CAPSTONE PROJECT 1: TOPIC DEFENSE

# Project Title: A concise statement of the main topic of the thesis identifying the variables or theoretical issues under investigation (no more than 12 words).

1. **Introduction / Background**
   * Brief description of your understanding about the domain of the project.
   * Example: If you are developing cloud-based application then you should know what cloud computing is.

# Problem Statement

* + Describe briefly what problem your intent to focus on
  + Briefly discuss the deficiencies of current solutions available for the said problem.

# Project Idea

Explain the proposed idea.

* + What the idea is?
  + What will be the deliverables?
  + Or what features your application will provide.
  + Your promised features will be considered for evaluation.

# How to Do

* + Describe your understanding about projects development.
    - -How will you develop the application, e.g. tools.
    - -What will be your approach/methodology to develop the promised application.
  + Project architecture (Diagram) would help us to better understand the projects.

# Technology matrix

* + Comparison of existing technology relevant to your proposal to map your propose study as an innovation or new technology and prevent a obsolete study or technology.

# References

* APA 7th Edition Format in alphabetical order

**IMPORTANT:**

* 1. The paper must be stated on a future tense to explain how *will* you do your research since this is still a title proposal.
  2. The paper margin should be set 1 inch in each side. Font style: Times New Roman

Font size: 12

Paper size: 8.5 x 11 (short bond paper)

* 1. In-text citations should be made, and references should also be compiled at the end of the paper following the APA format.
  2. Three (3) copies of the paper should be submitted on the scheduled date and time of the title defense i.e., one (1) copy per panel member.
  3. Paper should be stapled or clipped. Do not use folder.

# PRESENTATION

1. Group Introduction with pictures and roles.
2. Presentation Proper.
3. 5 to 10 minutes presentation.

**Project Title:** Enhancing Information Systems for Streamlined Business Operations

# Introduction/Background:

In today's fast-paced business environment, effective information systems are crucial for organizations to remain competitive and efficient. Information systems, encompassing hardware, software, data, and procedures, play a vital role in facilitating data management, decision-making, and overall business processes. However, many organizations face challenges in optimizing their information systems to meet evolving business needs. This project aims to address these challenges by proposing a solution for enhancing information systems in the context of business operations.

# Problem Statement:

Organizations often struggle with the following issues related to information systems:

* 1. Outdated Technology: Many organizations rely on outdated systems, which hinder their ability to adapt to changing business requirements.
  2. Inefficient Data Management: Data is a valuable asset, but improper data management leads to inefficiencies and decision-making bottlenecks.
  3. Integration Challenges: Disparate systems and data sources make it difficult to achieve seamless integration and data flow within organizations.
  4. Security Concerns: Cyber threats continue to evolve, posing a significant risk to the confidentiality and integrity of organizational data.

Addressing these problems is essential for organizations to maintain a competitive edge and ensure the security and efficiency of their operations.

# Project Idea:

The proposed project seeks to enhance information systems within organizations by focusing on the following key aspects:

1. Technology Upgrade: Evaluate the existing technology stack and recommend upgrades or replacements where necessary. For example, transitioning from legacy systems to cloud-based solutions like AWS or Azure to ensure scalability and flexibility.
2. Data Management: Implement best practices in data governance, including data quality assurance, data warehousing, and data analytics. Utilize tools like SQL Server or Oracle for efficient data storage and retrieval.
3. Integration Solutions: Develop custom integration solutions or utilize middleware platforms like MuleSoft to enable seamless communication between different systems and data sources.
4. Cybersecurity Measures: Implement robust cybersecurity protocols and solutions, such as firewalls, intrusion detection systems, and regular security audits, to safeguard organizational data.

# How to Do:

To accomplish these objectives, the project will follow the following steps:

1. **Needs Assessment:** Conduct a thorough assessment of the organization's existing information systems, identifying pain points and areas requiring improvement.
2. **Technology Selection:** Based on the assessment, recommend suitable technology upgrades or replacements, considering factors like cost, scalability, and compatibility.
3. **Data Management Strategy:** Develop a data management strategy, encompassing data collection, storage, processing, and analysis, ensuring data accuracy and availability.
4. **Integration Planning:** Create a detailed plan for integrating various systems and data sources, defining data flows and communication protocols.
5. **Security Implementation:** Implement robust security measures, including access control, encryption, and employee training to mitigate cybersecurity risks.
6. **Testing and Deployment:** Thoroughly test the upgraded systems and integration solutions to ensure functionality and security. Deploy the solutions in a phased approach to minimize disruptions.
7. **Training and Documentation:** Provide training to employees on using the enhanced information systems. Document the new processes and procedures for future reference.
8. **Monitoring and Maintenance:** Establish monitoring mechanisms to track system performance and security. Implement regular maintenance routines and updates.
9. **Evaluation:** Conduct post-implementation evaluations to measure the project's success, including improvements in efficiency, data management, and security.
10. **Continuous Improvement:** Continuously monitor industry trends and emerging technologies to ensure the organization's information systems remain up-to-date and aligned with business goals.

# Project Title:

Enhancing Data Security and Access Control in a Healthcare Information System

# Introduction/Background:

In today's digital age, Information Systems play a pivotal role in the management and retrieval of critical data across various domains. One such domain is healthcare, where the confidentiality and integrity of patient data are paramount. The project seeks to address the growing concerns surrounding data security and access control within healthcare information systems.

# Problem Statement:

Healthcare organizations are constantly grappling with the challenge of ensuring the privacy and security of patient records while allowing authorized personnel to access necessary information efficiently. The existing healthcare information systems often fall short in providing robust access control and data security mechanisms, leaving sensitive patient data vulnerable to unauthorized access and data breaches.

# The primary issues include:

1. Inadequate access control policies leading to data leaks.
2. Lack of real-time monitoring and alerting systems for suspicious activities.
3. Vulnerabilities in the system infrastructure that can be exploited by malicious actors.
4. Difficulty in managing and auditing user privileges, increasing the risk of data exposure.
5. These issues highlight the urgent need to develop a comprehensive solution to enhance data security and access control within healthcare information systems.

# Project Idea:

The proposed project aims to address the identified problems by implementing a multifaceted solution that includes:

Advanced Access Control System: Develop and integrate a role-based access control system that ensures that only authorized personnel can access specific patient records. This will involve user authentication, role assignment, and access privileges management.

Real-time Monitoring and Alerts: Implement a monitoring system that continuously tracks user activities within the information system. Set up real-time alerts for suspicious or unauthorized access attempts.

Security Infrastructure Upgrades: Identify and rectify vulnerabilities within the system infrastructure, including patching software and ensuring encryption of sensitive data.

User Privilege Management: Develop a user-friendly interface for healthcare administrators to manage and audit user privileges efficiently.

# How to Do:

* 1. **Project Scope:**

Define the scope of the project, including the healthcare information system to be enhanced, the scale of implementation, and the specific components to be developed or upgraded.

# Requirements Gathering:

Engage with healthcare stakeholders, including administrators, doctors, and IT staff, to gather detailed requirements for the access control and security system.

# System Design:

Create a comprehensive system design that outlines the architecture, database schema, security protocols, and user interfaces.

# Development and Integration:

Develop the access control system, real-time monitoring module, and any necessary security upgrades. Integrate these components seamlessly with the existing healthcare information system.

# Testing and Validation:

Conduct thorough testing to ensure the security system works as intended. Verify that access control policies are enforced, monitoring alerts function correctly, and vulnerabilities are addressed.

# User Training:

Provide training to healthcare staff on how to use the new access control system effectively.

# Documentation and Reporting:

Create comprehensive documentation for the system and its implementation. Generate reports on the effectiveness of the security enhancements.

# Deployment and Maintenance:

Deploy the enhanced system in the healthcare environment and establish a maintenance plan for continuous updates and security patches.

# Evaluation:

Regularly assess the system's performance, gather feedback from users, and make necessary improvements to ensure ongoing data security.

# Project Title:

Development of an Integrated Business Web Application and Mobile App for Streamlined Operations

# Introduction/Background:

In the rapidly evolving digital business landscape, organizations are increasingly reliant on Information Systems to optimize their operations, improve customer engagement, and stay competitive. This project aims to leverage the power of modern web and mobile technologies to create a unified solution for businesses to enhance their efficiency and customer service.

# Problem Statement:

Businesses often struggle with fragmented IT solutions, using multiple software tools that do not integrate seamlessly. This leads to inefficiencies, data discrepancies, and a less-than-optimal customer experience. Common issues include:

**Lack of Integration:** Many businesses use separate systems for customer management, inventory, sales, and marketing, making it challenging to have a unified view of their operations.

**Inefficient Workflows:** Disjointed systems often result in redundant data entry, slowing down processes and increasing the risk of errors.

**Limited Accessibility:** Employees and customers may not have easy access to important business information and tools while on the move.

To address these challenges, a comprehensive web and mobile application solution is required.

# Project Idea:

The proposed project aims to develop an integrated business web application and mobile app that will:

**Centralize Data:** Create a single database to store customer information, inventory, sales data, and more. This centralization ensures data consistency and provides a holistic view of the business.

**Streamline Workflows:** Design intuitive interfaces for employees to manage tasks efficiently. Implement automation to reduce manual data entry and errors.

**Enhance Accessibility:** Develop a responsive web application accessible from desktops and a mobile app for smartphones and tablets, allowing users to access critical business information from anywhere.

# How to Do:

* 1. **Project Scope:**

Define the scope of the project, including the modules and features to be developed, the platforms to support (e.g., iOS, Android, web browsers), and the target audience (employees, customers, administrators).

# Requirements Gathering:

Engage with key stakeholders, including business owners, employees, and customers, to gather detailed requirements. This may include conducting surveys, interviews, and workshops.

# System Design:

Create a comprehensive system design, including user interfaces, database schema, and integration points. Ensure the design is user-friendly and scalable.

# Development:

Develop the web application and mobile app using modern development frameworks and technologies. Implement robust security measures to protect sensitive business data.

# Integration:

Integrate the web and mobile applications to ensure seamless data synchronization and communication between platforms.

# Testing:

Conduct thorough testing to identify and rectify any bugs or usability issues. Perform security testing to ensure data protection.

# User Training:

Provide training sessions for employees to become proficient in using the new applications.

# Deployment:

Deploy the applications in a production environment, ensuring scalability and high availability.

# Maintenance and Support:

Establish a maintenance plan to provide ongoing support, updates, and enhancements based on user feedback and evolving business needs.

# Evaluation:

Regularly evaluate the system's performance and gather feedback from users to continuously improve the applications and align them with the changing business landscape.