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21BBS0255

JAVA PROGRAMMING
LA - 2

Q1 Mellon share owner services maintain the details of the shareholders.

Write a Java program to implement the problem stated below using classes and objects in Java

a) Maintain the personal details of the shareholder.

b) Manipulate the users to buy and sell the shares.

c) Maintain the account balances after selling and buying the shares.

d) Issue the dividends yearly once.

Expected output:

.Tran Id	Share holder name	Bank Acc No	Date	Share Sell Value	Shares buy Value	Dividend	Acc Bal

CODE:

```
import java.util.ArrayList;


class Shareholder {
   String name;
   String bankAccountNumber;
   double shareSellValue;
   double sharesBuyValue;
   double dividend;
   double accountBalance;


   Shareholder(String name, String bankAccountNumber, double shareSellValue, double sharesBuyValue) {
      this.name = name;
      this.bankAccountNumber = bankAccountNumber;
      this.shareSellValue = shareSellValue;
      this.sharesBuyValue = sharesBuyValue;
      this.dividend = 0;
      this.accountBalance = 0;
   }
```

```
    void sellShares(int numberOfShares) {
        double sellAmount = numberOfShares * shareSellValue;
        accountBalance += sellAmount;
    }

    void buyShares(int numberOfShares) {
        double buyAmount = numberOfShares * sharesBuyValue;
        accountBalance -= buyAmount;
    }

    void issueDividend() {

        dividend += 100;
        accountBalance += dividend;
    }
}

class Transaction {
    static int transactionIdCounter = 1;

    int transactionId;
    String shareholderName;

    Transaction(String shareholderName) {
        this.transactionId = transactionIdCounter++;
        this.shareholderName = shareholderName;
    }
}

public class MellonShareOwnerServices {
    public static void main(String[] args) {
        ArrayList<Shareholder> shareholders = new ArrayList<>();
        shareholders.add(new Shareholder(" Shifa Khan", " 9436672828", 12.5, 10.0));
        shareholders.add(new Shareholder(" Parvi Rao", " 8846734789", 14.0, 13.5));
```

```
        ArrayList<Transaction> transactions = new ArrayList<>();
        transactions.add(new Transaction(" Shifa Khan"));
        transactions.add(new Transaction(" Parvi Rao"));

        for (Transaction transaction : transactions) {
            Shareholder shareholder = findShareholderByName(shareholders, transaction.shareholderName);
            if (shareholder != null) {
                shareholder.sellShares(5);
                shareholder.buyShares(3);
                shareholder.issueDividend();
            }
        }

System.out.println("_____
_____");
        System.out.printf("%-8s|%-20s|%-14s|%-18s|%-21s|%-10s|%-9s   |\n", " Tran Id ", " Shareholder name",
                " Bank Acc no", " Share Sell Value", " Shares Buy Value", " Dividend", " Acc Bal");

System.out.println("_____
_____");

        for (Shareholder shareholder : shareholders) {
            System.out.printf("%-8d|%-20s|%-14s| %-18.2f| %-21.2f| %-10.2f| %-9.2f|\n",
                    transactions.get(shareholders.indexOf(shareholder)).transactionId,
                    shareholder.name, shareholder.bankAccountNumber, shareholder.shareSellValue,
                    shareholder.sharesBuyValue, shareholder.dividend, shareholder.accountBalance);
        }

        System.out.println("\nShifa Khan 21BBS0255 ");
    }

    private static Shareholder findShareholderByName(ArrayList<Shareholder> shareholders, String name) {
        for (Shareholder shareholder : shareholders) {
            if (shareholder.name.equals(name)) {
                return shareholder;
            }
```

```
        }
        return null;
    }
}
```

OUTPUT:

```
 Tran Id | Shareholder name    | Bank Acc no  | Share Sell Value | Shares Buy Value    | Dividend | Acc Bal    |
1        | Shifa Khan          | 9436672828   | 12.50            | 10.00               | 100.00   | 132.50     |
2        | Parvi Rao           | 8846734789   | 14.00            | 13.50               | 100.00   | 129.50     |

Shifa Khan 21BBS0255


...Program finished with exit code 0
Press ENTER to exit console.
```

SCREENSHOT: