System Integration
-combine 2 or more systems software(connect)

API
-Application Programming Interface

Agile System Methodology
- Planning
- Designing
- Development
- Testing
- Deployment
- Feedback

Topics
- Role of System Architect
- System Integration Architecture
- Trends And Issue
    - Differents APIs
    - 3rd Party Software
- Information System Security
    - Encryption
    - Back-up

SWOT ANALYSIS
Help to provide the Organizational
- Strength
- Weaknesses
- Opportunities
- And Threats

Role of System Architect

What is a system architect?
A system architect is in charge of:
- Devising
- Configuring
- Operating
- Maintaining both computer and networking systems
- They objectively analyze desired processes and outcomes and advise on the right combination of IT systems and components to achieve specific business, department, team, or functional goals

System architects must be highly proficient in understanding:
- How much stress computer systems can take.
- How they need to be used.
- What is needed for the system designs to hold up.

Levels of system architects
- Highest level
- Medium level
- Lowest level

System architects are business and technology experts.

They look at business plans and goals, analyze technical solutions, and create recommendations on the right mix of IT elements to achieve those objectives.

Documentation may include:
- The name, purpose, and outcome of the initiative
- The main features, functionality, and processes for the initiative
- Overall IT methodology and frameworks impacting the initiative
- Key existing infrastructure and applications
- New staffing or resource requirements
- Ideas for potential software and hardware solutions

A system architect takes the following areas into account:
- Alignment with over all goals
- Specific business requirements
- The existing IT ecosystem
- New and established technologies
- IT resources and staffing
- Cost control and return on investment

A system architect takes the following areas into account:
- End user and customer needs and experience
- Availability, responsiveness, reliability, and resilience of critical elements
- Alignment with architecture standards and best practice
- IT service management and support

System Architect: Roles & Responsibilities

- Break down outcomes into defined parts
- Understand the desired business or departmental strategy and outcome
- Decide on the right IT architecture
- Understand integrations, interfaces & interactions
- Advise project teams on recommended solutions

Systems architect skills

- Experience with computer servers, network switches, load balancers, network analyzers, and network channel or data service units
- Knowledge of developing strategic system architecture plans
- Solid understanding of network and system development and deployment
- Strong analytical, problem-solving, and conceptual abilities
- Excellent verbal and written communication skills
- Experience with information processing fundamentals and best practices
- Ability to prioritize tasks, especially when under pressure
- Above-average leadership and collaboration abilities

The system architect role is vital to the successful definition, design, delivery, and support of any IT project.

Whether an organization is looking to create new systems, or is in the process of strengthening and growing already existing ones, having a qualified system architect on the team will make all the difference.

Fishbone Diagram

-also referred to as 'Ishikawa Diagram'(cause and effect)

- A helpful tool for identifying the root cause of a problem

Head - Problem

Backbone - cause

- People
- Methods
- Environmental
- Equipment/Materials

SOP

Statement of the problems

OLAP VS OLTP

What is OLAP?

Online Analytical Processing (OLAP) is a category of software that allows users to analyze information from multiple database systems at the same time. It is a technology that enables analysts to extract and view business data from different points of view.

What is OLTP?

Online Transaction Processing (OLTP) is an operational system that supports transaction oriented applications in a 3-tier architecture. It administers the day to day transaction of an organization.

Examples of OLAP

SALES
NETFLIX
E-COMMERCE

Examples of OLTP

ONLINE BANKING
ONLINE TICKETING
ONLINE SHOPPING

Comparison between OLAP and OLTP

OLAP

- Provides historical data for reporting and planning.
- Uses SELECT query for fetching the data.
- Users are mostly knowledge workers, business analysts, etc.

OLTP

- It is dealing with current data as transactions occurred in real time, and manages day-to-day operations.
- Uses INSERT, DELETE, and UPDATE queries.
- Used by end-users like clerks, cashiers, DBA, etc.

Advantages of OLAP

- OLAP creates a single platform for all type of business analytical needs.
- The main benefit of OLAP is the consistency of information and calculations
- Easily apply security restrictions on users and objects to comply with regulations and protect sensitive data.

Disadvantages of OLAP

- Implementation and maintenance are dependent on IT professional because the traditional OLAP tools require a complicated modeling procedure.
- OLAP tools need corporation between people of various departments to be effective which might always be not possible.

Advantages of OLAP

- It administers daily transactions of an organization
- Multiple users can use OLTP at one time.
- Faster response time compare to OLAP.

Disadvantages of OLAP

- If an OLTP system faces hardware failure, then online transactions get severely affected.
- OLTP systems allow multiple users to access and change the same data at the same time which many times created unprecedented situation.

Key Differences

- **OLAP** is a category of software tools that analyze data stored in a database whereas **OLTP** supports transaction-oriented applications in a 3-tier architecture.

- **OLAP** creates a single platform for all type of business analysis needs which includes planning, budgeting, forecasting, and analysis while **OLTP** is useful to administer day-to-day transactions of an organization.

- **OLAP** is characterized by a large volume of data while **OLTP** is characterized by large numbers of short online transactions.

- In **OLAP**, data warehouse is created uniquely so that it can integrate different sources for building a consolidated database whereas **OLTP** uses traditional DBMS