



DFD and ERD For FINSIGHT

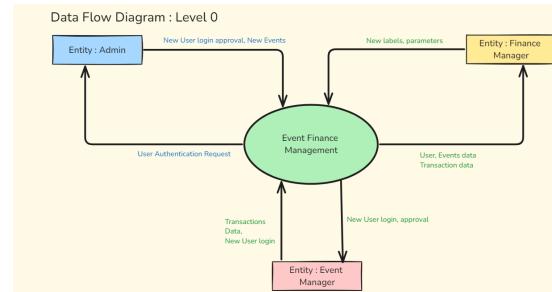
Tags

DFD

▼ Context Level DFD (Level 0)

1. Entities:

- **Users (Admins, Financial Managers, Event Managers)**
- **System (Financial Management Application)**



2. Data Flow:

- Users provide input to the system (e.g., login details, event information, transaction data).
- System processes input data (authentication, event management, transaction management).
- System provides output to users (visualizations, financial statements, confirmations).

▼ DFD Level 1

1. Processes:

- **User Authentication & Authorization**

- **Event Management**
- **Transaction Management**
- **Data Visualization**
- **Financial Statement Generation**

2. Data Stores:

- **User Data Store:** Stores user credentials and roles.
- **Event Data Store:** Stores details of events and sub-events.
- **Transaction Data Store:** Stores transaction records.
- **Financial Data Store:** Stores aggregated financial data for visualization and statements.

3. Detailed Data Flow:

- **User Authentication & Authorization:**
 - Input: User credentials
 - Process: Validate credentials, generate JWT
 - Output: Access token (JWT)
- **Event Management:**
 - Input: Event details
 - Process: Create, update, delete events

- Output: Event confirmation
- **Transaction Management:**
 - Input: Transaction details
 - Process: Record, classify transactions
 - Output: Transaction confirmation
- **Data Visualization:**
 - Input: Event and transaction data
 - Process: Aggregate data, generate charts/graphs
 - Output: Visual representations
- **Financial Statement Generation:**
 - Input: Aggregated transaction data
 - Process: Calculate P&L, ledger, balance sheet
 - Output: Financial statements

Entity-Relationship Diagram (ERD)

▼ Entities and Attributes:

1. **Department Table:**

- **Attributes:**

- **Dept_ID** (Primary Key)
- **Name**

2. User Table:

- **Attributes:**

- **User_ID** (Primary Key)
- **Username**
- **Email**
- **Password** (hashed)
- **Role** (Foreign Key referencing **Role** Table)

3. Role Table: (New Table for Normalization)

- **Attributes:**

- **Role_ID** (Primary Key)
- **Role_Name** (Admin, Financial Manager, Event Manager)

4. Event Table:

- **Attributes:**

- **Event_ID** (Primary Key)
- **User_ID** (Foreign Key referencing **User** Table)
- **Name**
- **Event_Type_ID** (Foreign Key referencing **Event_Type** Table)
- **Date**
- **Days**
- **Dept_ID** (Foreign Key referencing **Department** Table)

5. Event_Type Table: (New Table for Normalization)

- **Attributes:**

- **Event_Type_ID** (Primary Key)

- `Event_Type_Name`

6. Sub-Event Table:

- **Attributes:**

- `Sub_Event_ID` (Primary Key)
- `User_ID` (Foreign Key referencing `User` Table)
- `Name`
- `Event_Type_ID` (Foreign Key referencing `Event_Type` Table)
- `Date`
- `Time`
- `Dept_ID` (Foreign Key referencing `Department` Table)
- `Event_ID` (Foreign Key referencing `Event` Table)

7. Individual Event Transaction Table:

- **Attributes:**

- `Transaction_ID` (Primary Key)
- `User_ID` (Foreign Key referencing `User` Table)
- `Event_ID` (Foreign Key referencing `Event` Table or `Sub-Event` Table)
- `Amount`
- `Nature_ID` (Foreign Key referencing `Transaction_Nature` Table)
- `Mode_ID` (Foreign Key referencing `Payment_Mode` Table)
- `Date`
- `Description`
- `Bill_No`
- `Party_Name`
- `Transaction_Category_ID` (Foreign Key referencing `Transaction_Category` Table)
- `Account_Category_ID` (Foreign Key referencing `Account_Category` Table)

8. Transaction_Nature Table: (New Table for Normalization)

- **Attributes:**

- `Nature_ID` (Primary Key)
- `Nature_Name` (Revenue, Expense)

9. Payment_Mode Table: (New Table for Normalization)

- **Attributes:**

- `Mode_ID` (Primary Key)
- `Mode_Name` (Cash, UPI, Bank transfer)

10. Transaction_Category Table: (New Table for Normalization)

- **Attributes:**

- `Transaction_Category_ID` (Primary Key)
- `Category_Name` (Rent, Food, Chairs, etc.)

11. Account_Category Table: (New Table for Normalization)

- **Attributes:**

- `Account_Category_ID` (Primary Key)
- `Category_Name` (Asset, Liability)

12. Financial Statement Table:

- **Master Table Attributes:**

- `Statement_ID` (Primary Key)
- `Event_ID` (Foreign Key referencing `Event` Table)
- `Statement_Name` (P&L, BL, Ledger)

13. Profit and Loss Table:

- **Attributes:**

- `Statement_ID` (Foreign Key referencing Financial Statement Table)
- `Particular`
- `Nature_ID` (Foreign Key referencing `Transaction_Nature` Table)

- `Amount`

14. Balance Sheet Table:

- **Attributes:**

- `Statement_ID` (Foreign Key referencing Financial Statement Table)
- `Liabilities_and_Equities`
- `Assets`
- `Amount`

▼ Relationships

- **Department Table:**

- `Dept_ID` is referenced by:
 - `Event.Dept_ID`
 - `Sub-Event.Dept_ID`

- **User Table:**

- `User_ID` is referenced by:
 - `Event.User_ID`
 - `Sub-Event.User_ID`
 - `Individual Event Transaction.User_ID`

- **Role Table:**

- `Role_ID` is referenced by:
 - `User.Role`

- **Event Table:**

- `Event_ID` is referenced by:
 - `Sub-Event.Event_ID`
 - `Individual Event Transaction.Event_ID`
 - `Financial Statement.Event_ID`
- **References:**
 - `User.User_ID`

- Event_Type.Event_Type_ID
- Department.Dept_ID

- **Event_Type Table:**

- Event_Type_ID is referenced by:
 - Event.Event_Type_ID
 - Sub-Event.Event_Type_ID

- **Sub-Event Table:**

- Sub_Event_ID is referenced by:
 - Individual_Event_Transaction.Event_ID
- References:
 - User.User_ID
 - Event_Type.Event_Type_ID
 - Department.Dept_ID
 - Event.Event_ID

- **Individual Event Transaction Table:**

- Transaction_ID is a primary key and not referenced by other tables.
- References:
 - User.User_ID
 - Event.Event_ID or Sub-Event.Sub_Event_ID
 - Transaction_Nature.Nature_ID
 - Payment_Mode.Mode_ID
 - Transaction_Category.Transaction_Category_ID
 - Account_Category.Account_Category_ID

- **Transaction_Nature Table:**

- Nature_ID is referenced by:
 - Individual_Event_Transaction.Nature_ID
 - Profit_and_Loss.Nature_ID

- **Payment_Mode Table:**

- Mode_ID is referenced by:

- Individual Event Transaction.Mode_ID

- **Transaction_Category Table:**

- Transaction_Category_ID is referenced by:

- Individual Event Transaction.Transaction_Category_ID

- **Account_Category Table:**

- Account_Category_ID is referenced by:

- Individual Event Transaction.Account_Category_ID

- **Financial Statement Table:**

- Statement_ID is referenced by:

- Profit and Loss.Statement_ID

- Balance Sheet.Statement_ID

- References:

- Event.Event_ID

- **Profit and Loss Table:**

- References:

- Financial Statement.Statement_ID

- Transaction_Nature.Nature_ID

- **Balance Sheet Table:**

- References:

- Financial Statement.Statement_ID