Feasibility study Report)
   - → Technical feasible
   - → Financially worthwhile
2. Find out what the customer wants } (Requirements Gathering)
3. Analyze the problem.
4. Develop ~~the~~ a solution (Design)
5. ~~Test & Debug~~

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5. Code the solution
6. Test & Debug
7. Maintenance

Software engineering - Definitions

IEEE

The application of a
1. Systematic
2. Disciplined
3. quantifiable

approach to ~~the~~ the
- development
- operation
- maintenance

of software.

that is, the application of engineering to software.

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(4) Engineering discipline

make things work by applying theories, methods and tools where these are appropriate and also try to discover solutions to problems even when there's no proper theories / methods.

(5) All aspects of software production

Not only technical processes of software development, but also project management and development of tools, methods and theories to support software production.

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Software Engineering Key Challenges

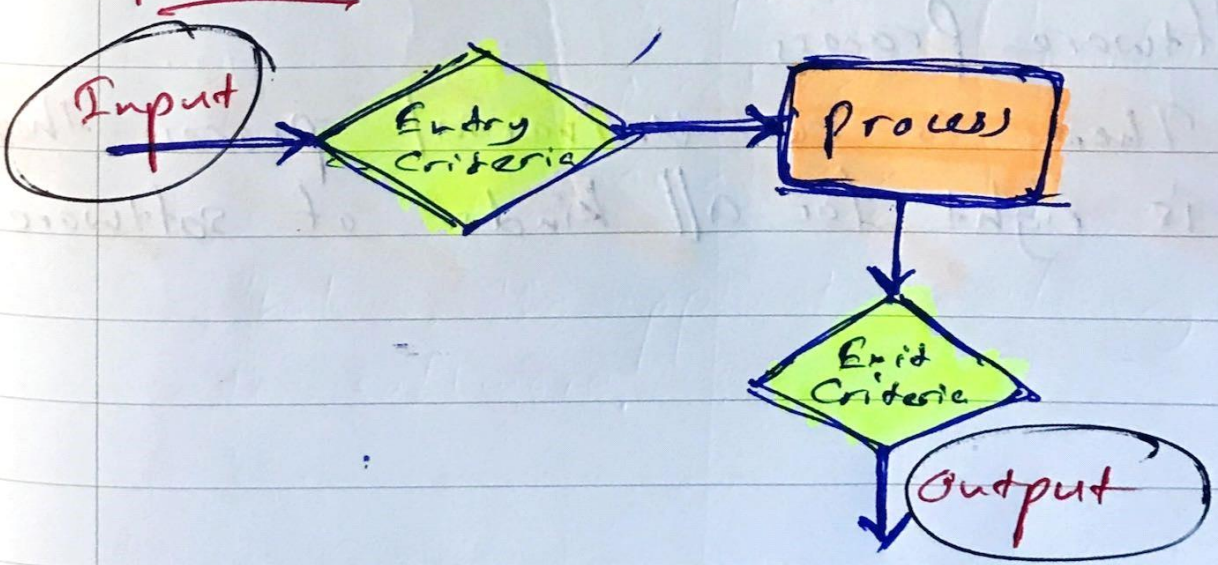
(1) Deliver Quality Software to the customer at the agreed time.

(2) The product is intangible.

(3) Software processes are available and organization/product specific.

(4) Keep overall costs within budget.

Process



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(*) Software Process.

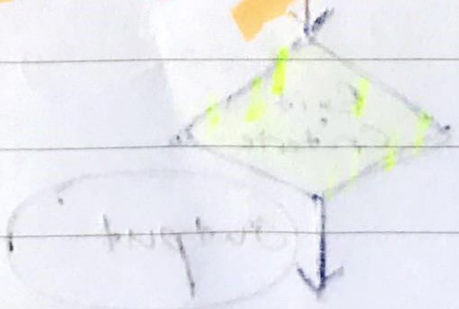
> A software process is a set of interrelated activities and tasks that transform input work products into output work products.

Software Process Activities

1. Software Specification → The functionality of the software and constraints
2. Software Development → The software is designed and programed.
3. Software Validation → The software must be validated
4. Software Evolution → The software must evolve

Software Process

"There is no universal process that is right for all kinds of software"



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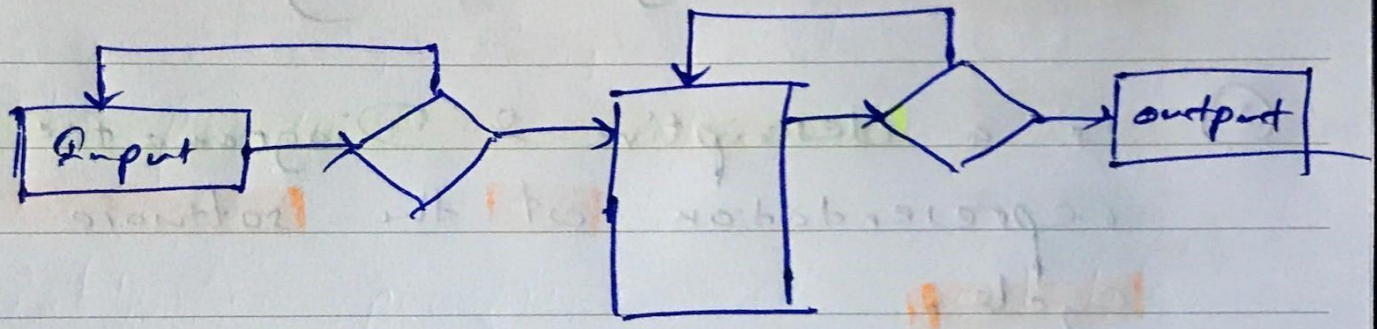
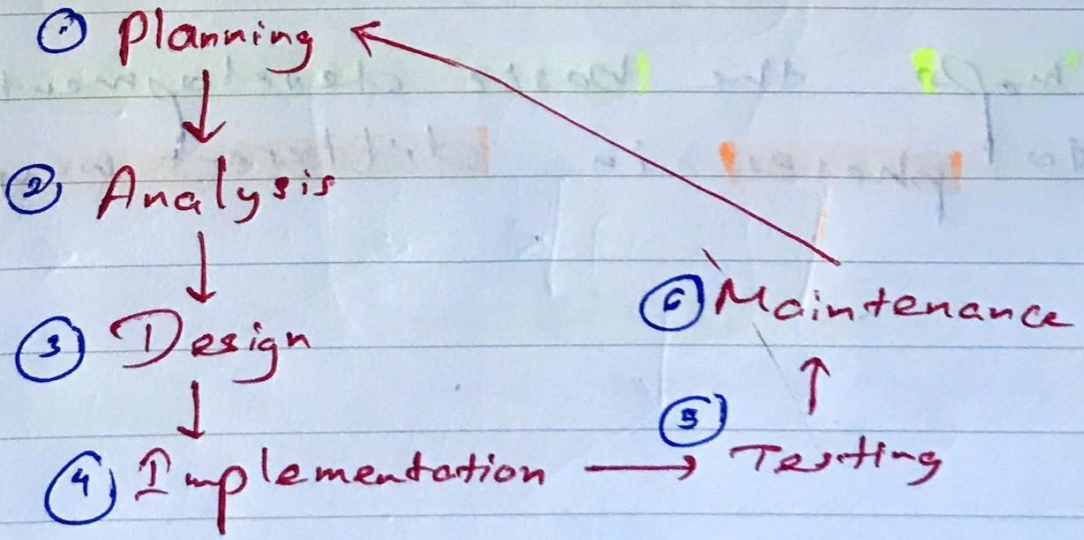
Software Process Model

Simplified representation of software process.



Software Development Life Cycle.



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SDLC

1. Has a series of stages that a software product undergoes during its life time.

2. is a descriptive & Diagramatic representation of the software life cycle.

3. is often referred as software process model.

4. maps the basic development activities to phases in different ways.

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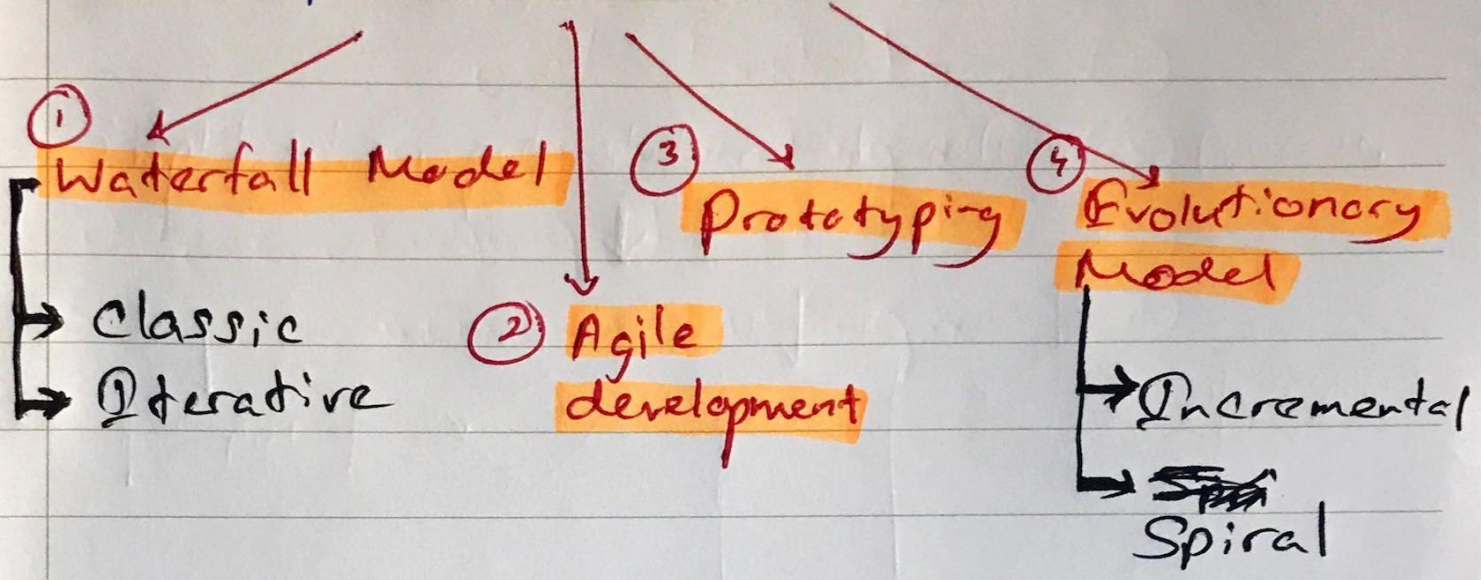
General Software Models



As a professional Software Engineer.

(1) You should accept that your work involves wider responsibility than simply application of technical skills.

(2) You should behave in an ethical way and morally responsible way.

(3) You should not use your skills & abilities to behave in dishonest way that will bring disrepute to the software engineering profession.

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Standards

1. Confidentiality
2. Competence
3. Intellectual property rights
4. Computer misuse