

Flight Management Database System

TEAM NO. 9

TEAM MEMBERS:

VAIBHAV GUPTA - PES1UG23AM341

TANISHK MAHESHWARI –

PES1UG23AM334

1. User Requirement Specifications

Goal / Purpose

- Provide investors a simple web interface to track holdings, transactions, portfolio allocations, and historical performance.

Primary users

- Individual investors (students, retail investors), each with a personal account.

Constraints / Assumptions

- Users provide their own market pricing updates if no external API integration is present.
- Single-tenant per account (no shared portfolios).

Review-1 deliverables

- Requirements document, basic ER and relational schema, initial DDL, basic REST endpoints documented, and a working skeleton for frontend pages for: login, register, dashboard, add instrument, add transaction, transaction history.

2. Abstract/Description

This Personal Investment App lets users record and track investments across instruments (stocks, mutual funds, fixed deposits, crypto, etc.), view portfolio summaries, enter transactions (buy/sell), categorize investments, and see performance/analytics. The application is a full-stack JavaScript project (React frontend, Node/Express backend). The report documents functional requirements, data model (ER & relational schema), SQL DDL, CRUD examples, stored procedures/triggers, and sample backend invocation snippets.

3. User Requirement Specification

Functional requirements (priority)

- FR1: User authentication (signup / login / logout).
- FR2: Create / Read / Update / Delete user profile.
- FR3: Add investment instruments with metadata (name, type, ticker, purchase_date, purchase_price, quantity).
- FR4: Add transactions (buy, sell, dividend, interest).
- FR5: Show portfolio summary (total invested, current value, P&L) and allocation by asset class.
- FR6: Provide transaction history, filter/sort by date, asset, type.
- FR7: Export/import portfolio in CSV.
- FR8: Admin actions (optional): Seed instrument master data.
- FR9: Responsive frontend UI for desktop and mobile.

Non-functional requirements

- NFR1: Secure password storage (bcrypt).
- NFR2: Backend REST API with JSON responses.
- NFR3: Performance — handle up to thousands of transactions per user.
- NFR4: Data persistence in RDBMS (or NoSQL if chosen).
- NFR5: Cross-browser compatibility.

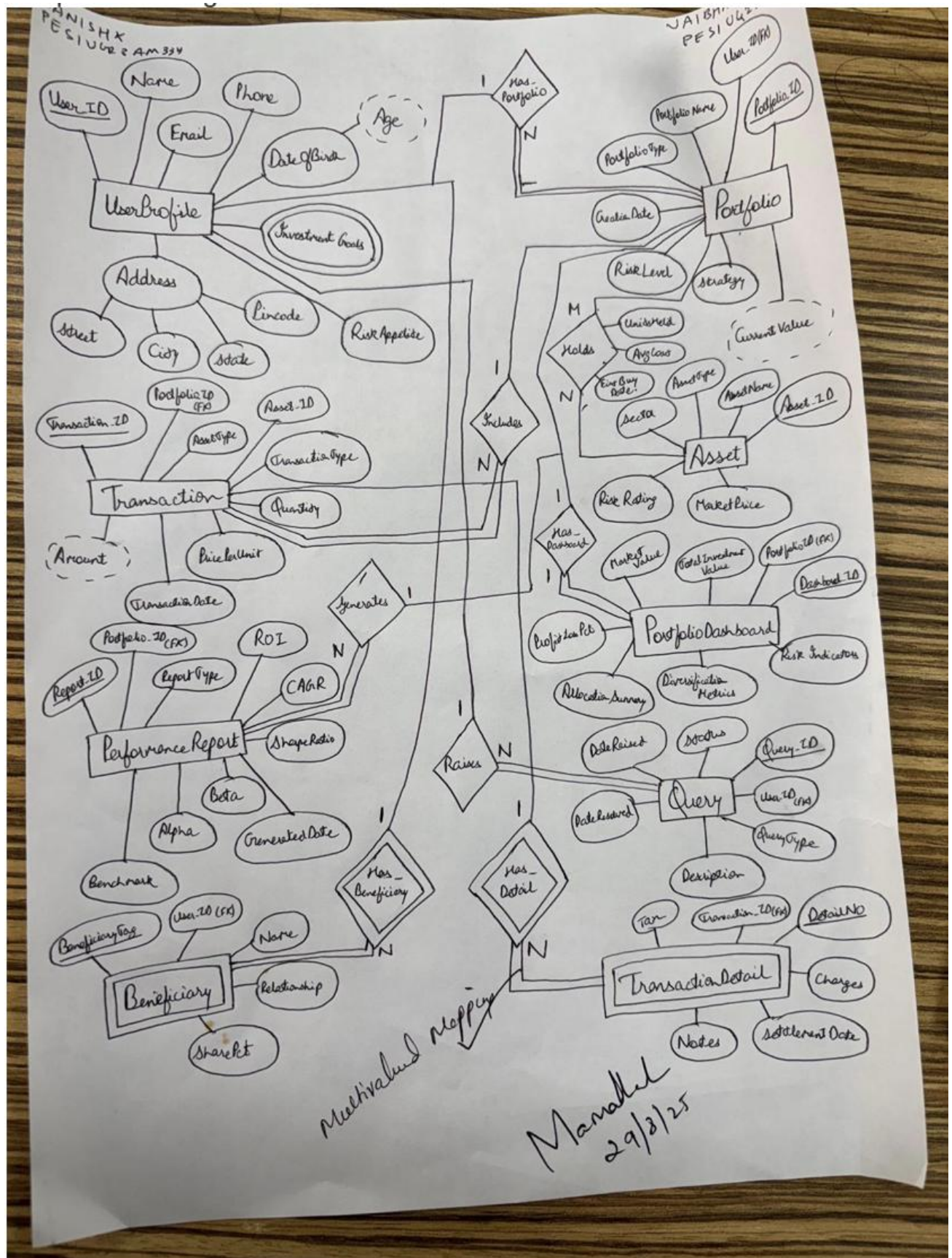
4. Software Used

Component	Tool / Language
Database	MySQL
Interface	MySQL Workbench
Language	SQL (DDL, DML, PL/SQL), ReactJS, Node,HTML, CSS
ER Diagram	Hand-drawn
Testing	SQL Command Line, Workbench Console
OS	Windows

5. ER Diagram

Entities:

- Flight, Airport, Aircraft, Tickets, Passenger, Finance, Admin, 2FA.



6. Relational Schema

USER
PROFILE

<u>USER_ID</u>	Name	Email	Phone Number	Address	Age
Investment Goals		Risk Appetite			

Manahul
29/9/25

PORTFOLIO

<u>Portfolio ID</u>	User_ID	Portfolio Name	Portfolio Type	Creation Date	Risk Level
Strategy		Current Value			

TRANSACTION

<u>Transaction ID</u>	Portfolio IP	Asset Type	Asset_ID	
Transaction Type	Quantity	Price Per Unit	Transaction Date	Amount

ASSET

<u>Asset_ID</u>	Asset Name	Asset Type	Sector	Market Price
Risk Rating	hold			

PORTFOLIO
DASHBOARD

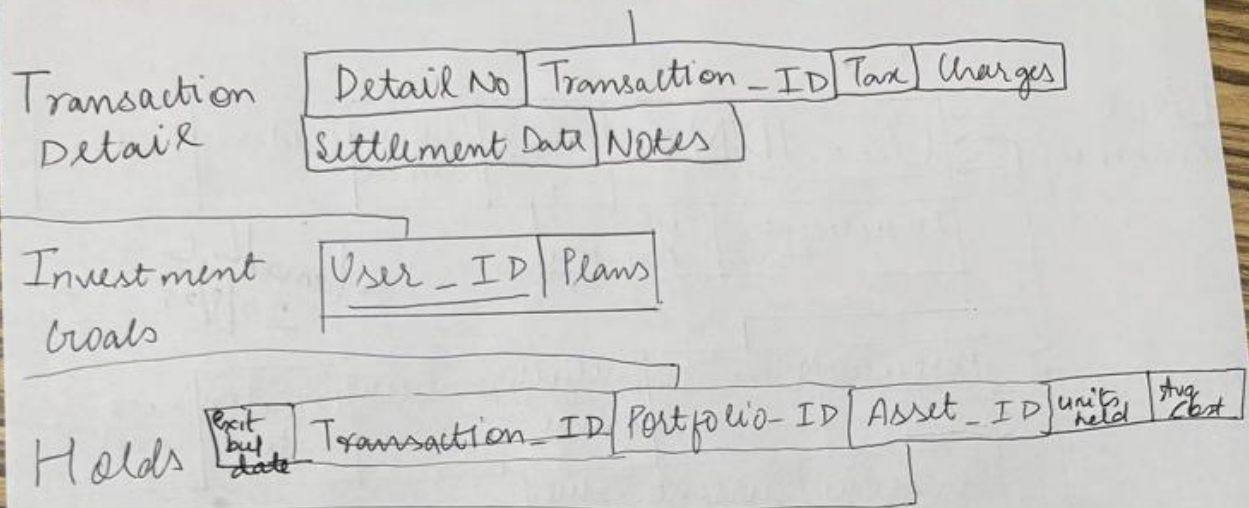
<u>DASHBOARD_ID</u>	Portfolio IP	Report Type	ROI	CAGR
Beta (β)	Alpha (α)	Benchmark	Generate Date	

QUERY

<u>QUERY_ID</u>	USER_ID	Query Type	Description
Status	Date Raised	Date Resolved	

BENEFICIARY

<u>Beneficiary Tag</u>	User_ID	Name	Relationship	Share PCT
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7. DDL Commands (Schema Creation)

CREATE:

```
mysql> CREATE TABLE UserProfile (  
->     User_ID INT AUTO_INCREMENT PRIMARY KEY,  
->     Name VARCHAR(100),  
->     Email VARCHAR(100) UNIQUE,  
->     Phone_No VARCHAR(20),  
->     Address VARCHAR(255),  
->     Age INT,  
->     Investment_Goals VARCHAR(255),  
->     Risk_Appetite VARCHAR(50)  
-> );  
Query OK, 0 rows affected (0.03 sec)
```

8. CRUD operation Screenshots

```
mysql> CREATE TABLE UserProfile (  
-> User_ID INT AUTO_INCREMENT PRIMARY KEY,  
-> Name VARCHAR(100),  
-> Email VARCHAR(100) UNIQUE,  
-> Phone_No VARCHAR(20),  
-> Address VARCHAR(255),  
-> Age INT,  
-> Investment_Goals VARCHAR(255),  
-> Risk_Appetite VARCHAR(50)  
-> );  
Query OK, 0 rows affected (0.03 sec)
```

Create

```
mysql> INSERT INTO Portfolio (User_ID, Portfolio_Name, Portfolio_Type, Creation_Date, Risk_Level, Strategy, Current_Value)  
-> VALUES (1, 'Green Energy Fund', 'Equity', CURDATE(), 'Moderate', 'Sustainable Investments', 120000.00);  
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select * from Portfolio;
```

Portfolio_ID	User_ID	Portfolio_Name	Portfolio_Type	Creation_Date	Risk_Level	Strategy	Current_Value
1	1	Tech Growth	Equity	2025-01-01	High	Aggressive Growth	351000.00
2	2	Balanced Fund	Hybrid	2025-02-15	Moderate	Diversified Mix	167100.00
3	3	Safe Haven	Debt	2025-03-20	Low	Capital Preservation	115000.00
4	4	Crypto Vision	Crypto	2025-04-05	High	High-Risk Crypto Mix	75000.00
5	1	Long Term	Equity	2025-05-10	Moderate	Value Investing	58000.00
6	5	Retirement Fund	Debt	2025-06-01	Low	Fixed Income Focus	128000.00
7	6	Aggressive Growth	Equity	2025-06-15	High	Small Cap Focus	105000.00
8	7	Education Corpus	Hybrid	2025-07-01	Moderate	Balanced Approach	126000.00
9	8	Tax Saver	ELSS	2025-07-15	High	Tax Efficient	100000.00
10	9	Property Fund	Real Estate	2025-08-01	Moderate	REIT Investment	147000.00
11	10	Global Diversified	International	2025-08-15	High	Global Markets	115000.00
12	1	Green Energy Fund	Equity	2025-11-10	Moderate	Sustainable Investments	120000.00

```
12 rows in set (0.00 sec)
```

Read

```
mysql> -- Fetch all portfolios with owner name
mysql> SELECT p.Portfolio_ID, p.Portfolio_Name, u.Name, p.Current_Value
  -> FROM Portfolio p
  -> JOIN UserProfile u ON p.User_ID = u.User_ID;
```

Portfolio_ID	Portfolio_Name	Name	Current_Value
1	Tech Growth	Tanishk Maheshwari	351000.00
5	Long Term	Tanishk Maheshwari	58000.00
12	Green Energy Fund	Tanishk Maheshwari	120000.00
2	Balanced Fund	Aarav Sharma	167100.00
3	Safe Haven	Riya Patel	115000.00
4	Crypto Vision	Ananya Verma	75000.00
6	Retirement Fund	Priya Singh	128000.00
7	Aggressive Growth	Rahul Kumar	105000.00
8	Education Corpus	Sneha Gupta	126000.00
9	Tax Saver	Vikram Joshi	100000.00
10	Property Fund	Neha Reddy	147000.00
11	Global Diversified	Arjun Mehta	115000.00

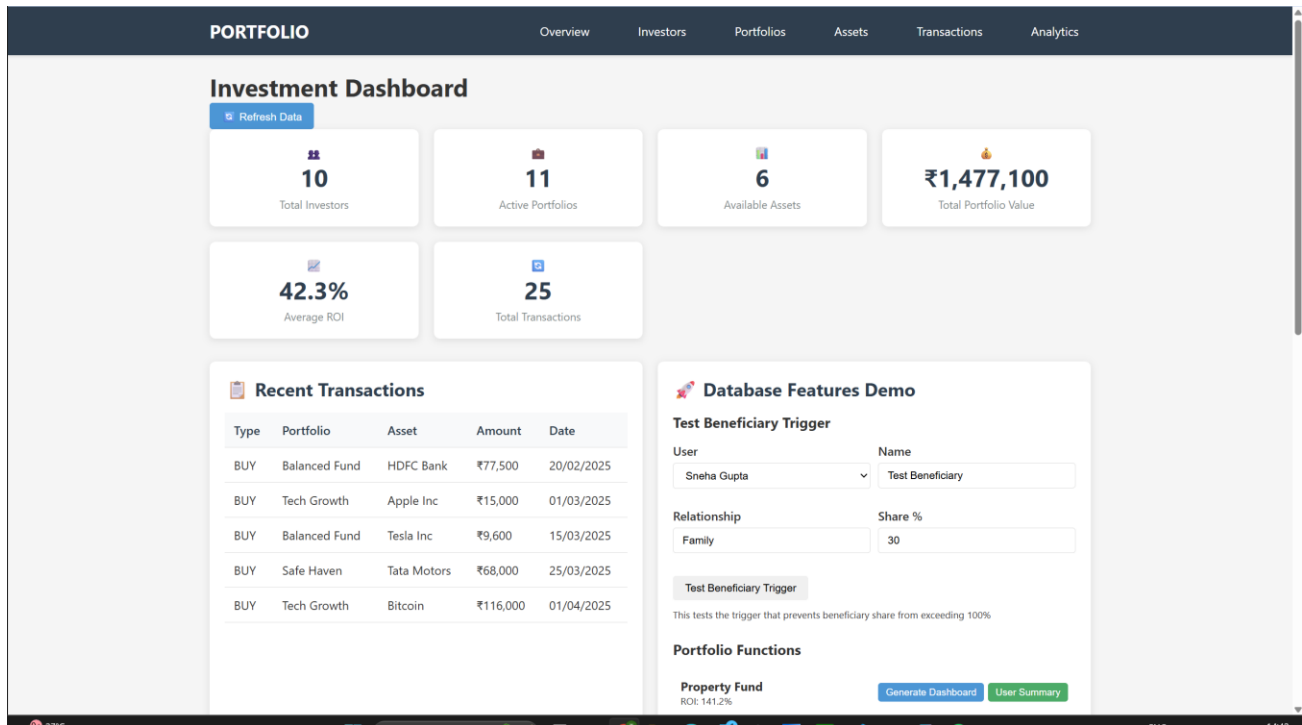
```
12 rows in set (0.00 sec)
```

Update

```
mysql> -- Verify trigger action in PortfolioDashboard
mysql> SELECT Portfolio_ID, ROI FROM PortfolioDashboard WHERE Portfolio_ID = 12;
Empty set (0.00 sec)
```

```
mysql>
```

9. List of functionalities/features of the application and its associated screenshots using front end



 Portfolio Performance (Join + Aggregate Query)

Portfolio	User	Total Investment	Current Value	ROI	Beta	Alpha
Property Fund	Neha Reddy	₹60,950	₹147,000	141.2%	0.72	0.48
Property Fund	Neha Reddy	₹60,950	₹147,000	141.2%	0.00	0.00
Property Fund	Neha Reddy	₹60,950	₹147,000	141.2%	0.00	0.00
Property Fund	Neha Reddy	₹60,950	₹147,000	141.2%	0.00	0.00
Property Fund	Neha Reddy	₹60,950	₹147,000	141.2%	0.00	0.00
Aggressive Growth	Rahul Kumar	₹45,100	₹105,000	132.8%	1.15	0.90
Global Diversified	Arjun Mehta	₹54,200	₹115,000	112.2%	1.02	0.68
Education Corpus	Sneha Gupta	₹68,100	₹126,000	85.0%	0.88	0.60
Tax Saver	Vikram Joshi	₹61,500	₹100,000	62.6%	1.08	0.75
Crypto Vision	Ananya Verma	₹62,200	₹75,000	20.6%	1.25	1.10
Long Term	Tanishk Maheshwari	₹53,525	₹58,000	8.4%	0.85	0.65
Retirement Fund	Priya Singh	₹124,200	₹128,000	3.1%	0.55	0.35
Tech Growth	Tanishk Maheshwari	₹341,000	₹341,000	0.0%	1.10	0.80
Tech Growth	Tanishk Maheshwari	₹341,000	₹341,000	0.0%	0.00	0.00
Balanced Fund	Aarav Sharma	₹167,100	₹167,100	0.0%	0.95	0.70
Safe Haven	Riya Patel	₹120,000	₹115,000	-4.2%	0.60	0.40

PORTFOLIO

Overview Investors Portfolios Assets Transactions Analytics

Users Management

Add New User

All Users (10)

ID	Name	Email	Age	Risk Appetite	Investment Goals	Actions
1	Tanishk Maheshwari	tanishk@example.com	20	High	Wealth Creation	Edit Delete
2	Aarav Sharma	aarav@example.com	25	Moderate	Long-term Growth	Edit Delete
3	Riya Patel	riya@example.com	27	Low	Retirement Planning	Edit Delete
4	Ananya Verma	ananya@example.com	23	Moderate	Education Fund	Edit Delete
5	Priya Singh	priya.singh@example.com	32	Moderate	Retirement Planning	Edit Delete
6	Rahul Kumar	rahul.kumar@example.com	28	High	Wealth Accumulation	Edit Delete
7	Sneha Gupta	sneha.gupta@example.com	35	Low	Children Education	Edit Delete
8	Vikram Joshi	vikram.joshi@example.com	45	Moderate	Tax Saving	Edit Delete
9	Neha Reddy	neha.reddy@example.com	29	High	Real Estate Investment	Edit Delete
10	Arjun Mehta	arjun.mehta@example.com	38	Moderate	International Diversification	Edit Delete

PORTFOLIO

OverviewInvestorsPortfoliosAssetsTransactionsAnalytics

Portfolios Management

Create Portfolio

All Portfolios (11)

ID	Portfolio Name	User	Type	Risk Level	Current Value	Database Functions	Actions
1	Tech Growth	Tanishk Maheshwari	Equity	High	₹341000.00	<div>Total Investment</div> <div>Calculate ROI</div> <div>Get Risk</div>	<div>Delete</div>
5	Long Term	Tanishk Maheshwari	Equity	Moderate	₹58000.00	<div>Total Investment</div> <div>Calculate ROI</div> <div>Get Risk</div>	<div>Delete</div>
2	Balanced Fund	Aarav Sharma	Hybrid	Moderate	₹167100.00	<div>Total Investment</div> <div>Calculate ROI</div> <div>Get Risk</div>	<div>Delete</div>
3	Safe Haven	Riya Patel	Debt	Low	₹115000.00	<div>Total Investment</div> <div>Calculate ROI</div> <div>Get Risk</div>	<div>Delete</div>
4	Crypto Vision	Ananya Verma	Crypto	High	₹75000.00	<div>Total Investment</div> <div>Calculate ROI</div> <div>Get Risk</div>	<div>Delete</div>
6	Retirement Fund	Priya Singh	Debt	Low	₹128000.00	<div>Total Investment</div> <div>Calculate ROI</div> <div>Get Risk</div>	<div>Delete</div>

PORTFOLIO

OverviewInvestorsPortfoliosAssetsTransactionsAnalytics

Assets Management

Available Assets (6)

ID	Asset Name	Type	Sector	Market Price	Risk Rating	Hold Status
1	Apple Inc	Stock	Technology	₹175.50	Medium	Hold
2	Bitcoin	Crypto	Blockchain	\$60000.00	High	Hold
3	HDFC Bank	Stock	Finance	₹1600.00	Low	Hold
4	Tata Motors	Stock	Automobile	₹920.00	Medium	Hold
5	Tesla Inc	Stock	Automobile	₹250.75	High	Hold
6	Gold ETF	ETF	Commodities	₹55.20	Low	Hold

PORTFOLIO

OverviewInvestorsPortfoliosAssetsTransactionsAnalytics

Transactions History

All Transactions (25)

ID	Portfolio	Asset	Type	Quantity	Price/Unit	Total Amount	Date	Actions
25	Tech Growth	Apple Inc	BUY	100	₹100.00	₹10000.00	10/11/2025	Delete
26	Balanced Fund	Apple Inc	BUY	400	₹200.00	₹80000.00	10/11/2025	Delete
24	Tech Growth	Tesla Inc	BUY	200	₹1000.00	₹200000.00	10/11/2025	Delete
22	Global Diversified	Apple Inc	BUY	100	₹242.00	₹24200.00	25/08/2025	Delete
21	Global Diversified	Tesla Inc	BUY	120	₹250.00	₹30000.00	20/08/2025	Delete
20	Property Fund	Bitcoin	BUY	0	₹60500.00	₹18150.00	10/08/2025	Delete
19	Property Fund	Gold ETF	BUY	800	₹53.50	₹42800.00	05/08/2025	Delete
18	Tax Saver	HDFC Bank	BUY	30	₹1650.00	₹49500.00	25/07/2025	Delete
17	Tax Saver	Apple Inc	BUY	50	₹240.00	₹12000.00	20/07/2025	Delete
16	Education Corpus	Tata Motors	BUY	40	₹940.00	₹37600.00	10/07/2025	Delete
15	Education Corpus	Bitcoin	BUY	1	₹61000.00	₹30500.00	05/07/2025	Delete
14	Aggressive Growth	Tesla Inc	BUY	100	₹255.00	₹25500.00	25/06/2025	Delete

PORTFOLIO

localhost:3000 says
Transaction added successfully using stored procedure!

AssetsTransactionsAnalytics

Advanced Features

Stored Procedure: Add Transaction

Portfolio ID

1

Asset ID

1

Transaction Type

BUY

Quantity

100

Price per Unit

100

Transaction Date

10-11-2025

Add Transaction (Stored Procedure)

Portfolio Performance

Load Performance Data

Sector-wise Summary

Load Sector Data

High Risk Users (Nested Query)

Load High Risk Users

Portfolio Performance

Load Performance Data

Portfolio	User	ROI	Current Value
Property Fund	Neha Reddy	141.18%	₹147000.00
Property Fund	Neha Reddy	141.18%	₹147000.00
Property Fund	Neha Reddy	141.18%	₹147000.00
Property Fund	Neha Reddy	141.18%	₹147000.00
Property Fund	Neha Reddy	141.18%	₹147000.00
Aggressive Growth	Rahul Kumar	132.82%	₹105000.00
Global Diversified	Arjun Mehta	112.18%	₹115000.00
Education Corpus	Sneha Gupta	85.02%	₹126000.00
Tax Saver	Vikram Joshi	62.60%	₹100000.00
Crypto Vision	Ananya Verma	20.58%	₹75000.00
Long Term	Tanishk Maheshwari	8.36%	₹58000.00
Retirement Fund	Priya Singh	3.06%	₹128000.00
Tech Growth	Tanishk Maheshwari	0.00%	₹351000.00
Tech Growth	Tanishk Maheshwari	0.00%	₹351000.00
Balanced Fund	Aarav Sharma	0.00%	₹167100.00
Safe Haven	Riya Patel	-4.17%	₹115000.00

Sector-wise Summary

Load Sector Data

Sector	Total Assets	Total Value
Finance	1	₹272000.00
Blockchain	1	₹240000.00
Automobile	2	₹181863.75
Commodities	1	₹126960.00
Technology	1	₹61425.00

10

Total Investors

42.3%

Average ROI

26

Total Transactions

₹1,487,100

Total Portfolio Value

localhost:3000 says

Beneficiary added successfully! Trigger executed.

OK

Recent Transactions

Type	Portfolio	Asset	Amount	Date
BUY	Balanced Fund	HDFC Bank	₹77,500	20/02/2025
BUY	Tech Growth	Apple Inc	₹15,000	01/03/2025
BUY	Balanced Fund	Tesla Inc	₹9,600	15/03/2025
BUY	Safe Haven	Tata Motors	₹68,000	25/03/2025
BUY	Tech Growth	Bitcoin	₹116,000	01/04/2025

Database Features Demo

Test Beneficiary Trigger

User

Sneha Gupta

Name

Test Beneficiary

Relationship

Family

Share %

0

Test Beneficiary Trigger

This tests the trigger that prevents beneficiary share from exceeding 100%

10

Total Investors

42.3%

Average ROI

26

Total Transactions

₹1,487,100

Total Portfolio Value

localhost:3000 says

✖ Trigger Error: Total Beneficiary Share exceeds 100%

OK

Recent Transactions

Type	Portfolio	Asset	Amount	Date
BUY	Balanced Fund	HDFC Bank	₹77,500	20/02/2025
BUY	Tech Growth	Apple Inc	₹15,000	01/03/2025
BUY	Balanced Fund	Tesla Inc	₹9,600	15/03/2025
BUY	Safe Haven	Tata Motors	₹68,000	25/03/2025
BUY	Tech Growth	Bitcoin	₹116,000	01/04/2025

Database Features Demo

Test Beneficiary Trigger

User

Sneha Gupta

Name

Test Beneficiary

Relationship

Family

Share %

30

Test Beneficiary Trigger

This tests the trigger that prevents beneficiary share from exceeding 100%

Portfolio Functions

Property Fund

ROI: 141.2%

Generate Dashboard

User Summary

Property Fund

ROI: 141.2%

Generate Dashboard

User Summary

Property Fund

ROI: 141.2%

Generate Dashboard

User Summary

10. Triggers, Procedures, Functions, Nested Queries, Joins, Aggregates

Functions:

- Test Function: `get_total_investment(pid)`
- Test Function: `calc_roi(invested, current_val)`
- Test Function: `get_risk_by_portfolio(pid)`

Procedures:

- Procedure: `add_transaction()`
- `generate_dashboard()`
- `user_summary()`

Triggers:

- Trigger: `after_transaction_insert`
- Trigger: `after_portfolio_update`
- Trigger: `check_beneficiary_share`

11. Code Snippets for Invoking Procedures / Functions / Triggers

Functions:

```
SELECT get_total_investment(1) AS 'Total Investment of Portfolio 1';  
SELECT get_total_investment(2) AS 'Total Investment of Portfolio 2';
```

Procedures:

```
CALL add_transaction(1, 1, 'BUY', 5, 180.00, '2025-10-08');  
SELECT * FROM Transaction WHERE Portfolio_ID = 1;  
SELECT Current_Value FROM Portfolio WHERE Portfolio_ID = 1;
```

Triggers:

```
INSERT INTO Beneficiary (User_ID, Name, Relationship, Share_Per)  
VALUES (1, 'Test Person', 'Friend', 10.00);
```

12. SQL File Deliverable

File uploaded in github repository.

13. GITHUB REPOSITORY LINK

<https://github.com/Tanishk-dot/personal-investment-app>