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Experiment 2 (Software Crisis):- **Objective to identify the problem related to software crisis for a given scenario**

Background: In the early years of computers applications, the focus of the development and innovation were on hardware. Software was largely views as an afterthought. Computer Programming was an art. Programmers did not follow any disciplined or formalized approaches. This way of doing things was adequate for a while, until the sophisticated of computer applications outgrow. Software soon took over and more functions which were done manually. A software houses begin to develop for widespread distribution. Software development projects produced thousands of source

Assignment 2

Program statement: With the increase in the size and complexity of the software, following situation resulted is collectively termed as software crisis. 1. Time Slippage 2. Cost Slippage 3. Failure at customer Site 4. Intractable Error after delivery

Problem Description: - In the context of this background, for each of the scenario mentioned below, identify the most appropriate problem related to software crisis and mention the same in the table provided.

Scenario a Railways reservation software was delivered to the customer and was installed in one of the metro station at 12.00 AM (mid-night) as per the plan. The system worked quite fine till the next day 12.00 PM (noon). The system crashed at 12.00 PM and the railways authorities could not continue using software for reservation till 02.00 M. It took two hours to fix the defect in the software in the software.

Scenario B: A polar satellite launch vehicle was scheduled for the launch on August 15th. The auto-pilot of the rocket to be delivered for integration of the rocket on may 15th. The design and development of the software for the auto

Pilot more effort because of which the auto-pilot was delivered for the integration on June 15th (delayed by a month). The rocket was launched on Sep 15th (delayed by a month).

Scenario C: Software for financial systems was delivered to the customer. Customer informed the development team about a mal-function in the system. As the software was huge and complex, the development team could not identify the defect in the software.

Scenario D Due to the defect in the software for the baggage handling system. There was also of & 2M of revenues for the airport authorities.

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Assignment 2 solution

Scenario Situation (as given A to D) table form

Scenario	Situation
A	Intractable Error after delivery
B	Time Slippage
C	Failure at customer Site
D	Cost Slippage

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Experiment 3 (Software Development Model): - **Objective to identify the suitable software development model for the given scenario.**

Background "ABC" is a new enterprise recently started by a few young entrepreneurs, intended to develop robotic systems using IT based solutions. "TENZ" is a well

Established automobile manufacturing plant, Interested in automating some of the operations of the plant.

As first step towards automation, TENZ has decided to deploy a robotic arm to pick and place large number of bolts from one tray of a conveyer belt to another tray of a different conveyer belt. Moving one bolt at a time. TENZ has asked ABC for demonstration the robotic arm for the said purpose as a proof of concept. This is the first project being executed by ABC. TENZ would like to have a first experience of the robotic arm before signing the MOU (Memorandum of Understanding) with ABC. After MOU sign-off, TENZ would provide the complete set of requirement of the robot.

Assignment 3

Problem Description: Identify the most appropriate SDLC model for this scenario.

Assignment 3 solutions

Here we can see that "ABC" is new enterprise and they have no proper idea what to do so also their work of company is very complex and risky. They have limited time to implement the developing of robotic arm because there may be significant changes are expected. So base on this scenario we will provide **Spiral Model** will be the best for this situation.

And also "TENZ" expect proof of Solution means they require a prototype design of the robotic arm, so if spiral model will be applied than "ABC" can be give the prototype because in spiral model we can test product in each pass and software will be produced early.

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Solutions based on spiral model
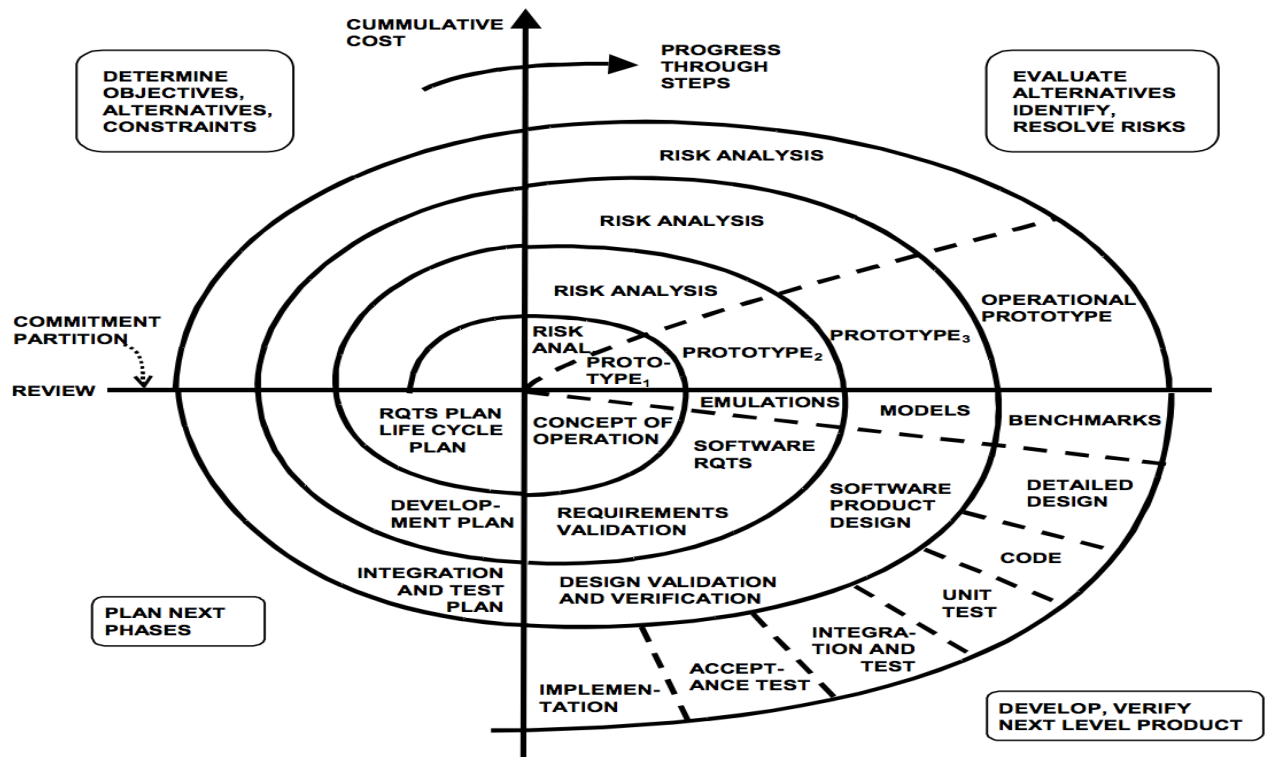
Spiral Model Phases

Spiral Model Phases	Activities performed during phase
Planning	• It includes estimating the cost, schedule and resources for the iteration. It also involves understanding the system requirements for continuous communication between the system analyst and the customer
Risk Analysis	• Identification of potential risk is done while risk mitigation strategy is planned and finalized
Engineering	• It includes testing, coding and deploying software at the customer site
Evaluation	• Evaluation of software by the customer. Also, includes identifying and monitoring risks such as schedule slippage and cost overrun

Advantages of Spiral model

- High amount of risk analysis hence, avoidance of Risk is enhanced.
- Good for large and mission-critical projects.
- Strong approval and documentation control.
- Additional Functionality can be added at a later date.
- Software is produced early in the software life cycle.
- Project estimates in terms of schedule, cost etc. become more and more realistic as the project moves forward and loops in spiral get completed.
- It is suitable for high risk projects, where business needs may be unstable. A highly customized product can be developed using this.

Disadvantages of Spiral mode

- Can be a costly model to use.
- Risk analysis requires highly specific expertise.
- Project's success is highly dependent on the risk analysis phase.
- Doesn't work well for smaller projects.
- It is not suitable for low risk projects.
- May be hard to define objective, verifiable milestones.
- Spiral may continue indefinitely.

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Experiment 4 (Requirement Development): -**Objective To identify the various requirement development activities viz. elicitation, analysis, specification and verification for the given scenarios.**

Background: Requirement engineering produces a specification of what a system should do. The intention of requirement engineering is to provide a clear definition of requirement of the systems. This phase is a very important phase because, if the customer requirements are not clearly understood, the ambiguity can get into the other phase of the development. To avoid such issues, requirement has to be elicited using the right elicitation techniques, to be analysed effectively, specified clearly and verified thoroughly. All activities are collectively termed as requirement development activities.

Assignment 4

Problem Description Identify the requirement development activities associated with each of the following scenarios,

A. Joe is creating an online survey questionnaire for requesting user feedback on the desired features of the application to be developed.

B. Mark is preparing a formal document which includes all of the desired features identified by the survey.

C. Jones is identifying all security related requirement and separating them from the performance related requirements.

D. Merlin a team member is sent to client to observe the business case and collect typical user requirements.

E Leo is team member is working on requirement and ensuring that requirement collected should not be vague and unclear.

F. Lee is conducting a facilitated meeting with the stakeholder to capture the requirements.

G. Amit a team member is distributing questionnaires to stack holder for gathering user requirements

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Assignment 4 solutions

Scenario	Requirement Development Activities
A	Elicitation
B	Specification
C	Analysis
D	Elicitation
E	Verification
F	Verification
G	Elicitation

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Experiment 5 (Requirement Elicitation): - **Objective: To identify the various elicitation techniques and their usage for the Banking case study.**

Background: Requirement elicitation is the process of seeking, discovering, acquiring and elaborating requirement. This includes learning and understanding the needs of the users. This activity is communication centric and iterative in the nature. The techniques used here are the important to get stack holder consensus on the requirements.

Assignment 5

Problem Description KHL is a leading global bank that provides standard banking services to its customers spanning across the globe. The head office is located in London and the bank has presence in more than 20 countries with client base of nearly 500,000.Tuning with times and ever increasing clients and transactions, the bank has specialized branches for specific customer segments like consumer, corporate and the SME's. KHL Bank aims to be one stop shop for its customers to address their changing financial needs. KHL bank offers various banking products and services across its customer segments including Core Banking and Wealth Management amongst other services. KHL Bank is well known among its clients for world-class processes and speed of execution of transactions as part of core banking. Currently, KHL bank has made a proposal for investing around $200 million in setting-up 24x7 banking support facilities for the customers. The bank has decided to leverage IT for automating several of the business processes including: Managing Accounts Transaction Management

The aim of this proposed banking system is to create a paperless bank there by moving towards embanking. Fin Soft, a newly established software company has the vision of providing software solutions in the financial sector. Managing Director (MD) of KHL bank has approached Fin Soft for the computerization of the bank so that there is no more manual way of doing transactions in any of its branches. As part of automation, the KHL bank users are to be provided with ATM facility, e-banking facility over internet and phone banking facility over land lines and cellular networks. Fin Soft is doing such a project for the first Time. Requirements development team in Fin Soft has planned for carrying out the requirement elicitation for this project.

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Scenario Requirement elicitation technique

Interrogative conservation with Managers, Cashiers, Clerks and other Staff for arriving at the requirement for automating transactions.

Formal and planned requirement discussion in a conference to room conducted among managers of diversified branched facilitate by anchor.

Survey form circulated among the users (account holders) who visit the bank, to ease their interactions with bank   Analysis for understanding mode of transactions- Checks, Cash, DD, MT, Gold, etc.

Ethnographers deployed for understanding the users interactions with bank officials. UI design of embanking portal, ATM, Computer Systems   Understanding the process involved in each transaction like withdraw, deposit, fund transfer etc.

In the context of the case study, for the following scenarios identify the most appropriate requirements elicitation techniques (Brainstorming, Workshops, Questionnaire, Task Analysis, Observation, Prototyping, Scenario identification).

Assignment 5 solutions

Scenario	Requirement elicitation technique
Interrogative conservation with Managers, Cashiers, Clerks and other Staff for arriving at the requirement for automating transactions.	Questionnaire
Formal and planned requirement discussion in a conference to room conducted among managers of diversified branched facilitate by anchor.	Workshops
Survey form circulated among the users(account holders) who visit the bank, to ease their interactions with bank	Task Analysis
Analysis for understanding mode of transactions- Checks, Cash, DD, MT, Gold, etc.	Observation
Ethnographers deployed for understanding the users interactions with bank officials.	Scenario identification
UI design of e-banking portal, ATM,Computer Systems	Prototyping
Understanding the process involved in each transaction like withdraw, deposit, fund transfer etc.	Observation