P P SAVANI UNIVERSITY

TUTORIAL NO. - 2

ON

SOFTWARE ENGINEERING(SSCS3010)

TITLE: Identifying Software Crisis Problems in Real-World Scenarios

BACHLEOR OF SCIENCE IN INFORMATION TECHNOLOGY (BSC-IT)

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Aim: Identifying Software Crisis Problems in Real-World Scenarios:

- Define what the software crisis is.
- Recognize common problems that arise due to the software crisis.
- Analyze a given scenario to identify symptoms and root causes of a software crisis.
- Propose basic solutions or improvements.

Banking Mobile App

A national bank released a mobile banking app with high expectations. Post-launch:

- Users experienced login failures frequently.
- Some transactions were processed twice.
- The app was slow, especially during weekends.
- No customer support was integrated into the app.

Identifying Software Crisis Problems in the Banking Mobile App Scenario

Definition of the Software Crisis

The software crisis refers to the difficulties in developing high-quality, reliable, and efficient software within budget and time constraints. It often leads to:

- Missed deadlines
- Cost overruns
- Poor performance
- Unmet user expectation
- Maintenance challenges.

Common Problems Due to the Software Crisis

In this banking app scenario, the following issues align with the software crisis:

Poor Quality Assurance (QA): Frequent login failures and duplicate transactions indicate insufficient testing.

Performance Issues: Slow app performance suggests poor optimization and scalability problems.

Lack of User-Centric Design: No integrated customer support shows inadequate consideration of user needs.

Inadequate Requirements Analysis: Critical flaws (like double transactions) imply poor initial planning.

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Analysis of the Given Banking App Scenario

Symptom	Likely Root Cause (Software Crisis Aspect)
Login failures	Poor error handling, lack of proper load balancing, or authentication service bugs.
Duplicate transactions	Inadequate testing, lack of transaction idempotency, or race conditions.
Slow performance on weekends	Poor scalability, lack of resource optimization under high load.
No customer support in app	Incomplete requirements analysis, weak focus on UX and user support features.

All these reflect the classic symptoms of the software crisis: lack of reliability, poor design, and rushed deployment.

Proposed Basic Solutions and Improvements

Problem	Solution
Login failures	Implement reliable authentication services; add retries and fail-safes; conduct performance testing.
Duplicate transactions	Introduce transaction identifiers and atomicity checks; improve database transaction handling.
App slowness	Optimize backend services; scale cloud infrastructure; implement caching and load testing.
No customer support	Integrate chat or helpdesk features; provide contact options and a feedback channel.

General Recommendations:

- Adopt **Agile** or **DevOps** methodologies to enhance responsiveness.
- Increase **testing coverage** (unit, integration, performance).
- Use **requirements gathering techniques** like user stories and feedback loops.
- Plan for **scalability and future growth** from the design stage.

Summary

The banking app scenario is a classic example of a **software crisis**—a complex system rushed into production without sufficient testing, scalability planning, or user support design. A systematic approach to software development, focused on **quality assurance, user-centric design**, and **scalable architecture**, can help avoid such crises.