Technology stack phase

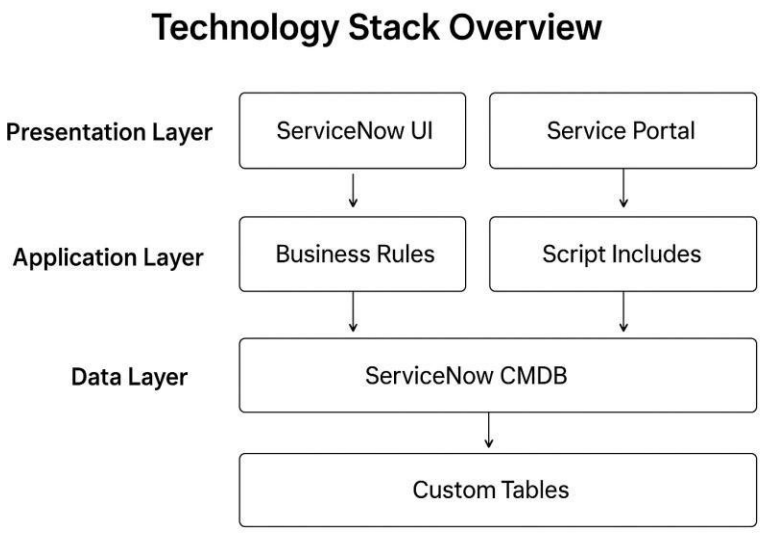
Date	7-11-2025
Team ID	NM2025TMID09117
Project Name	Educational Organisation Using ServiceNow
Maximum Marks	4 Marks

Technology Stack Overview

The proposed solution for the Educational Organization leverages **ServiceNow** as the core platform for digital service management and process automation. Built on the **Now Platform**, ServiceNow provides a low-code, cloud-based environment that supports modular application development, integration, and workflow orchestration. The system utilizes **JavaScript** for server-side scripting and **AngularJS** for client-side interfaces, ensuring dynamic and responsive user experiences. **REST and SOAP APIs** enable seamless integration with existing academic systems, such as student information systems (SIS), learning management systems (LMS), and HR databases. Additionally, **ServiceNow Flow Designer** is employed to automate institutional workflows, reducing manual intervention and improving operational efficiency.

Application and Data Layers

The architecture follows a **multi-layered structure** consisting of the **presentation layer**, **application layer**, and **data layer**. The presentation layer is delivered through the ServiceNow user interface and the Service Portal, offering tailored views for students, faculty, and administrative staff. The application layer handles business logic, request management, and approval workflows through ServiceNow's **Business Rules**, **Script Includes**, and **Workflow Engine**. The data layer uses the **ServiceNow CMDB (Configuration Management Database)** and custom tables to store records related to users, assets, courses, and service requests. Data security and integrity are maintained through ServiceNow's built-in **Access Control Lists (ACLs)** and **Role-Based Access Control (RBAC)** mechanisms.



Integration and Communication Architecture

ServiceNow acts as a **central integration hub** within the educational ecosystem. The system communicates with third-party tools and institutional platforms through **IntegrationHub Spokes**, **REST APIs**, and **MID Servers**. These connectors enable synchronization with systems like Microsoft Teams for faculty collaboration, LDAP or Azure AD for identity management, and external reporting tools for analytics. Event-driven integrations ensure real-time updates and notifications, allowing users to receive automated alerts about service requests, class scheduling, or IT maintenance activities.

Cloud Infrastructure and Deployment

The entire system operates on **ServiceNow's cloud infrastructure**, offering high availability, scalability, and compliance with institutional security standards. ServiceNow's **multiinstance architecture** isolates each customer environment, ensuring dedicated performance and data privacy. The platform leverages **load balancing** and **data replication** across geographically distributed data centers to guarantee reliability and business continuity.

Security and Compliance Framework

Security is integrated into every layer of the architecture. ServiceNow employs **TLS encryption**, **OAuth 2.0**, and **multi-factor authentication (MFA)** to safeguard user interactions. Data access is governed by RBAC, ensuring that students, faculty, and administrators can only view or modify data relevant to their roles. The platform adheres to **FERPA**, **GDPR**, and other educational data protection regulations, making it suitable for secure academic environments. Regular audits, compliance dashboards, and activity logs provide transparency and accountability across all institutional processes.