**CORE ENTITIES AND APIs**

**ENTITIES**

**User**

* user\_id (UUID) - Unique identifier
* name (String)
* email (String, unique)
* password\_hash (String)
* groups (Array of Group IDs)
* created\_at (Timestamp)
* updated\_at (Timestamp)

**Group**

* group\_id (UUID) - Unique identifier
* name (String)
* type (Enum: EXPENSE, INVESTMENT)
* admin\_id (User ID)
* members (Array of User IDs)
* created\_at (Timestamp)
* updated\_at (Timestamp)

**Expense**

* expense\_id (UUID) - Unique identifier
* group\_id (UUID) - Associated group
* payer\_id (User ID) - Who paid
* amount (Decimal)
* description (String)
* split\_type (Enum: EQUAL, CUSTOM)
* split\_details (Object: User IDs → Amount)
* created\_at (Timestamp)

**Settlement**

* settlement\_id (UUID) - Unique identifier
* group\_id (UUID)
* from\_user\_id (User ID)
* to\_user\_id (User ID)
* amount (Decimal)
* status (Enum: PENDING, COMPLETED)
* created\_at (Timestamp)

**Investment**

* investment\_id (UUID) - Unique identifier
* group\_id (UUID)
* stock\_symbol (String)
* total\_invested (Decimal)
* shares\_bought (Integer)
* current\_value (Decimal, updated via API)
* created\_at (Timestamp)

**Contribution**

* contribution\_id (UUID)
* investment\_id (UUID)
* user\_id (UUID)
* amount (Decimal)
* created\_at (Timestamp)

**API**

**Authentication**

* POST /api/auth/register
  + **Request:** { name, email, password }
  + **Response:** { user\_id, token }
* POST /api/auth/login
  + **Request:** { email, password }
  + **Response:** { token }
* GET /api/auth/profile
  + **Response:** { user details }

**User Management**

* GET /api/users/{user\_id}
  + **Response:** { user details, groups }
* PUT /api/users/{user\_id}
  + **Request:** { name, email }
  + **Response:** { updated details }

**Group Management**

* POST /api/groups
  + **Request:** { name, type, admin\_id }
  + **Response:** { group\_id }
* GET /api/groups/{group\_id}
  + **Response:** { group details, members, expenses, investments }
* POST /api/groups/{group\_id}/members
  + **Request:** { user\_id }
  + **Response:** { success }
* DELETE /api/groups/{group\_id}/members/{user\_id}
  + **Response:** { success }

**Expense Management**

* POST /api/expenses
  + **Request:** { group\_id, payer\_id, amount, description, split\_type, split\_details }
  + **Response:** { expense\_id }
* GET /api/expenses/{expense\_id}
  + **Response:** { expense details }
* GET /api/groups/{group\_id}/expenses
  + **Response:** { list of expenses }

**Settlements**

* POST /api/settlements
  + **Request:** { group\_id, from\_user\_id, to\_user\_id, amount }
  + **Response:** { settlement\_id }
* GET /api/settlements/{settlement\_id}
  + **Response:** { details of settlement }
* PUT /api/settlements/{settlement\_id}
  + **Request:** { status }
  + **Response:** { updated details }

**Investment Management**

* POST /api/investments
  + **Request:** { group\_id, stock\_symbol, amount\_per\_user }
  + **Response:** { investment\_id }
* GET /api/investments/{investment\_id}
  + **Response:** { investment details, current stock value }
* GET /api/groups/{group\_id}/investments
  + **Response:** { list of investments }
* POST /api/investments/{investment\_id}/contributions
  + **Request:** { user\_id, amount }
  + **Response:** { contribution\_id }
* GET /api/investments/{investment\_id}/returns
  + **Response:** { profit/loss details }

**Reporting**

* GET /api/users/{user\_id}/summary
  + **Response:** { total owed, total to receive, expense breakdown }
* GET /api/groups/{group\_id}/report
  + **Response:** { group financial summary }
* GET /api/investments/{investment\_id}/performance
  + **Response:** { current value, profit/loss }

**Additional Considerations**

Stock API Integration

**Entity Relationship Diagram**

A screenshot of a computer

Description automatically generated