

TASK AND TEST CASE MANAGEMENT SYSTEM

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PREVIOUS PRESENTATION

- 10-01-2025, 10 AM - Project Proposal Approval
- 27-01-2025, 10 AM - Project Proposal Phase 1

CONTENT

1. Introduction
2. Problem Statement
3. Scope of the Solution
4. Feasibility Study
5. System Requirements
6. System Design
7. Module Descriptions
8. User Interface Design
9. Reports Generated
10. Technology Stack
11. Conclusion and Future Scope

INTRODUCTION

- The **Task and Test Case Management System (TCMS)** is a web-based tool that helps software teams manage their work more efficiently.
- It allows users to create and track projects, assign tasks, create and execute test cases, report bugs, and monitor progress.
- This system ensures better communication between Project Managers, Developers, QA Engineers, and Test Engineers, making it easier to complete projects on time.
- With features like role-based access, real-time notifications, and reports, **TCMS** improves teamwork and helps deliver high-quality software.

PROBLEM STATEMENT

- **Difficulty in Managing Tasks and Test Cases** – Teams struggle to organize tasks, track test cases, and ensure smooth workflows, leading to delays and confusion.
- **Poor Communication and Collaboration** – Developers, testers, and project managers face challenges in staying updated, causing miscommunication and inefficiency.
- **Lack of a Centralized System** – Existing tools are too complex or lack essential features, making it hard for teams to manage projects effectively.

SCOPE OF THE SOLUTION

- The **Task and Test Case Management System (TCMS)** helps software teams manage tasks, test cases, and bugs in one place. It allows users to create and assign tasks, track progress, execute test cases, and report bugs. The system also provides role-based access, real-time notifications, and reports to keep teams updated. However, it does not include automated testing, CI/CD integration, or third-party tool support. TCMS improves teamwork, reduces errors, and helps deliver high-quality software.

FEASIBILITY STUDY

- **Technical Feasibility** – TCMS uses Django (backend) and React.js (frontend), which are widely used, scalable, and well-supported technologies.
- **Economic Feasibility** – The system reduces the cost of using multiple tools for task management, test case execution, and bug tracking. It is cost-effective for small and medium-sized teams.
- **Operational Feasibility** – TCMS simplifies workflows by providing a centralized system where teams can manage tasks, test cases, and bugs efficiently.
- **Schedule Feasibility** – The project follows a structured development approach with clear milestones, making it possible to implement within the given time frame.
- **Legal Feasibility** – The system follows security and privacy standards, ensuring that user data is protected and accessible only to authorized users.

SYSTEM REQUIREMENTS

Functional Requirements

- User Management
- Project and Task Management
- Test Case Management
- Bug Tracking
- Notification
- Report and Analytics
- Role Based access

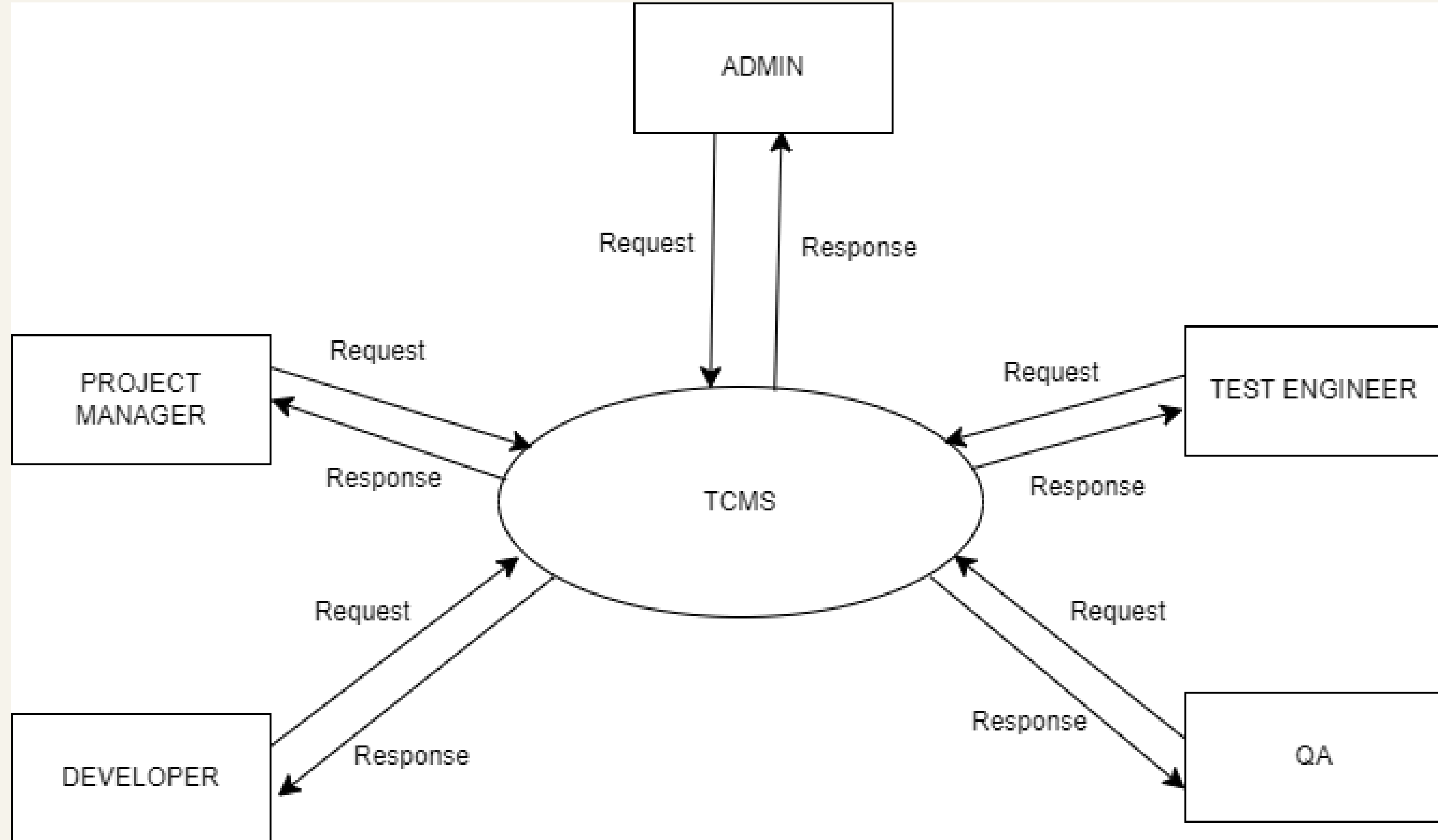
Non Functional Requirements

- High Availability
- Scalability
- Security
- Responsive UI

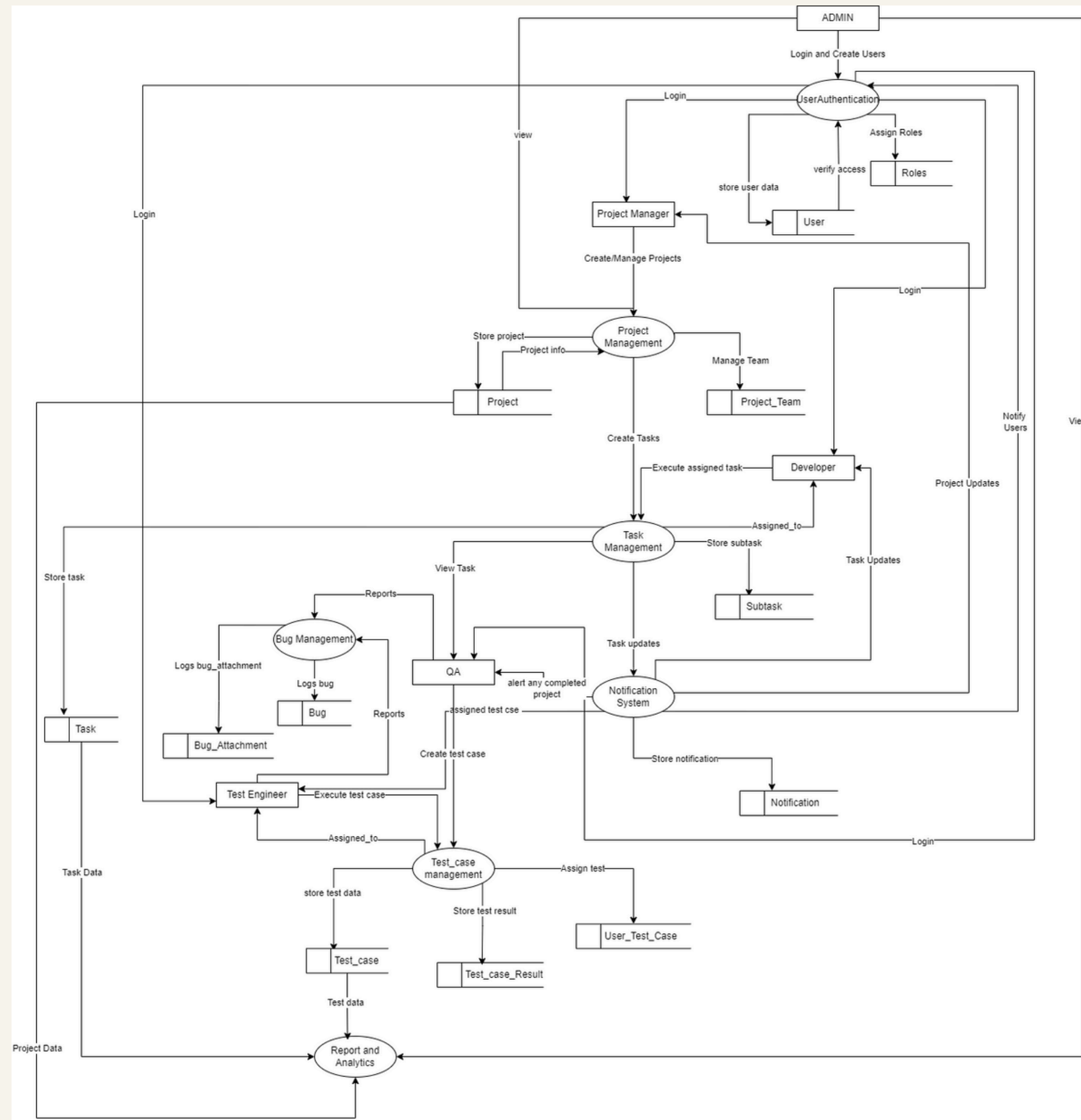
SYSTEM DESIGN

- The system is represented using :
 - **Data Flow Diagram**
 - **ER Diagram**
- Level 0, 1, and 2 DFDs illustrate data flow and module interactions.

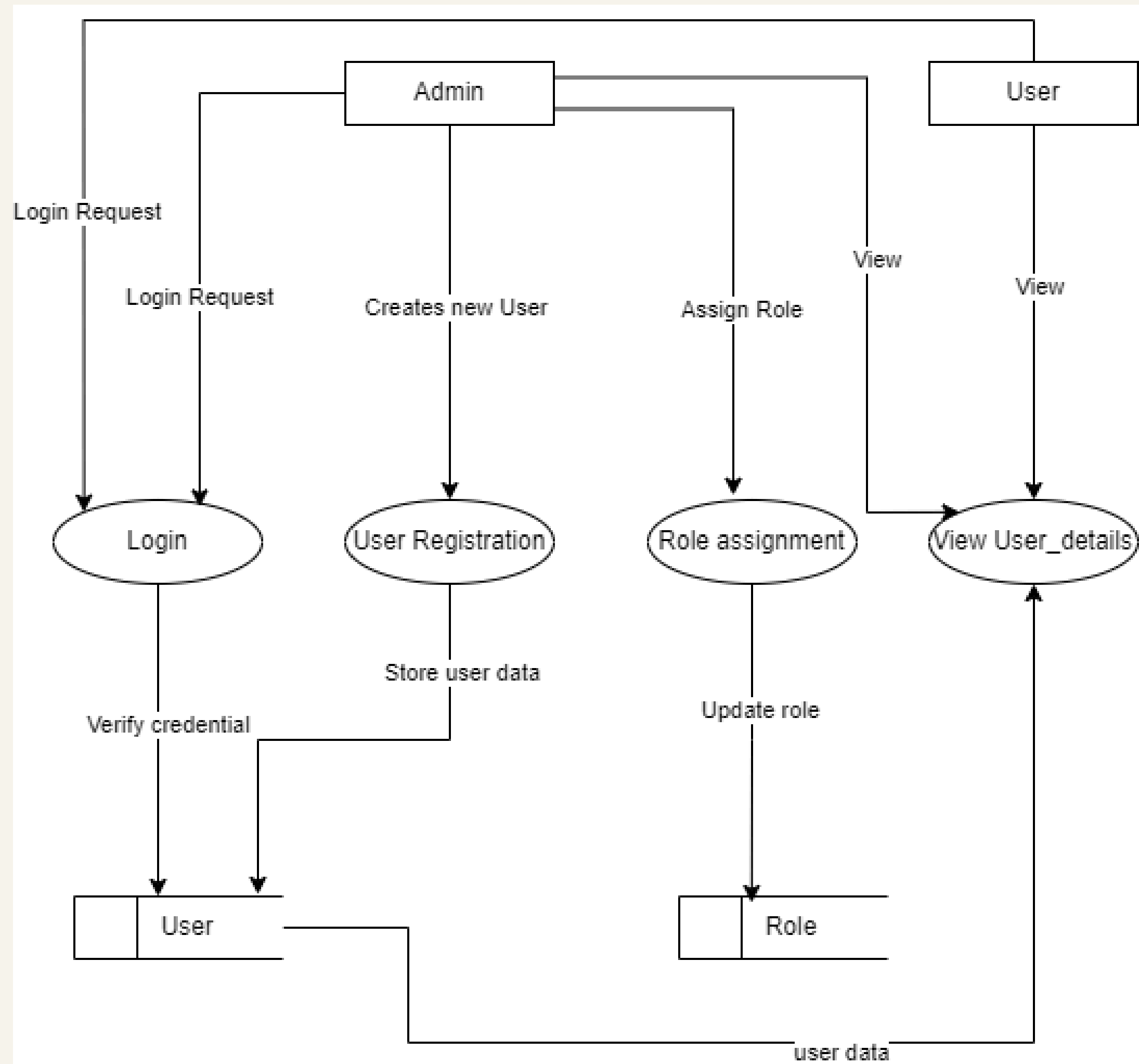
LEVEL 0 DFD



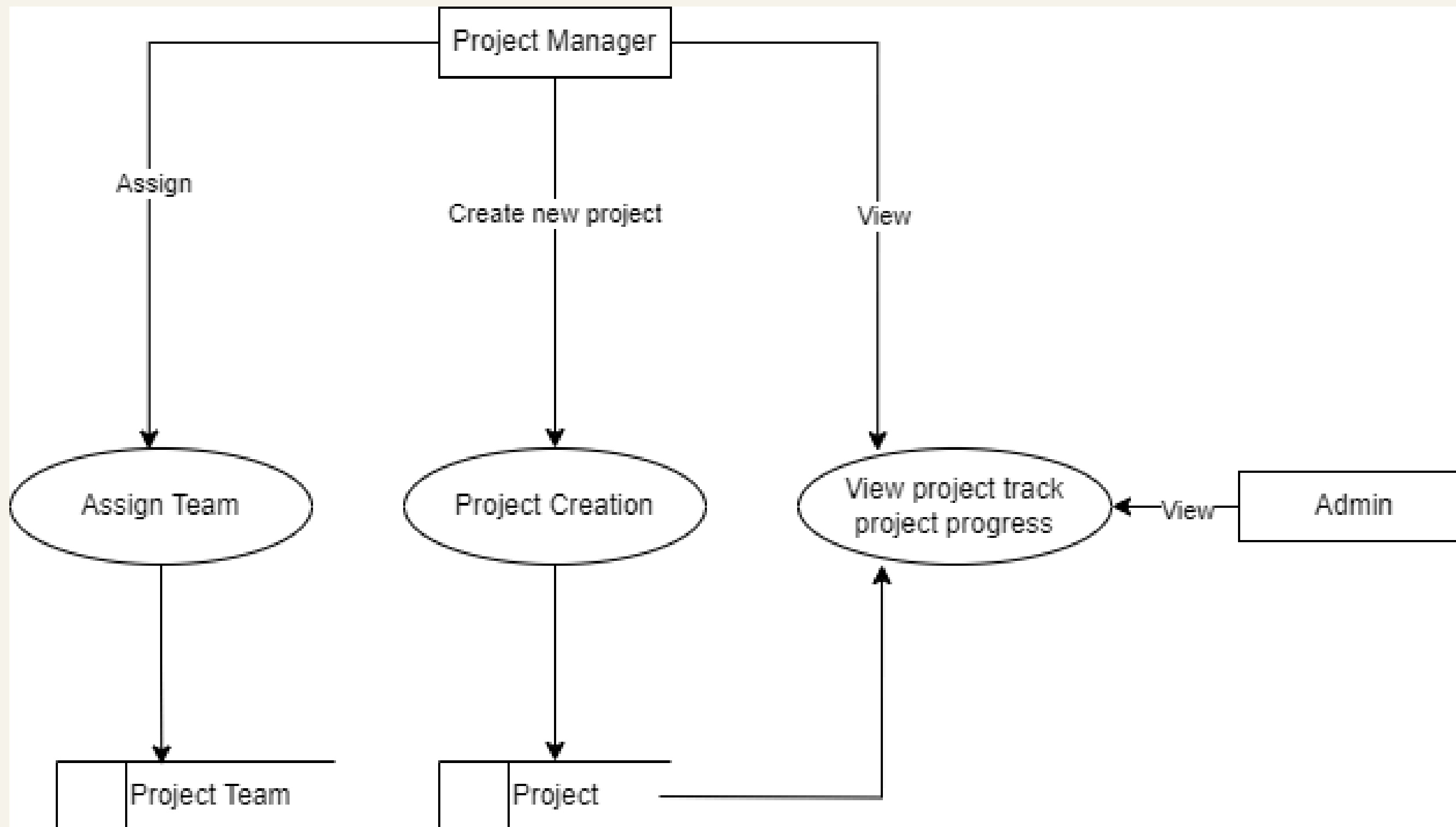
LEVEL 1 DFD



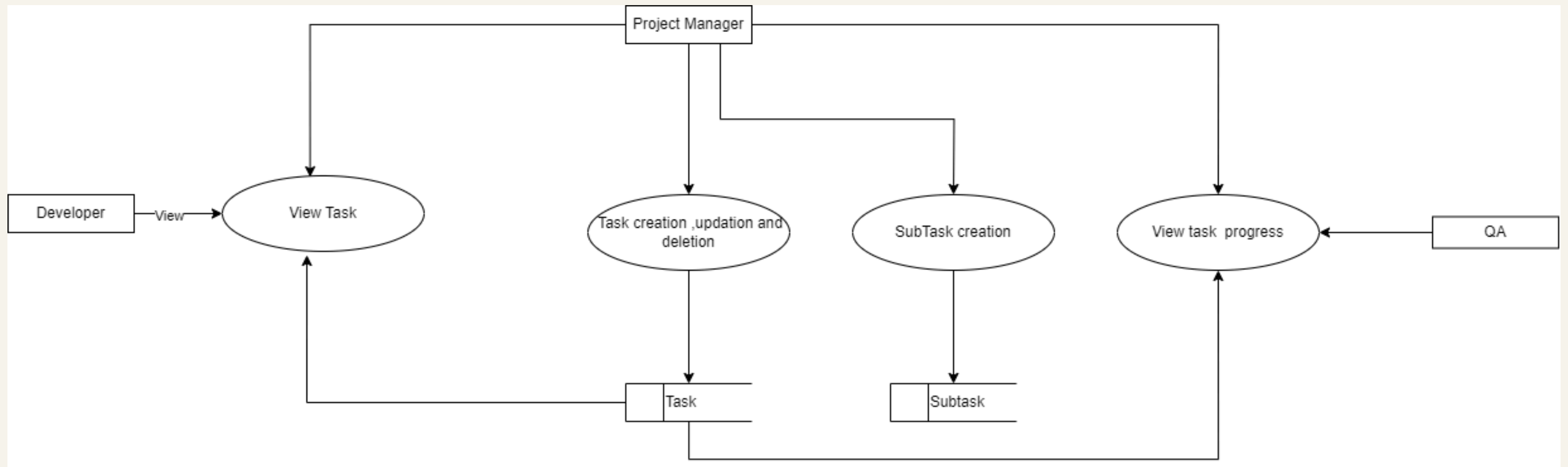
LEVEL 2.0 DFD



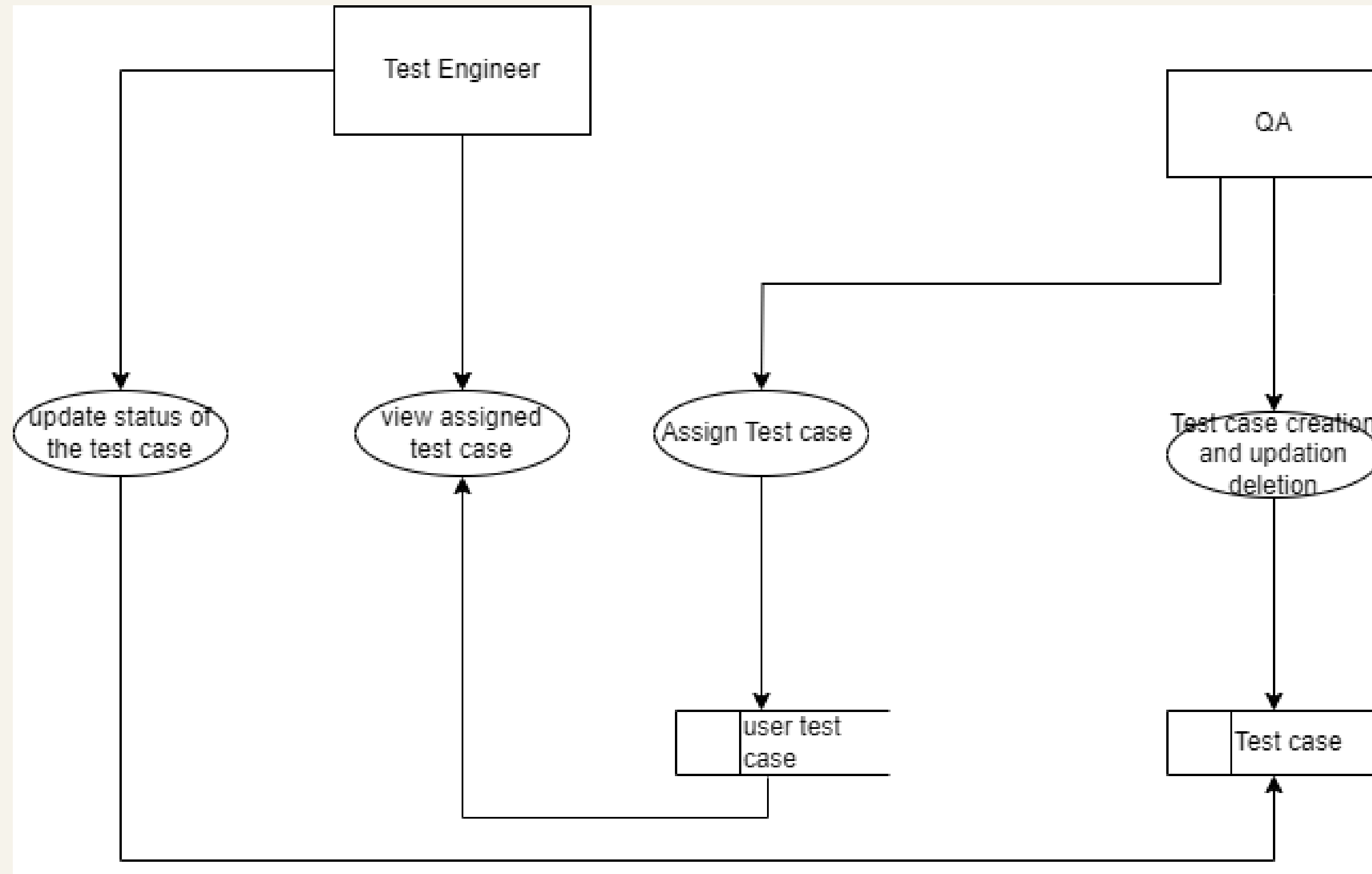
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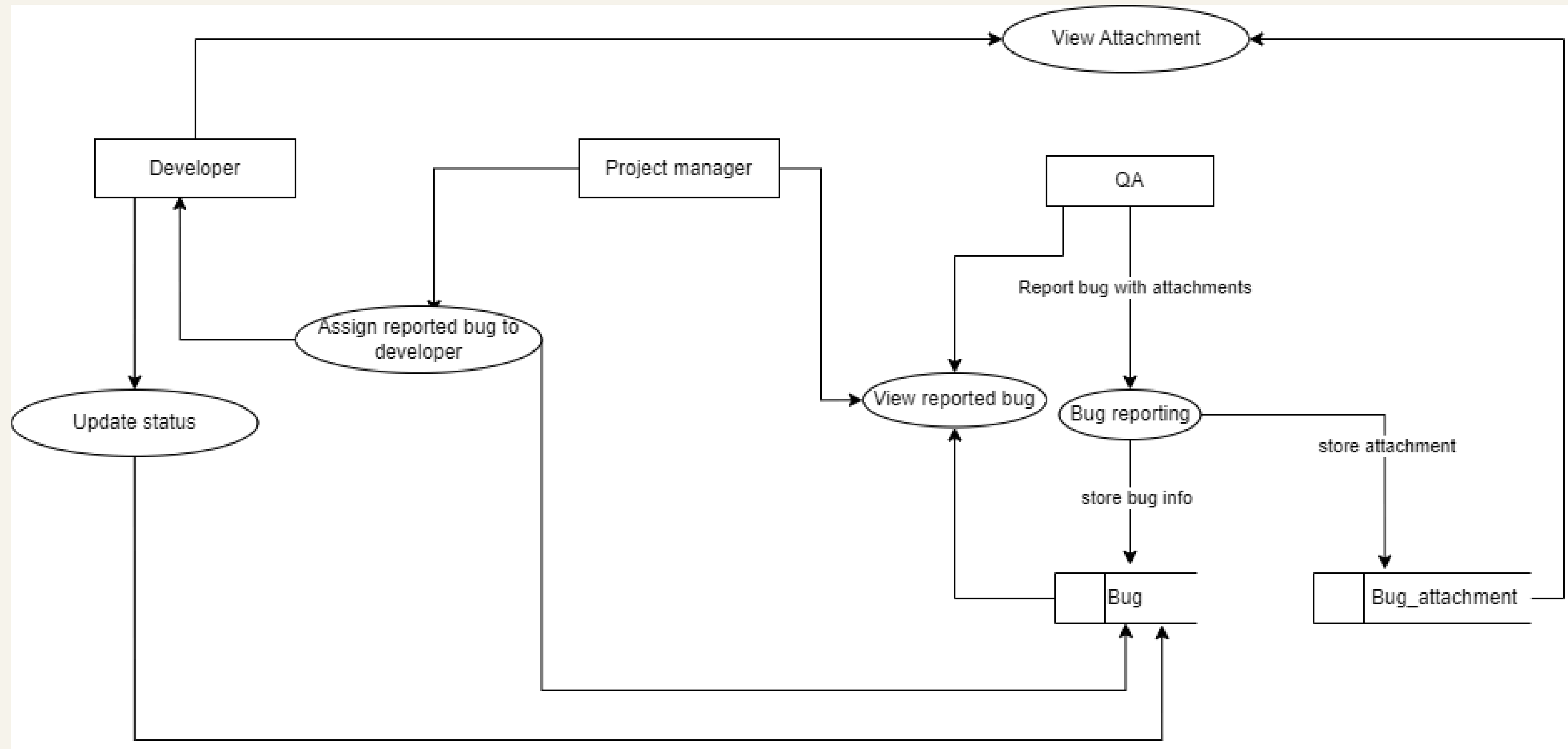
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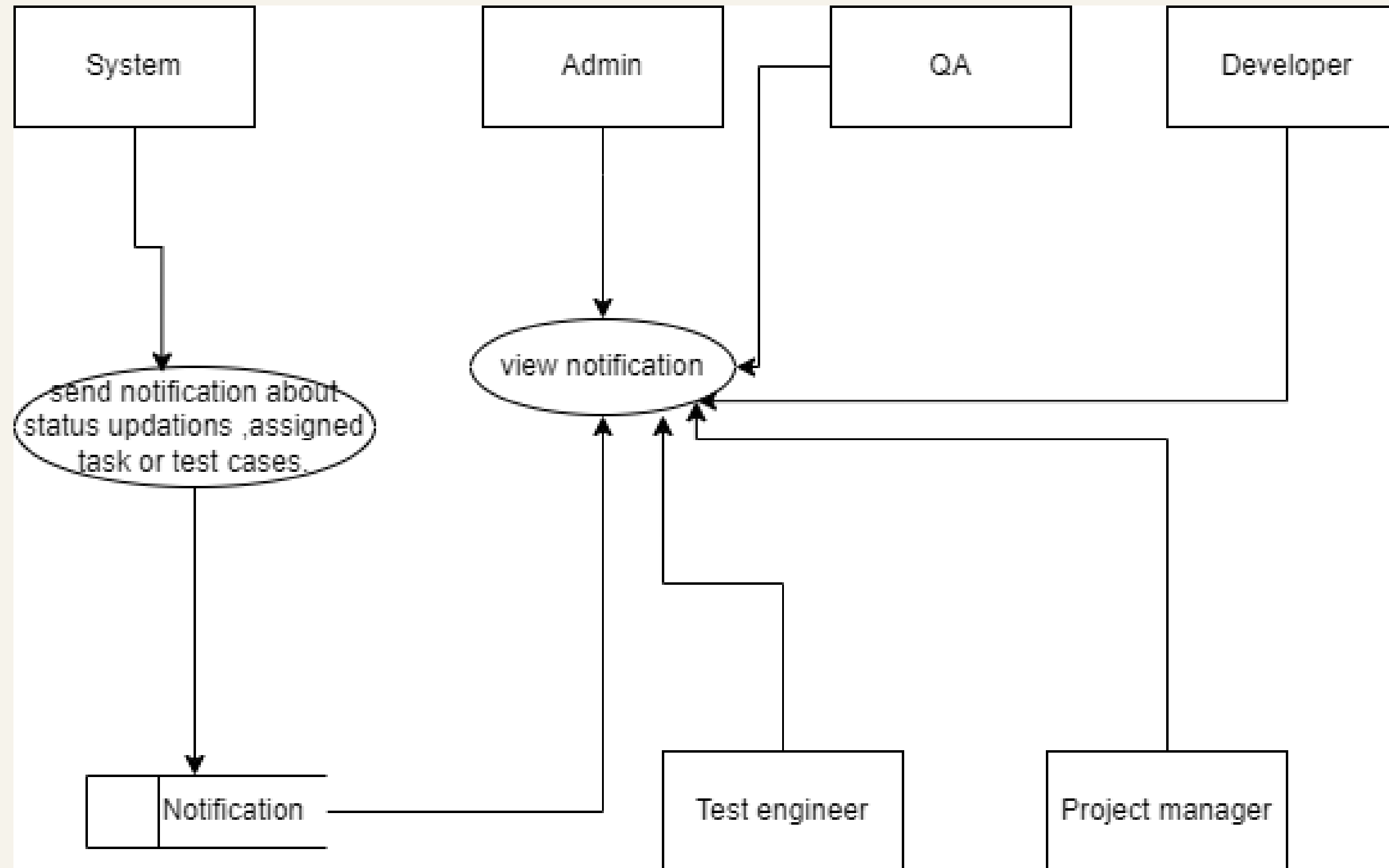
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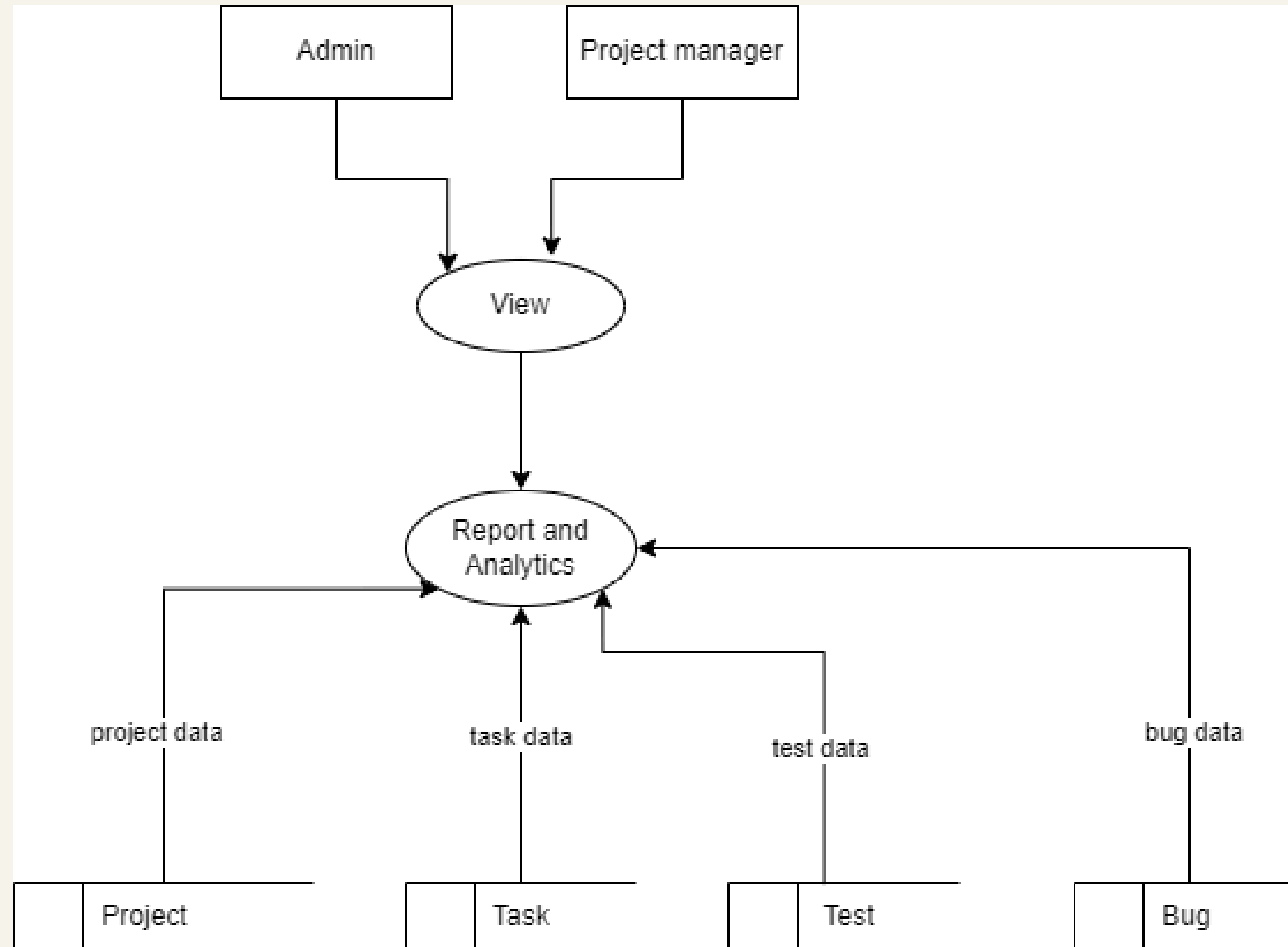
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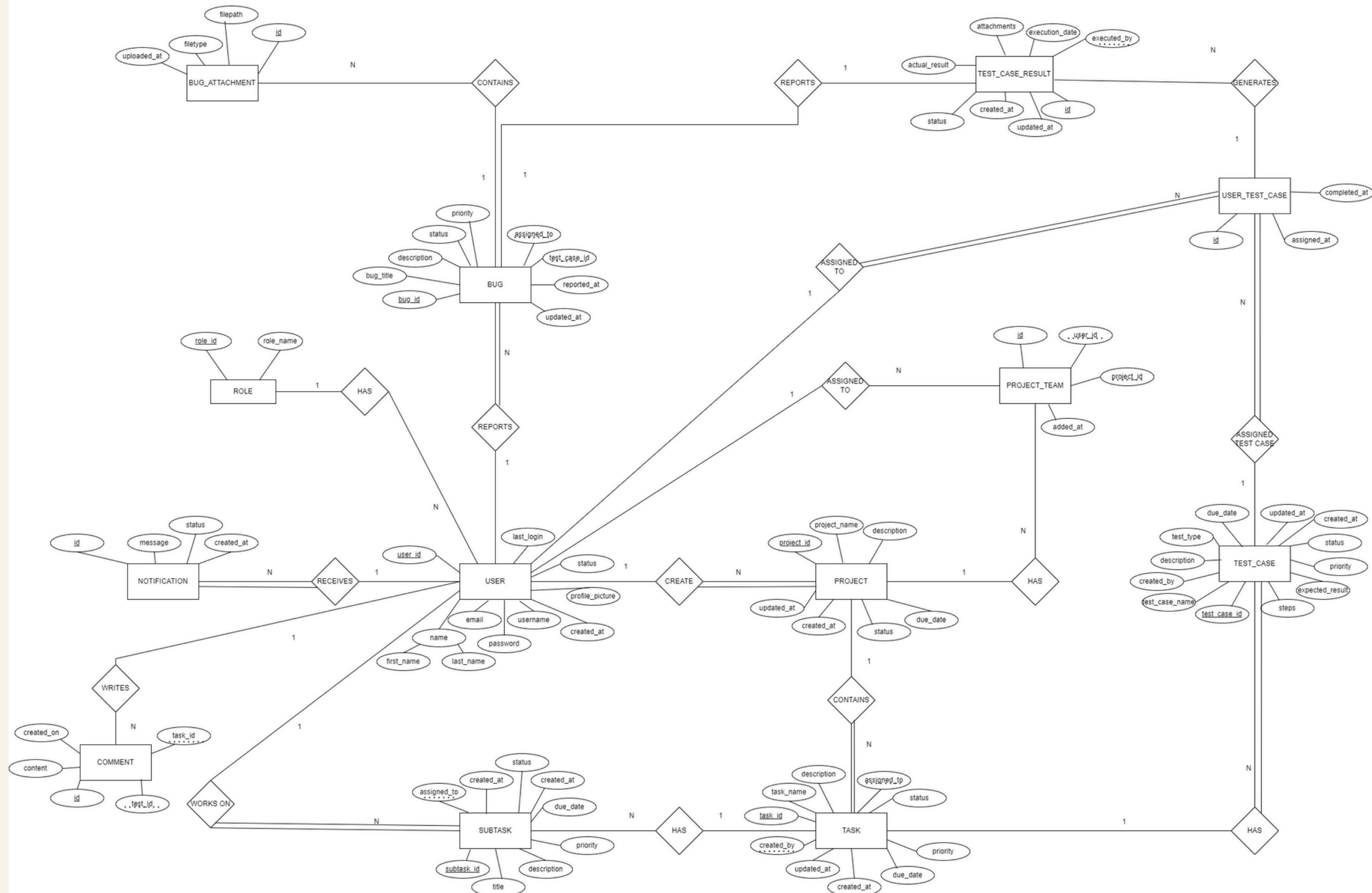
LEVEL 2.5 DFD



LEVEL 2.6 DFD



ER DIAGRAM



MODULE DESCRIPTIONS

- **Admin:** Manages users, roles, and reports
- **Project Manager:** Create projects, assign tasks, track progress, and handle defect resolution.
- **Developer:** Works on assigned tasks, updates task status, fixes reported bugs, and submits tasks for QA verification.
- **QA:** Creates test cases, assigns them to Test Engineers, and ensures quality standards.
- **Test Engineer:** Executes assigned test cases, verifies functionality, reports bugs, and retests fixes.

USER INTERFACE DESIGN

- Login Page
- User Management Form
- Project Creation Form
- Task Creation and Assignment form
- Task Update
- Test Case Management form
- Bug Reporting Form
- Project Reports and Analysis

REPORTS GENERATED

- **User Activity Report:** Tracks login history, actions performed, and system usage.
- **Project Progress Report:** Displays project completion percentage, pending tasks, and status updates.
- **Defect Tracking Report:** Displays reported bugs, their severity, and resolution status.
- **Overall System Report:** Summarizes project status, test execution, bug tracking, and user activity.

TECHNOLOGY STACK

- **Frontend:** React.js
- **Backend:** Django (Django REST Framework)
- **Database:** PostgreSQL
- **Authentication:** JWT (JSON Web Tokens)
- **Deployment:** Docker/ Heroku
- **Version Control:** GitHub, Git.
- **Data Visualization:** Chart.js
- **Report Generation:** Pandas

CONCLUSION AND FUTURE SCOPE

- The **Task and Test Case Management System (TCMS)** provides an efficient way to manage projects, tasks, test cases, and bug tracking. It helps teams collaborate better, improves software quality, and ensures smooth project execution through role-based access, real-time notifications, and detailed reports.

Future Scope:

- AI-based Test Case Suggestions: Automate test case generation using AI.
- Integration with CI/CD pipelines
- Predictive analytics for risk management

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THANK YOU