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Project Design Phase
Data Flow Diagram & User Stories

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Date	01 November 2025
Team ID	NM2025TMID01508
Project Name	Optimizing User, Group and Role Management with Access Control and Workflows
Maximum Marks	4 Marks

Data Flow Diagram (DFD):

Project Overview:

The Data Flow Diagram for this project visually represents how data flows within the ServiceNow system, focusing on user roles, task management, and access control. It shows interactions between external users (Alice — Project Manager, Bob — Team Member), the main processes (User Registration & Role Assignment, Access Verification, Task Management, Progress Reporting), and the data stores (User Database, Task Repository, Audit Logs). This DFD clarifies where permissions are checked, where data is persisted, and how approvals and reports are generated.

Key Elements of the DFD

External Entities

- **Alice (Project Manager):** Oversees project progress, approves task updates, and manages access control for team members.

- **Bob (Team Member):** Updates task statuses, adds comments, and requests approvals from the manager.

Processes

1. **User Registration & Role Assignment**

   o Handles the creation of new users (Alice and Bob).

   o Assigns appropriate roles and groups (Project Manager, Team Member, etc.) with predefined permissions.

2. **Access Verification (ACL Checks)**

   o Ensures that each user's actions align with their assigned roles.

   o Uses **Access Control Lists (ACLs)** to validate read, write, and update privileges before performing operations.

3. **Task Management & Workflow Automation**

   o Enables users to create, update, and manage tasks.

   o Automates task status changes (e.g., In Progress → Completed) and approval requests using **Flow Designer**.

4. **Progress Reporting & Notifications**

   o Generates detailed task reports and sends automatic notifications for approvals and completions.

   o Helps Alice track Bob's updates and approve changes through the **My Approvals** section.

Data Stores

- **User Database:**
  Contains user information, assigned roles, groups, and access privileges.

- **Task Repository:**
  Stores all task details, such as assigned users, status, deadlines, and comments.

- **Audit Logs:**
  Maintains a history of every role update, task change, and approval decision for accountability and compliance.

Data Flows

- **From Users to Processes:**

  Alice and Bob send data inputs (like new tasks, status updates, and approval requests) to the respective process modules.

- **Between Processes and Data Stores:**

  Role verification occurs before any record is written to the **Task Repository** or **User Database**.

- **From Processes to Outputs:**

  The system generates reports, approval notifications, and updates visible dashboards for both Alice and Bob.

- **Audit Trail:**

  Every transaction or update is automatically recorded in the **Audit Logs** for transparency and tracking.

Optimizing User, Group, and Role Management with Access Control and Workflows

Data Flow Diagram (DFD)
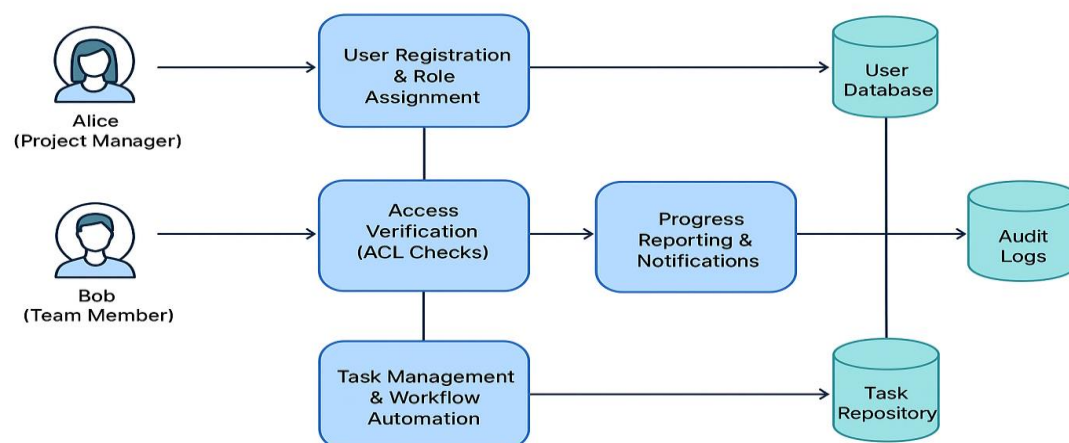
User Stories for Role-Based Access Control System

User Type / Epic	User Story Number	User Story	Acceptance Criteria	Priority	Release
Administrator / User & Role Management	USN-1	As an **admin**, I can **define and assign roles** (Project Manager, Team Member).	Roles are available in the system and can be assigned during onboarding.	High	Sprint 1
Administrator / Access Control	USN-2	As an **admin**, I can **configure ACLs** for tables and fields.	Users only see / edit fields allowed by their role.	High	Sprint 1
Project Manager / Task Assignment	USN-3	As a **PM (Alice)**, I can **create and assign tasks** to users or groups.	Tasks are visible to assigned users; PM can reassign tasks.	Medium	Sprint 1
Team Member / Task Management	USN-4	As a **team member (Bob)**, I can **view, update, and mark tasks as complete**.	Task status updates are saved and visible to the PM; history recorded.	Medium	Sprint 2
Project Manager / Notifications	USN-5	As a **PM**, I receive **notifications** when assigned tasks change status or request approval.	Notification is created on task update; PM sees approval requests in My Approvals.	Medium	Sprint 2
Admin / Reporting & Analytics	USN-6	As an **admin/PM**, I can **generate reports** on project progress, task completion, and role activity.	Reports display accurate metrics and date filters; exportable as CSV/PDF.	Low	Sprint 2
Admin / Audit Logs	USN-7	As an **admin**, I can **view audit logs** of role changes and task updates.	Audit entries record who changed what, when; logs searchable by user and date.	Low	Sprint 3