Agile Track System - Data Flow Diagram (DFD)

Project Overview

The **Agile Track System** is a Single Page Application (SPA) designed to streamline task management and team collaboration within agile frameworks. The system allows users (team members) and administrators to log in, view tasks, track progress, and manage scrum teams efficiently. The application is built using **React** and provides a user-friendly interface for both users and administrators.

Key Features:

1. **User Login**: Users can log in to view their assigned tasks and track progress.
2. **Admin Login**: Administrators can manage users, scrum teams, and tasks.
3. **Task Management**: Users can view tasks, update task statuses, and track progress.
4. **Team Management**: Admins can add new scrum teams, assign tasks, and manage user profiles.
5. **Validation**: The system ensures all required fields are filled and validates user inputs.

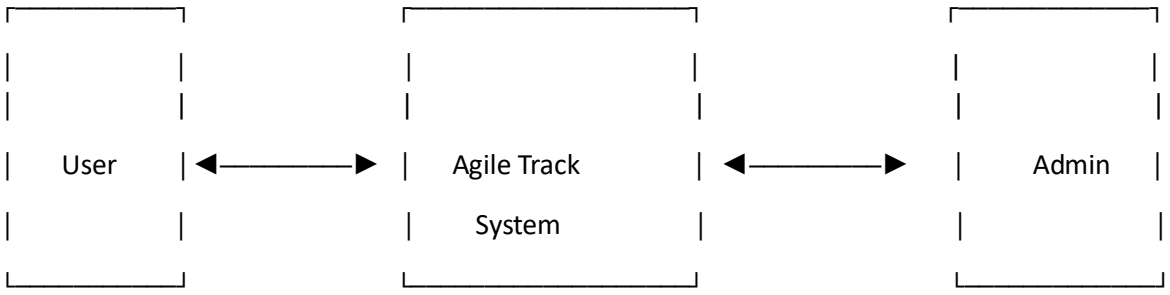
DFD Symbols Legend

- **External Entity (Rectangle):** Users, Admins.
- **Process (Rounded Rectangle):** Actions performed by the system.
- **Data Store (Open Rectangle):** Databases (User DB, Task DB, Team DB).
- **Data Flow (Arrow):** Direction of data movement.
- **Error Flow (Dashed Arrow):** Error messages or invalid actions.

Data Flow Diagram (DFD)

Level 0: Context Diagram

The Context Diagram provides a high-level overview of the system and its interactions with external entities (users and administrators).

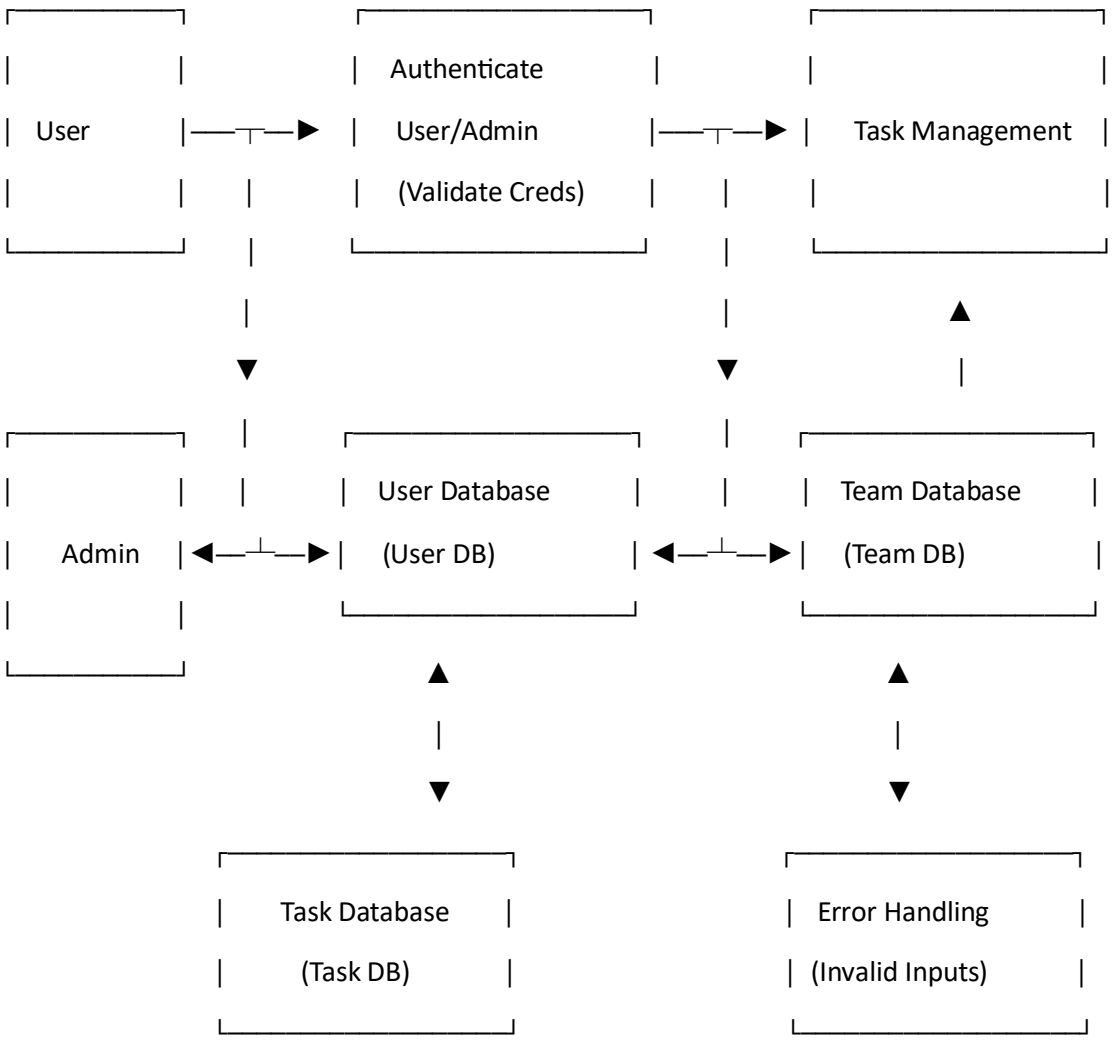


Flows:

- **User ↔ System:** Login, view tasks, update status, track progress.
- **Admin ↔ System:** Manage teams, add users, update task statuses.

Level 1: System-Level DFD

Breaks down the system into core processes and data stores.

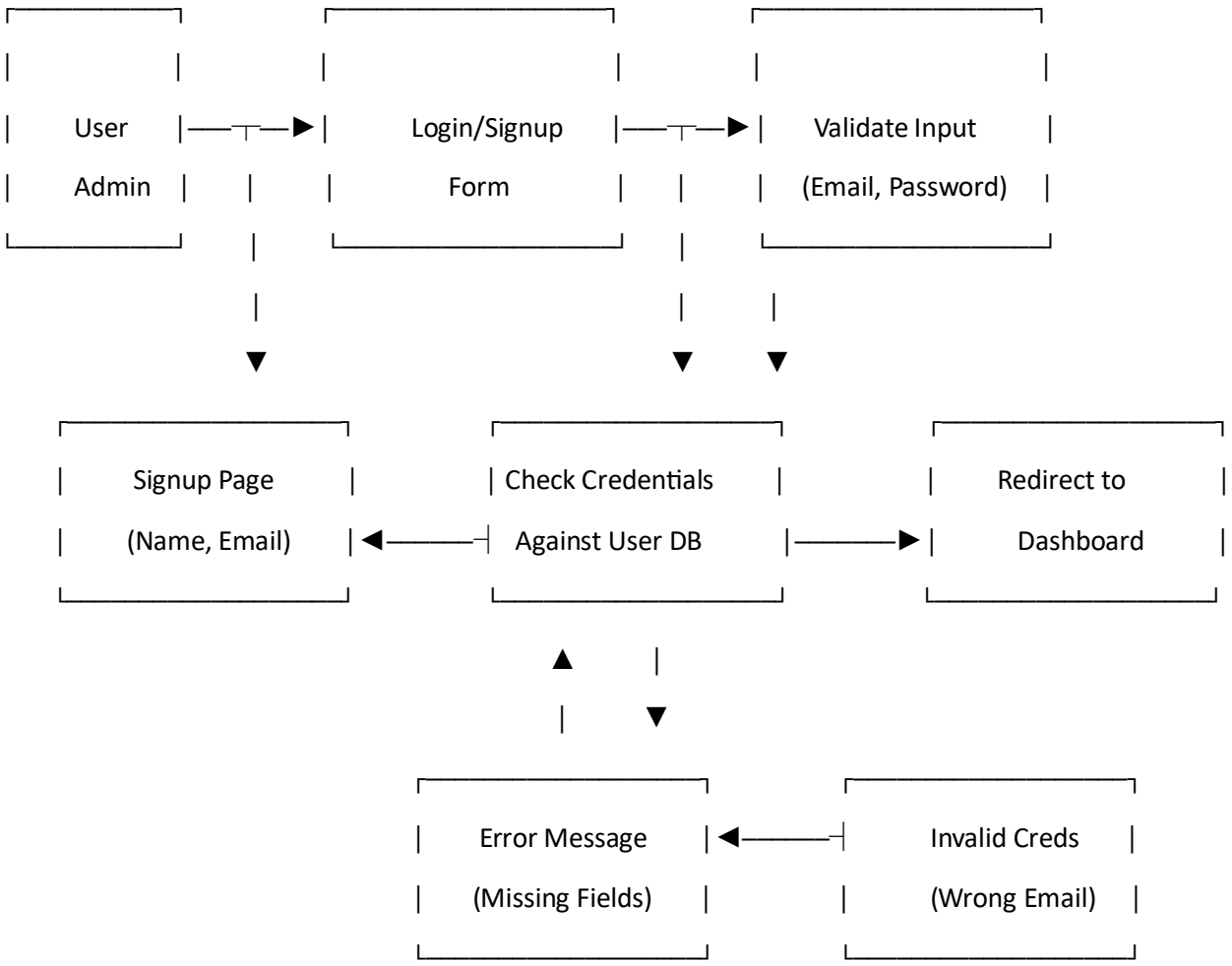


- **Key Processes:**
    1. **Authenticate User/Admin:** Validates credentials against the User DB.
    2. **Task Management:** Handles task viewing, updates, and progress tracking.
    3. **Team Management:** Admins create teams, assign tasks, and manage users.
    4. **Error Handling:** Displays validation errors (e.g., invalid email format).
- **Data Stores:**
    - **User DB:** Stores user/admin credentials, roles, and profiles.
    - **Task DB:** Stores task details (name, description, status, assigned user).
    - **Team DB:** Stores scrum team details (members, tasks).

Level 2: Detailed Process DFDs

Expands critical processes from Level 1.

Process 1: Authenticate User/Admin

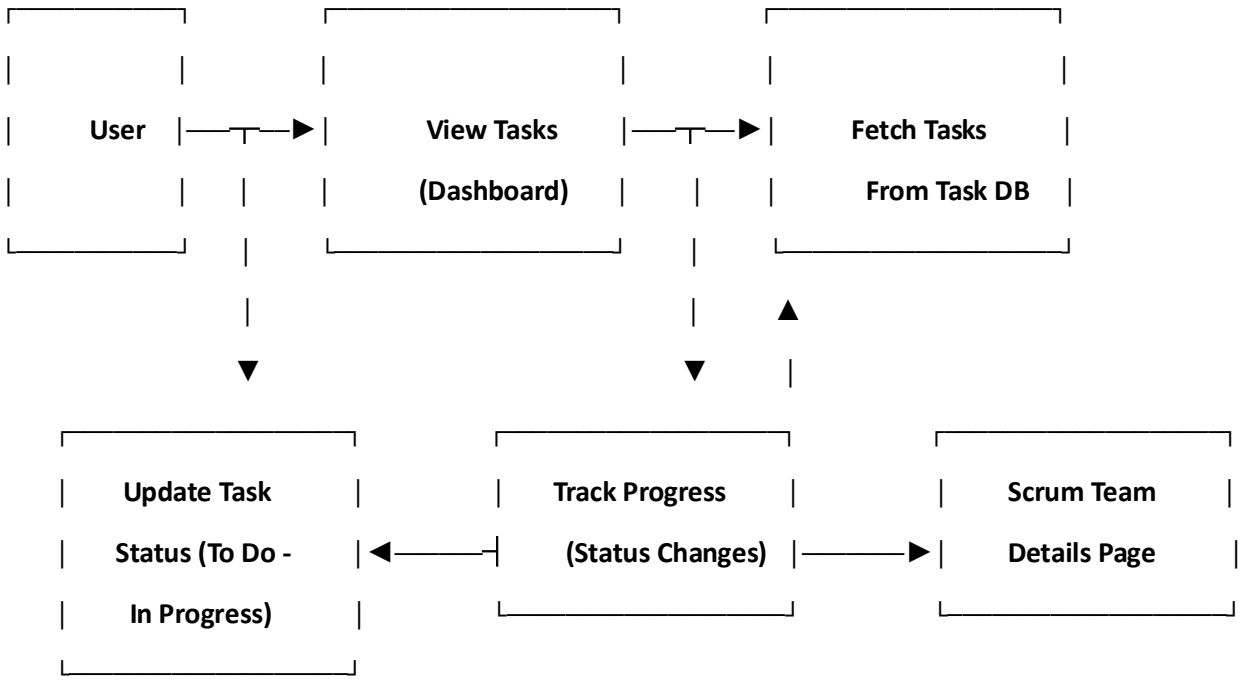


This process involves verifying users (either an admin or a regular user) before granting access to the system.

Steps:

1. **User/Admin Inputs Credentials**
    - A user or an admin enters login details through the **Login/Signup Form**.
2. **Validate Input**
    - The system checks whether the credentials (email and password) are provided and properly formatted.
3. **Check Credentials Against Database**
    - If the user is signing up, their details (name, email) are collected on the **Signup Page**.
    - If logging in, the system verifies the provided email and password against stored data in the **User Database**.
4. **Authentication Outcome:**
    - If valid, the user is redirected to the **Dashboard**.
    - If invalid:
        - **Error Message (Missing Fields):** Triggered when required fields are not filled.
        - **Invalid Credentials (Wrong Email/Password):** Displays an error message if login credentials don't match.

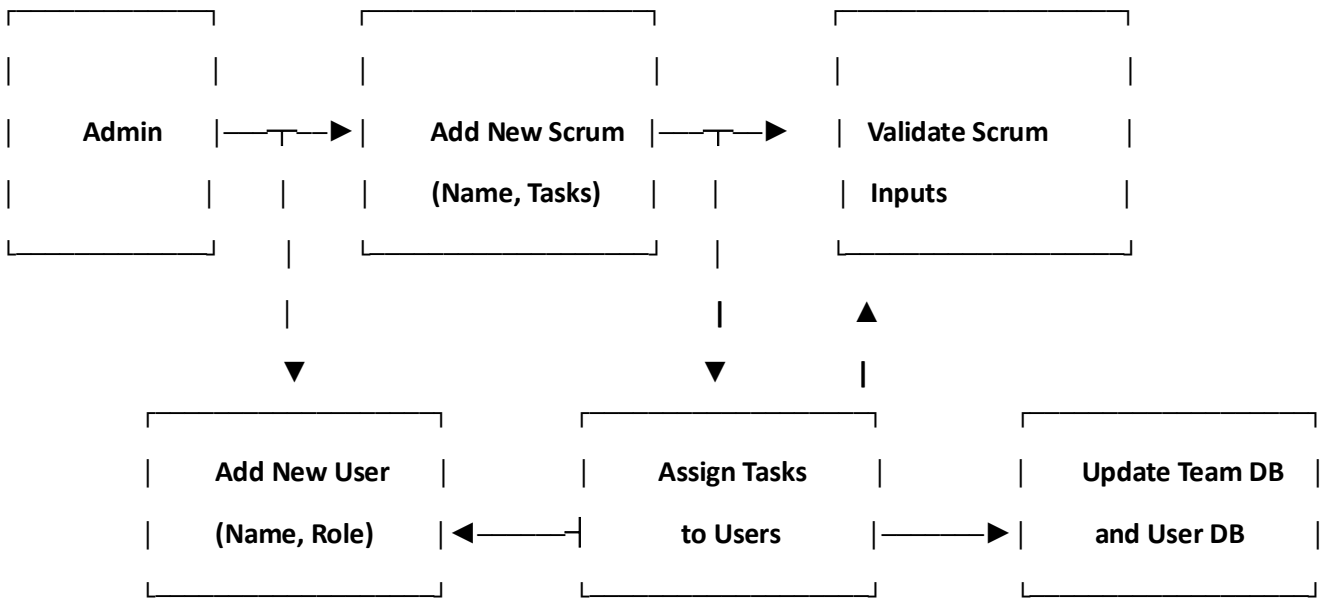
Process 2: Task Management (User)



This process allows users to manage their tasks, track progress, and collaborate within a Scrum framework.
Steps:

1. **User Views Tasks**
    - Users can see their assigned tasks on the **Dashboard**.
2. **Fetch Tasks from Task Database**
    - The system retrieves all tasks assigned to the user from the **Task DB**.
3. **Task Management Options:**
    - **Update Task Status:** Users can change a task's progress (e.g., "To Do" → "In Progress").
    - **Track Progress:** The system updates and monitors the current status of tasks.
    - **Scrum Team Details:** Users can access the **Scrum Team Page** to see team-related information

Process 3: Team Management (Admin)



This process enables admins to manage teams, add new Scrum groups, and assign tasks.

Steps:

1. **Admin Adds a New Scrum Team**
    - Admin inputs Scrum team details (name, assigned tasks).
2. **Validate Scrum Inputs**
    - The system ensures the provided team details are correct.
3. **Manage Team Members & Tasks:**
    - **Add New Users:** Admin can add users with roles (e.g., developer, tester).
    - **Assign Tasks:** The system assigns tasks to specific users.
    - **Update Team & User Database:** All changes are saved in both **Team DB and User DB**.