Individual Research: Introduction

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**Topic: Architecture Tradeoff Analysis Method (ATAM)**

Relevance: This is a method for evaluating software architectures relative to quality attribute goals. The Architecture Tradeoff Analysis Method (ATAM) achieves high-quality software design by systematically evaluating and refining the software architecture to align with business objectives and critical quality attributes.

Recommendations: There are many recommendations that ATAM could give us. Here are two that I want to share.

1. Proactive Risk Management: Addressing issues early saves costs and time.
2. Improved Stakeholder Communication: Clear priorities and trade-offs foster better collaboration.

Teaching topic: 1. What is ATAM and how it is related to software design evaluation. 2. How to apply ATAM to analyze an architecture design and improve our software quality design

Actionable process: There are many actionable processes that I could focus on the presentation.

1. Identify architectural scenarios, develop a set of use-case scenarios, change scenarios, and stress scenarios.
2. Identifying the trade-offs between software quality, i.e. explicitly document where achieving one quality attribute (e.g., performance) compromises another (e.g., modifiability).
3. Generating the risk themes to help developers get attention to what is critical.

Reference: There are many references and more developed methods based on ATAM. The most classical one is “The Architecture Tradeoff Analysis Method” by Rick Kazman. And some case study I found like “Using the Architecture Tradeoff Analysis Method to Evaluate a Wargame Simulation System: A Case Study” by Rick Kazman.