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

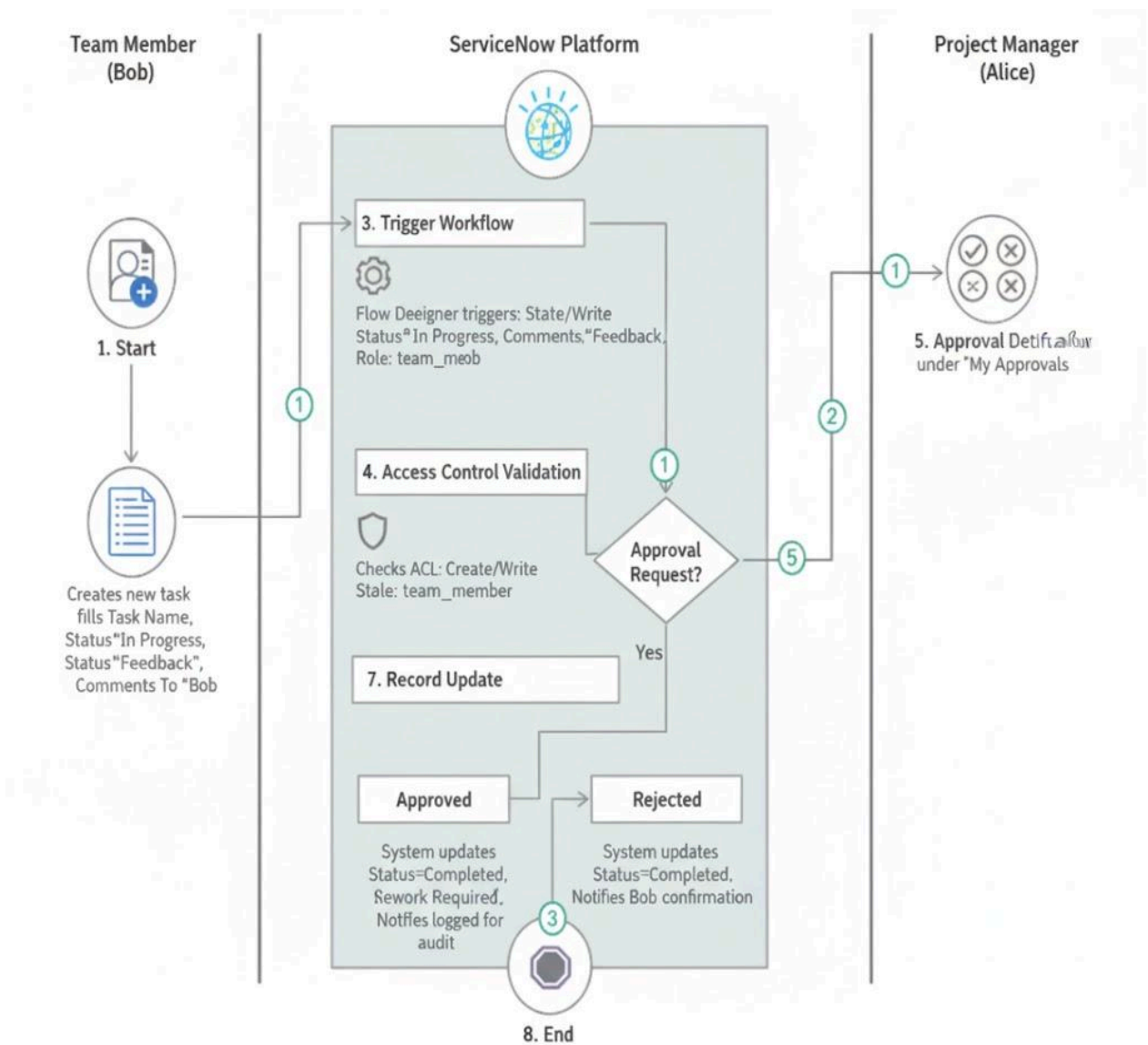| Date	01 November 2025
Team ID	NM2025TMID06932
Project Name	Optimizing User, Group and Role Management with Access Control and Workflows
Maximum Mark	4 Marks

Technical Architecture:

- The proposed system automates user, group, and role management with secure access control and workflow automation in ServiceNow.
- The architecture integrates role-based permissions, approval workflows, and automated notifications to streamline collaboration between project members and approvers.
- The system is built entirely within the ServiceNow cloud platform (SaaS), ensuring high scalability, reliability, and security. The Flow Designer automates approvals, while Access Control Lists (ACLs) enforce security at table and field levels. All data related to users, groups, and tasks are stored in ServiceNow's internal database (CMDB and custom tables).

Example: Automated Role and Approval Workflow in ServiceNow

Reference: https://www.servicenow.com/products/flow-designer.html

Reference: https://developer.servicenow.com/

Table-1 : Components & Technologies:

S.No	Component	Description	Technology Used
1	User Interface	Front-end where users (like Bob and Alice) interact with the system to create, view, and approve tasks.	ServiceNow Web UI
2	Role and Access Control	Manages who can view, edit, or approve specific records using permissions and roles.	Access Control Lists (ACLs), Roles Module
3	Workflow Engine	Handles automatic routing of approvals and updates based on task status and comments.	ServiceNow Flow Designer
4	Application Logic	Executes business rules, validations, and automated status updates behind each user action.	Business Rules, Script Includes
5	Database	Stores user, project, and task data in structured tables.	ServiceNow Tables (u_task_table, u_project_table, sys_user)
6	Notification Service	Sends alerts and updates after approval or rejection.	ServiceNow Notification Engine
7	Reporting Module	Generates reports and dashboards showing workflow progress and approval status.	ServiceNow Reports & Performance Analytics
8	Cloud Infrastructure	Hosts the complete application in a secure, scalable environment.	ServiceNow SaaS Cloud
9	Integration API	Allows optional connection with external project or HR systems for future enhancements.	REST API, ServiceNow IntegrationHub
10	Audit and Logging	Records all workflow actions, approvals, and role changes for accountability.	ServiceNow System Logs, Audit Trail

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology Used
1	Open-Source Frameworks	Not applicable (ServiceNow proprietary environment)	—
2	Security Implementations	Role-based access control using ACLs and restricted tables	ACLs, Scoped Applications
3	Scalable Architecture	SaaS-based design supports scaling of users, tasks, and roles	ServiceNow Cloud Architecture
4	Availability	High availability via ServiceNow's load-balanced cloud	Load-balanced ServiceNow Instances
5	Performance	Optimized by asynchronous workflows and indexed queries	Flow Designer, GlideRecord