# Project Design Phase-II

# Technology Stack (Architecture & Stack)

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| Date | 13 August 2025 |
| Team ID | NM2025TMID12788 |
| Project Name | Educational Organisation Using ServiceNow |
| Maximum Marks | 4 Marks |

**Technical Architecture:**

The architecture focuses on providing a **cloud-based, scalable, and secure platform** using ServiceNow to streamline student support services, including academic queries, IT helpdesk, and administrative requests. All user interactions, service logic, and database operations are managed through ServiceNow's low-code/no-code framework and integrated technologies

**Table-1: Components & Technologies:**

| S.No | Component | Description | Technology |
|---|---|---|---|
| 1. | User Interface | Web UI and Mobile Portal for students, faculty, and admin | ServiceNow Service Portal, HTML/CSS/JavaScript |
| 2. | Application Logic-1 | Workflow automation: ticket creation, routing, approval flows | ServiceNow Flow Designer, Workflow Editor |
| 3. | Application Logic-2 | Email/SMS notifications for request updates | ServiceNow Notification Engine, Email Scripts |
| 4. | Application Logic-3 | Virtual assistant to guide users to knowledge articles and create tickets | ServiceNow Virtual Agent |
| 5. | Database | Structured ticket, user profile, and request status data storage | ServiceNow Configuration Management Database (CMDB) |
| 6. | Cloud Database | Cloud-hosted database service with backup and real-time access | ServiceNow Cloud Infrastructure, AWS RDS (optional) |
| 7. | File Storage | Attachments for student applications or documentation | ServiceNow Attachment Table, Google Drive Integration |
| 8. | External API-1 | Academic calendar and exam schedule syncing | Custom REST APIs or Google Calendar API |
| 9. | External API-2 | University identity verification | Aadhaar API / University ID Validation Service |

| 10. | Machine Learning Model | Optional: auto-categorization of service requests or chatbot intent routing | ServiceNow Predictive Intelligence, Azure NLP Model |
|---|---|---|---|
| 11. | Infrastructure (Server / Cloud) | Hosted environment for application and workflow automation | ServiceNow SaaS, Hosted via AWS or ServiceNow Cloud |

**Table-2: Application Characteristics:**

| S.No | Characteristics | Description | Technology |
|---|---|---|---|
| 1. | Open-Source Frameworks | Styling, responsiveness, and integration tools | Bootstrap, React, JSON, REST API |
| 2. | Security Implementations | User authentication, access control, and secure communications | OAuth 2.0, SSO, HTTPS, Role-Based Access (RBAC), SHA-256 |
| 3. | Scalable Architecture | 3-Tier: UI layer → ServiceNow Workflow Logic → CMDB/Storage, with modular service catalogs | ServiceNow App Engine Studio |
| 4. | Availability | 99.9% uptime with failover support, cloud redundancy | ServiceNow Cloud Infrastructure, Load Balance |
| 5. | Performance | Optimized for concurrency (1000+ student requests/day), caching and dashboard speed enhancements | ServiceNow Performance Analytics, CDN (optional) |