



# DFD and ERD For FINSIGHT

≡ Tags

## DFD

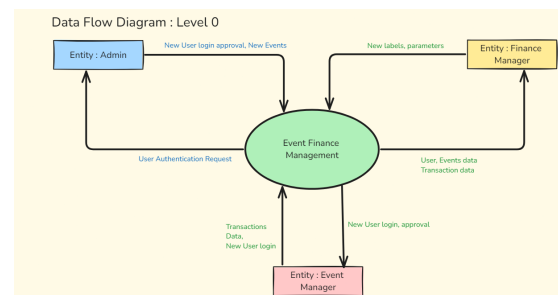
### ▼ Context Level DFD (Level 0)

#### 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
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## 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`