ASSIGNMENT

INFORMATION SYSTEM & DATA
PROCESSING

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BS SOFTWARE ENGINEERING (6)

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Q.1: Define organization; also explain the structure of an organization by giving an example of a well known organization.

Ans:- Organization is the idea of putting things together in a logical order. The verb is "to organize". An organization is a group of people who work together. Organizations exist because people working together can achieve more than a person working alone.

UNITED NATION STRUCTURE

United Nations University Org Chart
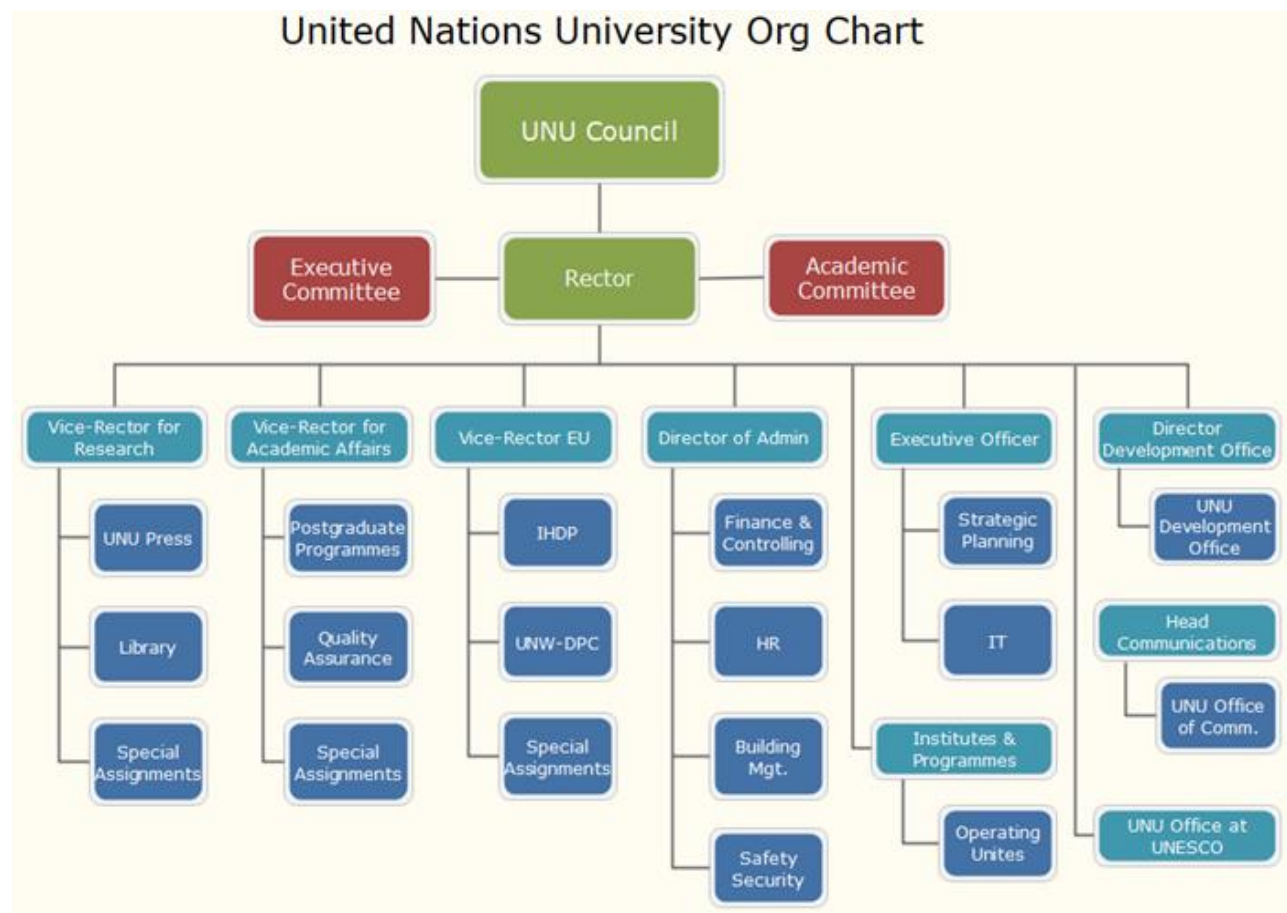
Q.2:Explain System Development Life Cycle; also explain different types system development life cycle.

Ans:- The systems development life cycle (SDLC) is a conceptual model used in project management that describes the stages involved in an information system development project, from an initial feasibility study through maintenance of the completed application. SDLC can apply to technical and non-technical systems.

Types Of SDLC

1. Waterfall Model.

2. V-Shaped Model.

3. Evolutionary Prototyping Model

4. Spiral Method (SDM)

5. Iterative and Incremental Method.

6. Agile development.

1) Waterfall Model:- The Waterfall model is the earliest SDLC approach that was used for software development. The waterfall Model illustrates the software development process in a linear sequential flow. This means that any phase in the development process begins only if the previous phase is complete.

2) V-Shaped Model:- The V-model is a type of SDLC model where process executes in a sequential manner in V-shape. It is also known as Verification and Validation model. It is based on the association of a testing phase for each corresponding development stage. Development of each step directly associated with the testing phase.

3) Evolutionary Prototyping Model:- Evolutionary prototyping is a software development method where the developer or development team first constructs a prototype. After receiving initial feedback from the customer, subsequent prototypes are produced, each with additional functionality or improvements, until the final product emerges.

4) Spiral Method (SDM):- The spiral model is a risk-driven software development process model. Based on the unique risk patterns of a given project, the spiral model guides a team to adopt elements of one or more process models, such as incremental, waterfall, or evolutionary prototyping.

5) Iterative and Incremental Method:- Iterative and Incremental. ... Software development approaches like Extreme Programming and Scrum can be said to be both iterative and incremental. An iterative process is one that repeats a series of operations cyclically, with the intention of coming closer and closer to some desired result.

6) Agile development:- Agile is a term used to describe approaches to software development emphasizing incremental delivery, team collaboration, continual planning, and continual learning, instead of trying to deliver it all at once near the end.

Q.3:-Explain Incremental model and Spiral; also explain main deference between spiral and incremental model.

Ans:- **Incremental Model**:- It is a process of software development where requirements are broken down into multiple standalone modules of software development cycle. Incremental development is done in steps from analysis design, implementation, testing/verification, maintenance.

Each iteration passes through the requirements, design, coding and testing phases. And each subsequent release of the system

adds function to the previous release until all designed functionality has been implemented.
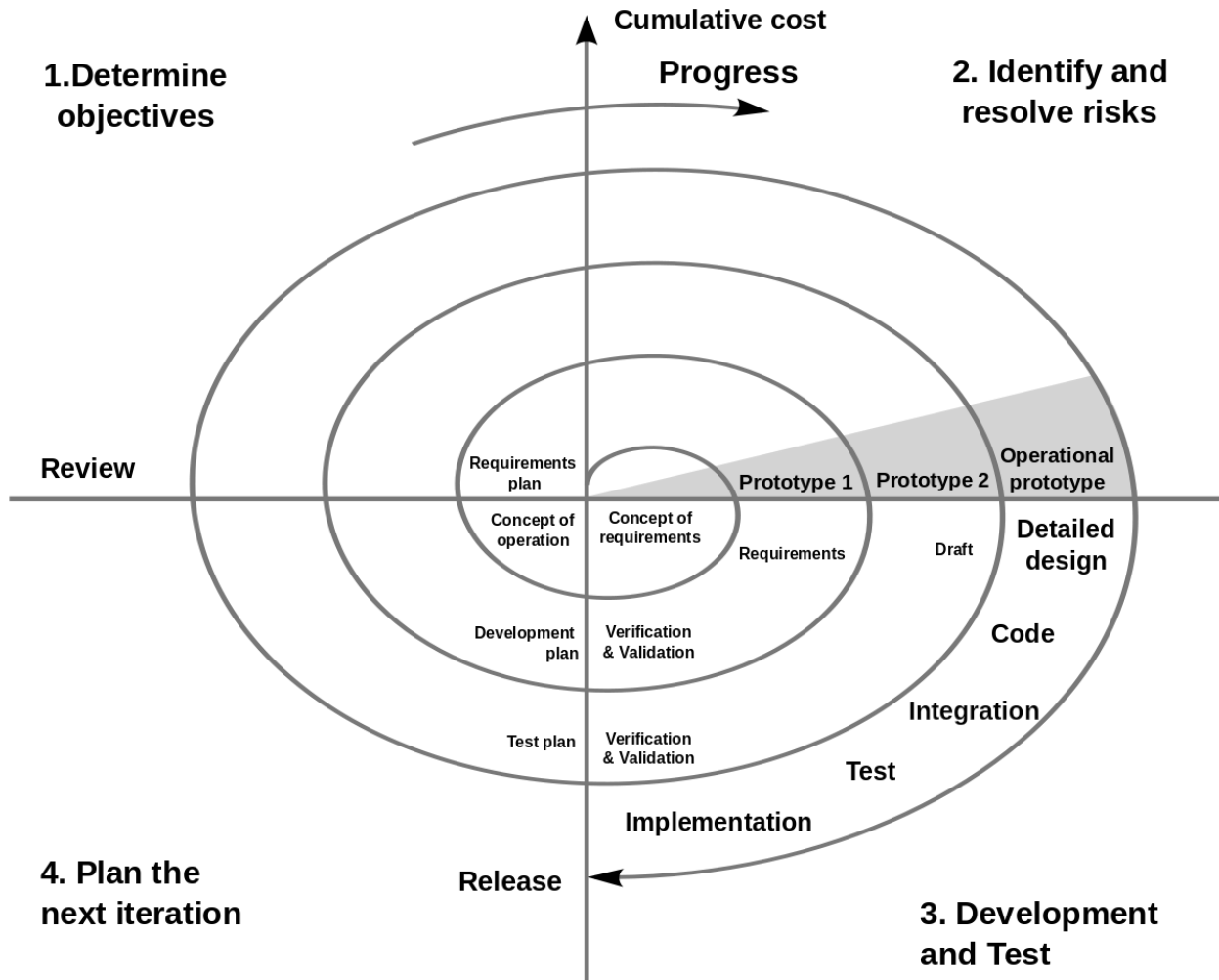

Incremental Model
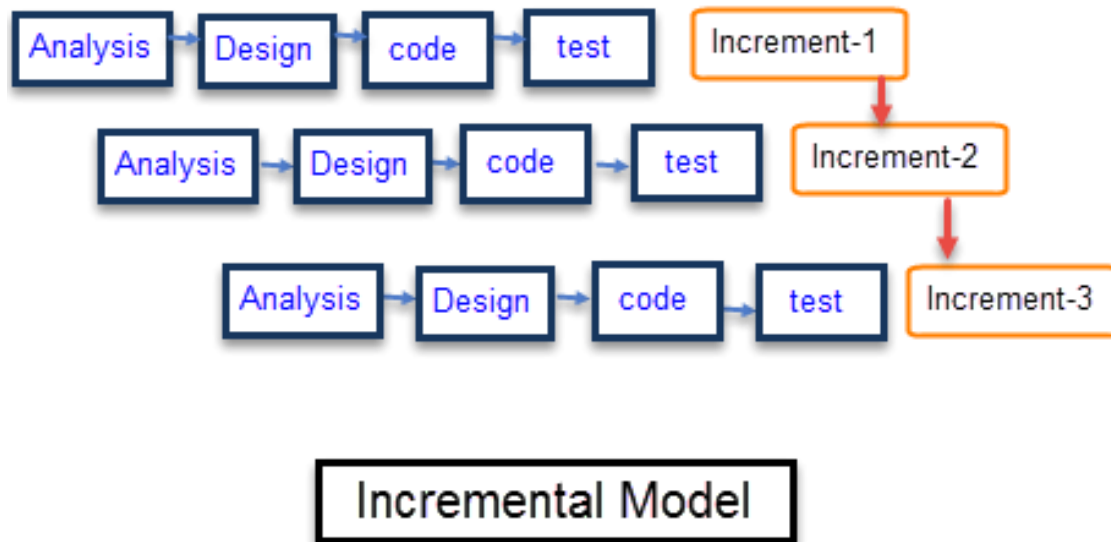
The system is put into production when the first increment is delivered. The first increment is often a core product where the basic requirements are addressed, and supplementary features are added in the next increments. Once the core product is analyzed by the client, there is plan development for the next increment.

Spiral Model:- This Spiral model is a combination of iterative development process model and sequential linear development model i.e. the waterfall model with a very high emphasis on risk analysis. It allows incremental releases of the product or incremental refinement through each iteration around the spiral.

The spiral model is a systems development lifecycle (SDLC) method used for risk management that combines the iterative development process model with elements of the waterfall model. The spiral model is used by software engineers and is favored for large, expensive and complicated projects.

The spiral model has four phases: Planning, Design, Construct and Evaluation. A software project repeatedly passes through these phases in iterations (called Spirals in this model). ... In the subsequent spirals as the product matures, identification of system requirements and unit requirements are done in this phase.

1.Determine objectives

2. Identify and resolve risks

Cumulative cost

Progress

Review

Requirements plan

Concept of operation

Concept of requirements

Prototype 1

Prototype 2

Operational prototype

Requirements

Draft

Detailed design

Development plan

Verification & Validation

Code

Integration

Test plan

Verification & Validation

Test

Implementation

4. Plan the next iteration

Release

3. Development and Test

Difference B/W Spiral And Incremental Model

The spiral model combines the waterfall model for SDLC with the prototyping model. In my view, 'rapid prototyping' (as it was called back in the last century) is essentially an iterative process. On

that basis, if you meant 'iterative mode' then it is part of the spiral model in my view.

The spiral model has four phases: Planning, Risk Analysis, Engineering and Evaluation. A software project repeatedly passes through these phases in iterations (called Spirals in this model). The baseline spiral, starting in the planning phase, requirements are gathered and risk is assessed. Each subsequent spirals builds on the baseline spiral.