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**Activity based**

**Project Report on**

**Computer Networks**

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**Under the Initiative of**

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**Contents**

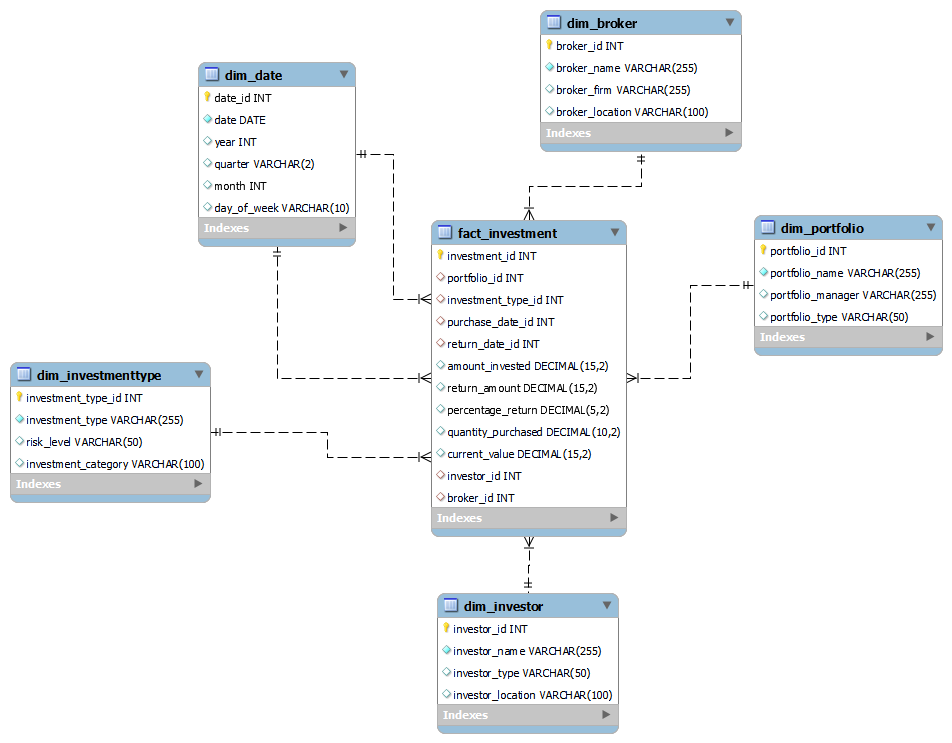
1. **Problem Statement**
2. **Objectives**
3. **Business requirements: (Stakeholders, Data Sources, Analytical Requirements, Security Requirements, Technical Requirements, Assumptions)**
4. **Schema Design (Identify Fact table, Dimension table, Primary keys, Foreign keys)**
5. **Code for Table creation and data insertion.**
6. **Conclusion**

**Problem Statement**

**Objectives**

1. **Design and Develop a Star Schema**  
   Build a star schema structure that centralizes investment data in a fact table, linked to relevant dimension tables. This schema will allow stakeholders to easily query and analyze investment and portfolio performance.
2. **Identify Key Business Metrics for Analysis**  
   Define essential financial and performance metrics such as investment amount, return amount, percentage return, and current value. These metrics will help in evaluating the profitability of investments across various portfolios, investment types, and time periods.
3. **Implement ETL Process**  
   Develop an ETL (Extract, Transform, Load) process to pull raw data related to investments, portfolios, purchase dates, and performance metrics, transform it, and load it into the star schema for efficient analysis and reporting.
4. **Integrate Portfolio and Investment Data**  
   Combine data from different dimensions like investment types, portfolios, purchase dates, and investor details. Ensure that the fact table links to relevant dimensions to enable analysis from multiple angles, such as tracking portfolio performance over time or comparing returns based on investment types.

**Schema Design:**

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**Code:  
-- 1. Create Dim\_Portfolio**

**CREATE TABLE Dim\_Portfolio (**

**portfolio\_id INT AUTO\_INCREMENT PRIMARY KEY,**

**portfolio\_name VARCHAR(255) NOT NULL,**

**portfolio\_manager VARCHAR(255),**

**portfolio\_type VARCHAR(50)**

**);**

**-- 2. Create Dim\_InvestmentType**

**CREATE TABLE Dim\_InvestmentType (**

**investment\_type\_id INT AUTO\_INCREMENT PRIMARY KEY,**

**investment\_type VARCHAR(255) NOT NULL,**

**risk\_level VARCHAR(50),**

**investment\_category VARCHAR(100)**

**);**

**-- 3. Create Dim\_Date**

**CREATE TABLE Dim\_Date (**

**date\_id INT AUTO\_INCREMENT PRIMARY KEY,**

**date DATE NOT NULL,**

**year INT,**

**quarter VARCHAR(2),**

**month INT,**

**day\_of\_week VARCHAR(10)**

**);**

**-- 4. Create Dim\_Investor**

**CREATE TABLE Dim\_Investor (**

**investor\_id INT AUTO\_INCREMENT PRIMARY KEY,**

**investor\_name VARCHAR(255) NOT NULL,**

**investor\_type VARCHAR(50),**

**investor\_location VARCHAR(100)**

**);**

**-- 5. Create Dim\_Broker**

**CREATE TABLE Dim\_Broker (**

**broker\_id INT AUTO\_INCREMENT PRIMARY KEY,**

**broker\_name VARCHAR(255) NOT NULL,**

**broker\_firm VARCHAR(255),**

**broker\_location VARCHAR(100)**

**);**

**-- 6. Create Fact\_Investment (Fact Table)**

**CREATE TABLE Fact\_Investment (**

**investment\_id INT AUTO\_INCREMENT PRIMARY KEY,**

**portfolio\_id INT,**

**investment\_type\_id INT,**

**purchase\_date\_id INT,**

**return\_date\_id INT,**

**amount\_invested DECIMAL(15, 2),**

**return\_amount DECIMAL(15, 2),**

**percentage\_return DECIMAL(5, 2),**

**quantity\_purchased DECIMAL(10, 2),**

**current\_value DECIMAL(15, 2),**

**investor\_id INT,**

**broker\_id INT,**

**-- Foreign Key Constraints**

**FOREIGN KEY (portfolio\_id) REFERENCES Dim\_Portfolio(portfolio\_id),**

**FOREIGN KEY (investment\_type\_id) REFERENCES Dim\_InvestmentType(investment\_type\_id),**

**FOREIGN KEY (purchase\_date\_id) REFERENCES Dim\_Date(date\_id),**

**FOREIGN KEY (return\_date\_id) REFERENCES Dim\_Date(date\_id),**

**FOREIGN KEY (investor\_id) REFERENCES Dim\_Investor(investor\_id),**

**FOREIGN KEY (broker\_id) REFERENCES Dim\_Broker(broker\_id)**

**);**

**Conclusion:**

The star schema designed for managing and analyzing investment and portfolio data provides a structured and efficient way to capture key investment metrics such as returns, portfolio performance, and investor behavior. By integrating data from various dimensions like investment types, portfolios, and time, stakeholders can gain valuable insights into financial performance, make informed decisions, and optimize investment strategies. The schema supports robust querying, ensuring that portfolio managers, investors, and executives can track and analyze data effectively to achieve business objectives.