Project Design Phase-II Technology Stack (Architecture & Stack)

Date	02 November 2025
Team ID	NM2025TMID04195
Project Name	Streamlining Ticket Assignment for Efficient Support Operation
Maximum Marks	4 Marks

Technical Architecture:

The technical architecture of the ticket assignment system is structured into multiple layers that work together to ensure efficient operations. The process begins with the **User Interface**, where users interact with the system to create, view, and manage support tickets. Once a user logs in, the **Authentication System** validates credentials to ensure secure access.

The **Application Logic and Ticket Assignment Engine** handles the core functionality—categorizing tickets, analyzing their priority, and automatically assigning them to the most suitable agent based on skill and workload data. The **Workload Monitoring** module continuously tracks ticket distribution and agent performance, ensuring a balanced load across the support team. The **Ticket Prioritization Engine** helps determine the urgency of each ticket, ensuring that high-priority issues are addressed promptly.

The **Notification System** ensures that both customers and agents receive real-time updates regarding ticket status changes and SLA deadlines. All data transactions are securely stored and managed in the **Database**, which serves as the central data repository for tickets, users, and performance metrics.

The architecture leverages **Cloud Infrastructure** to provide scalability, availability, and secure storage. **Version Control** mechanisms ensure that code updates and feature enhancements are tracked effectively. The system also supports **External API Integration**, allowing seamless communication with third-party tools such as CRM or messaging platforms. Finally, **Reporting and Analytics** modules provide insights into system performance, agent efficiency, and SLA compliance, completing the end-to-end workflow of the ticketing system.

Technical Architecture:

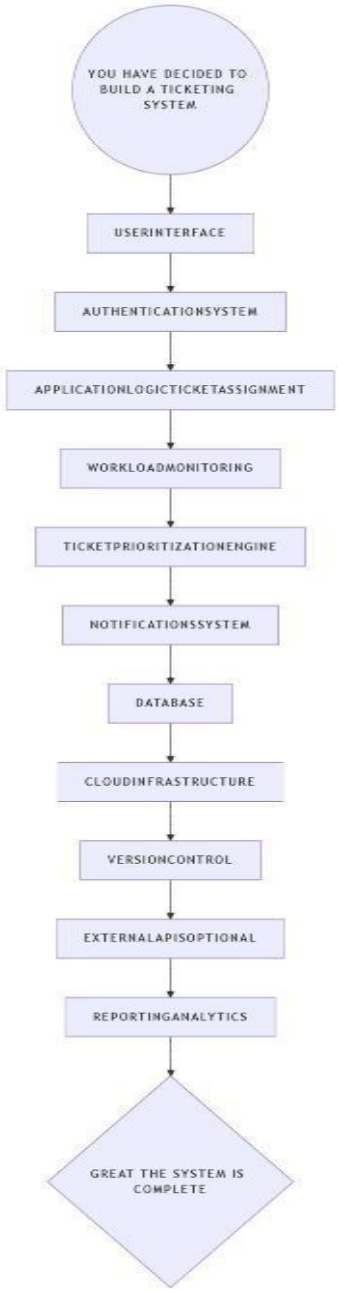

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web portal for customers, agents & leads to raise, view and manage support tickets	ServiceNow Web UI
2.	Application Logic-1	Automatically assigns tickets based on priority, skill & workload	ServiceNow Flow Designer, Script
3.	Application Logic-2	Tracks agent workload in real-time for fair ticket distribution	GlideRecord in Server Script
4.	Application Logic-3	Sends notifications for new assignments, escalations & SLA alerts	ServiceNow Notifications
5.	Database	Stores tickets, user profiles, skillset & workload details	ServiceNow CMDB, Incident Tables
6.	Cloud Database	ServiceNow-managed backend database	ServiceNow Cloud Database
7.	File Storage	Stores activity logs & system records internally	ServiceNow system logs
8.	External API-1	Integration with CRM or email/SMS gateways for ticket alerts	REST API in ServiceNow
9.	External API-2	Not applicable	-
10.	Machine Learning Model	For predictive ticket routing and smart assignment decisions	-
11.	Infrastructure (Server / Cloud)	Fully hosted and managed in ServiceNow environment	ServiceNow Cloud (SaaS)

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Not applicable (ServiceNow is proprietary)	-
2.	Security Implementations	Secure role-based access for Customers, Agents & Leads. Ensures only authorized users can view/modify tickets.	ACLs, Scoped Applications
3.	Scalable Architecture	Supports increasing number of tickets and support agents seamlessly through cloud scalability	ServiceNow Cloud Architecture
4.	Availability	Platform remains active 24/7 ensuring continuous support operations globally	Load-balanced ServiceNow Instances
5.	Performance	Fast ticket assignment & workflow execution with optimized queries and processing	GlideRecord, Asynchronous Flows, Background Scripts