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|---|---|
| **Date** | 31/10/2025 |
| **Team ID** | NM2025TMID02533 |
| **Project name** | Streamlining Ticket Assignment for Efficient Support Operations |
| **Maximum mark** | 2 marks |

## Project design phase

# Solution Architecture

## 1. Goals

The primary goal of the Solution Architecture is to **automate and optimize the ticket assignment process** in IT support operations to achieve greater efficiency, accuracy, and transparency.
Below are the key goals:

| Goal | Description |
|---|---|
| **Automation** | Eliminate manual ticket assignment by using intelligent rules and AI-based matching. |
| **Efficiency** | Reduce ticket resolution time and improve SLA adherence. |
| **Accuracy** | Ensure each ticket is assigned to the most suitable agent based on skills, workload, and availability. |
| **Scalability** | Design a flexible system that can scale with increasing ticket volume and user base. |
| **Integration** | Seamlessly connect with existing ITSM tools like ServiceNow or Jira. |
| **Visibility** | Provide real-time dashboards and reports for managers to monitor performance and workloads. |
| **Security & Compliance** | Protect sensitive ticket and user data with role-based access and encrypted communication. |

### 2. Key Components

| Component | Description |
|---|---|
| **Ticket Intake Module** | Collects tickets from multiple sources (email, web portal, chatbots) and logs them into the system. |
| **Classification Engine** | Uses keywords, categories, and AI to classify tickets by priority, issue type, and department. |
| **Assignment Engine** | Core logic that applies business rules and machine learning algorithms to assign tickets automatically. |

| Component | Description |
|---|---|
| **Agent Profile Database** | Stores agent details such as skills, workload, past performance, and availability. |
| **Notification & Alert System** | Sends real-time notifications to assigned agents and escalation alerts to supervisors. |
| **Performance Dashboard** | Displays metrics such as ticket load, SLA compliance, and average response time. |
| **Integration Layer** | Connects to existing ITSM tools (ServiceNow, Jira, Freshdesk) through APIs. |
| **Security Layer** | Ensures authentication, authorization, and encryption of all ticket data. |

## 3. Development Phases

| Phase | Objective | Key Activities | Deliverables |
|---|---|---|---|
| **Phase 1: Requirement Analysis** | Understand current challenges and define system requirements. | Stakeholder interviews, process mapping, defining success criteria. | Requirement Specification Document |
| **Phase 2: System Design** | Develop architecture and data flow models. | Create system diagrams, define modules, select technologies. | Design Blueprint, Data Flow Diagram |
| **Phase 3: Development** | Build system modules and integrate functionalities. | Develop frontend, backend, APIs, and database connections. | Working Prototype |
| **Phase 4: Testing & Validation** | Ensure system accuracy and reliability. | Unit testing, integration testing, and performance validation. | Test Report, QA Approval |
| **Phase 5: Deployment** | Launch the solution in the production environment. | Configure servers, integrate with ITSM platforms, and monitor. | Deployed Application |
| **Phase 6: Monitoring & Maintenance** | Continuously improve performance and address issues. | Collect feedback, monitor KPIs, and implement updates. | Maintenance Logs, Performance Reports |

## Solution Architecture Design

The solution architecture is designed with **multi-layered automation and intelligence** to optimize ticket handling.
It includes a **frontend dashboard** for users, an **AI-powered backend** for automatic ticket classification and routing, and a **secure database** for ticket and agent data management.

The system integrates with ITSM tools like **ServiceNow** and **Jira**, ensuring seamless data exchange. **Analytics dashboards** monitor ticket flow, agent performance, and SLA compliance.