Credit
Extra?
Assignment
Wealth Simulator

# How has your program changed from planning to coding to now? Please explain?

```java
1  package wealthsimulator;
2
3  import java.util.ArrayList;
4  import java.util.Scanner;
5  import java.io.*;
6
7  public class FinanceApp {
8
9      private static ArrayList<Investment> portfolio = new ArrayList<>();
10     private static final String FILE_NAME = "investments.txt";
11
12     public static void main(String[] args) {
13
14         loadFromFile();
15
16         Scanner input = new Scanner(System.in);
17         int choice = 0;
18
19         while (choice != 3) {
20
21             System.out.println("\n==== Personal Wealth Simulator ====");
22             System.out.println("1. Add Investment");
23             System.out.println("2. View Portfolio");
24             System.out.println("3. Save & Exit");
25             System.out.print("Select option: ");
26
27             choice = input.nextInt();
28             input.nextLine(); // clear buffer
29
30             if (choice == 1) {
31                 addInvestment(input);
32             }
33             else if (choice == 2) {
34                 viewPortfolio();
35             }
36             else if (choice == 3) {
37                 saveToFile();
38                 System.out.println("Data saved. Program closed.");
39             }
40             else {
41                 System.out.println("Invalid option.");
42             }
43         }
44
45         input.close();
46     }
47
48     private static void addInvestment(Scanner input) {
49
50         System.out.print("Enter investment name: ");
51         String name = input.nextLine();
52
53         System.out.print("Enter principal amount: ");
```

```java
49
50          System.out.print("Enter investment name: ");
51          String name = input.nextLine();
52
53          System.out.print("Enter principal amount: ");
54          double principal = input.nextDouble();
55
56          System.out.print("Enter annual interest rate (ex: 6 for 6%): ");
57          double ratePercent = input.nextDouble();
58
59          System.out.print("Enter term in years: ");
60          int term = input.nextInt();
61          input.nextLine();
62
63          double rateDecimal = ratePercent / 100.0;
64
65          Investment inv = new Investment(name, principal, rateDecimal, term);
66          portfolio.add(inv);
67
68          System.out.println("Investment added.");
69      }
70
71      private static void viewPortfolio() {
72
73          if (portfolio.isEmpty()) {
74              System.out.println("No investments available.");
75              return;
76          }
77
78          double total = 0;
79
80          for (Investment inv : portfolio) {
81              System.out.println(inv.displayInfo());
82              total += inv.calculateBalance();
83          }
84
85          System.out.println("Total Projected Wealth: $" + String.format("%.2f", total));
86      }
87
88      private static void saveToFile() {
89
90          try {
91              PrintWriter writer = new PrintWriter(new FileWriter(FILE_NAME));
92
93              for (Investment inv : portfolio) {
94                  writer.println(inv.toString());
95              }
96
97              writer.close();
98          }
99          catch (IOException e) {
100             System.out.println("Error saving file.");
101         }
```

```java
            System.out.println("Total Projected Wealth: $" + String.format("%.2f", total));
    }

    private static void saveToFile() {

        try {
            PrintWriter writer = new PrintWriter(new FileWriter(FILE_NAME));

            for (Investment inv : portfolio) {
                writer.println(inv.toString());
            }

            writer.close();
        }
        catch (IOException e) {
            System.out.println("Error saving file.");
        }
    }

    private static void loadFromFile() {

        try {
            BufferedReader reader = new BufferedReader(new FileReader(FILE_NAME));
            String line;

            while ((line = reader.readLine()) != null) {

                String[] parts = line.split(",");

                String name = parts[0];
                double principal = Double.parseDouble(parts[1]);
                double rate = Double.parseDouble(parts[2]);
                int term = Integer.parseInt(parts[3]);

                portfolio.add(new Investment(name, principal, rate, term));
            }

            reader.close();
        }
        catch (IOException e) {
            // First run, file may not exist yet
        }
    }
}
```

```java
 1  package wealthsimulator;
 2
 3  public class Investment {
 4
 5      private String name;
 6      private double principal;
 7      private double interestRate; // stored as decimal (0.05 for 5%)
 8      private int term; // years
 9
10      public Investment(String name, double principal, double interestRate, int term) {
11          this.name = name;
12          this.principal = principal;
13          this.interestRate = interestRate;
14          this.term = term;
15      }
16
17      public String getName() {
18          return name;
19      }
20
21      public double getPrincipal() {
22          return principal;
23      }
24
25      public double getInterestRate() {
26          return interestRate;
27      }
28
29      public int getTerm() {
30          return term;
31      }
32
33      // Compound interest using loop
34      public double calculateBalance() {
35          double amount = principal;
36
37          for (int i = 0; i < term; i++) {
38              amount = amount * (1 + interestRate);
39          }
40
41          return amount;
42      }
43
44      @Override
45      public String toString() {
46          return name + "," + principal + "," + interestRate + "," + term;
47      }
48
49      public String displayInfo() {
50          return "Investment: " + name +
51                  "\nPrincipal: $" + principal +
52                  "\nInterest Rate: " + (interestRate * 100) + "%" +
53                  "\nTerm: " + term + " years" +
```

```java
10⊖    public Investment(String name, double principal, double interestRate, int term) {
11         this.name = name;
12         this.principal = principal;
13         this.interestRate = interestRate;
14         this.term = term;
15     }
16
17⊖    public String getName() {
18         return name;
19     }
20
21⊖    public double getPrincipal() {
22         return principal;
23     }
24
25⊖    public double getInterestRate() {
26         return interestRate;
27     }
28
29⊖    public int getTerm() {
30         return term;
31     }
32
33     // Compound interest using loop
34⊖    public double calculateBalance() {
35         double amount = principal;
36
37⊖        for (int i = 0; i < term; i++) {
38             amount = amount * (1 + interestRate);
39         }
40
41         return amount;
42     }
43
44     @Override
45⊖    public String toString() {
46         return name + "," + principal + "," + interestRate + "," + term;
47     }
48
49⊖    public String displayInfo() {
50         return "Investment: " + name +
51             "\nPrincipal: $" + principal +
52             "\nInterest Rate: " + (interestRate * 100) + "%" +
53             "\nTerm: " + term + " years" +
54             "\nFinal Balance: $" + String.format("%.2f", calculateBalance()) +
55             "\n--------------------------";
56     }
57 }
```