✅ Stock Trading Platform – Project Report

Project Details

Project Title: Stock Trading Platform

Internship Program: Code Alpha

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Objective

To simulate a basic stock trading environment in Java that allows users to:
- View available stocks and market prices.
- Perform buy/sell operations.
- Track portfolio performance over time.

Technologies Used

- Java Programming Language
- Object-Oriented Programming (OOP)
- HashMap and ArrayList for data handling
- Scanner for user input
- Console-based CLI (Command Line Interface)
- (Optional) File I/O for saving portfolio data

Features Implemented

- Display stock market prices.
- Simulated buying and selling of stocks.
- Track holdings, total value, and profit/loss.
- OOP-based design with classes like `Stock`, `Portfolio`, and `Trader`.
- Expandable for real-time or file/database integration.

Sample Output

Welcome to the Java Stock Trading Platform!

Choose an option:
1. View Market
2. Buy Stock
3. Sell Stock
4. View Portfolio
5. Exit

Enter your choice: 1

Available Stocks:
AAPL - ₹145.0
GOOGL - ₹2700.0
TSLA - ₹700.0

Conclusion

This project simulates the basics of a stock trading system using Java. It demonstrates OOP concepts to manage user portfolios and transactions. The system can be extended with real-time APIs or persistent storage to enhance realism and usability.

Full Java Source Code

```
import java.util.*;

class Stock {
   String symbol;
   double price;

   public Stock(String symbol, double price) {
      this.symbol = symbol;
      this.price = price;
   }
}

class Portfolio {
   Map<String, Integer> holdings = new HashMap<>();
   double cash = 10000.0; // Initial cash

   public void buy(String symbol, int quantity, double price) {
      double total = quantity * price;
      if (cash >= total) {
         holdings.put(symbol, holdings.getOrDefault(symbol, 0) + quantity);
         cash -= total;
         System.out.println("Bought " + quantity + " shares of " + symbol);
      } else {
         System.out.println("Insufficient funds to buy.");
      }
   }

   public void sell(String symbol, int quantity, double price) {
      int owned = holdings.getOrDefault(symbol, 0);
      if (owned >= quantity) {
         holdings.put(symbol, owned - quantity);
         cash += quantity * price;
```

```
            System.out.println("Sold " + quantity + " shares of " + symbol);
        } else {
            System.out.println("Not enough shares to sell.");
        }
    }

    public void viewPortfolio(Map<String, Stock> market) {
        System.out.println("\n--- Portfolio Summary ---");
        double totalValue = cash;
        for (String symbol : holdings.keySet()) {
            int qty = holdings.get(symbol);
            double stockPrice = market.get(symbol).price;
            double value = qty * stockPrice;
            System.out.println(symbol + ": " + qty + " shares | ₹" + value);
            totalValue += value;
        }
        System.out.println("Cash: ₹" + cash);
        System.out.println("Total Portfolio Value: ₹" + totalValue);
    }
}

public class Main {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        Map<String, Stock> market = new HashMap<>();
        market.put("AAPL", new Stock("AAPL", 145.0));
        market.put("GOOGL", new Stock("GOOGL", 2700.0));
        market.put("TSLA", new Stock("TSLA", 700.0));

        Portfolio portfolio = new Portfolio();
        boolean exit = false;

        System.out.println("Welcome to the Java Stock Trading Platform!");

        while (!exit) {
            System.out.println("\nChoose an option:");
            System.out.println("1. View Market");
            System.out.println("2. Buy Stock");
            System.out.println("3. Sell Stock");
            System.out.println("4. View Portfolio");
            System.out.println("5. Exit");
            System.out.print("Enter your choice: ");
```

```
        int choice = scanner.nextInt();
        scanner.nextLine();

        switch (choice) {
            case 1:
                System.out.println("Available Stocks:");
                for (Stock stock : market.values()) {
                    System.out.println(stock.symbol + " - ₹" + stock.price);
                }
                break;
            case 2:
                System.out.print("Enter stock symbol to buy: ");
                String buySymbol = scanner.nextLine().toUpperCase();
                if (market.containsKey(buySymbol)) {
                    System.out.print("Enter quantity: ");
                    int qty = scanner.nextInt();
                    portfolio.buy(buySymbol, qty, market.get(buySymbol).price);
                } else {
                    System.out.println("Stock not found.");
                }
                break;
            case 3:
                System.out.print("Enter stock symbol to sell: ");
                String sellSymbol = scanner.nextLine().toUpperCase();
                if (market.containsKey(sellSymbol)) {
                    System.out.print("Enter quantity: ");
                    int qty = scanner.nextInt();
                    portfolio.sell(sellSymbol, qty, market.get(sellSymbol).price);
                } else {
                    System.out.println("Stock not found.");
                }
                break;
            case 4:
                portfolio.viewPortfolio(market);
                break;
            case 5:
                exit = true;
                System.out.println("Thank you for using the Stock Trading Platform!");
                break;
            default:
                System.out.println("Invalid option. Please select 1 to 5.");
        }
    }
```

```
        scanner.close();
    }
}
```