```java
import java.util.Scanner;

abstract class Account {
    String customerName;
    String accountNumber;
    double balance;
    String accountType;

    public Account(String customerName, String accountNumber, String accountType, double balance)
    {
        this.customerName = customerName;
        this.accountNumber = accountNumber;
        this.accountType = accountType;
        this.balance = balance;
    }

    public void deposit(double amount) {
        if (amount > 0) {
            balance += amount;
            System.out.println("Deposit successful. New balance: " + balance);
        } else {
            System.out.println("Invalid deposit amount.");
        }
    }

    public void displayBalance() {
        System.out.println("Account Balance: " + balance);
    }

    public abstract void withdraw(double amount);

    public abstract void updateBalance();
}

class CurAcct extends Account {
    private static final double MINIMUM_BALANCE = 1000;
    private static final double SERVICE_CHARGE = 50;

    public CurAcct(String customerName, String accountNumber, double balance) {
        super(customerName, accountNumber, "Current", balance);
    }

    public void withdraw(double amount) {
        if (balance - amount >= 0) {
            balance -= amount;
            System.out.println("Withdrawal successful. New balance: " + balance);
            updateBalance();
        } else {
```

```java
        System.out.println("Insufficient balance.");
      }
    }

    public void updateBalance() {
      if (balance < MINIMUM_BALANCE) {
        balance -= SERVICE_CHARGE;
        System.out.println("Service charge imposed due to low balance. New balance: " + balance);
      }
    }
  }
}

class SavAcct extends Account {
  private static final double INTEREST_RATE = 0.05;

  public SavAcct(String customerName, String accountNumber, double balance) {
    super(customerName, accountNumber, "Savings", balance);
  }

  public void computeInterest() {
    double interest = balance * INTEREST_RATE;
    balance += interest;
    System.out.println("Interest computed and added. New balance: " + balance);
  }

  public void withdraw(double amount) {
    if (balance - amount >= 0) {
      balance -= amount;
      System.out.println("Withdrawal successful. New balance: " + balance);
    } else {
      System.out.println("Insufficient balance.");
    }
  }

  public void updateBalance() {
    computeInterest();
  }
}

public class Bank {
  public static void main(String[] args) {
    Scanner scanner = new Scanner(System.in);

    System.out.print("Enter Customer Name: ");
    String name = scanner.nextLine();

    System.out.print("Enter Account Number: ");
    String accNum = scanner.nextLine();
```

```java
        System.out.print("Enter Account Type (Savings/Current): ");
        String type = scanner.nextLine();

        System.out.print("Enter Initial Balance: ");
        double balance = scanner.nextDouble();

        Account account;
        if (type.equalsIgnoreCase("Savings")) {
            account = new SavAcct(name, accNum, balance);
        } else if (type.equalsIgnoreCase("Current")) {
            account = new CurAcct(name, accNum, balance);
        } else {
            System.out.println("Invalid Account Type.");
            scanner.close();
            return;
        }

        boolean quit = false;
        while (!quit) {
            System.out.println("\n1. Deposit\n2. Withdraw\n3. Display Balance\n4. Update Balance\n5. Quit");
            System.out.print("Enter your choice: ");
            int choice = scanner.nextInt();

            switch (choice) {
                case 1:
                    System.out.print("Enter amount to deposit: ");
                    double depositAmount = scanner.nextDouble();
                    account.deposit(depositAmount);
                    break;
                case 2:
                    System.out.print("Enter amount to withdraw: ");
                    double withdrawAmount = scanner.nextDouble();
                    account.withdraw(withdrawAmount);
                    break;
                case 3:
                    account.displayBalance();
                    break;
                case 4:
                    account.updateBalance();
                    break;
                case 5:
                    quit = true;
                    break;
                default:
                    System.out.println("Invalid choice. Please try again.");
            }
```

```
        }

        System.out.println("Thank you for banking with us.");
    }
}
```

```
Enter Customer Name: Shreyas
Enter Account Number: 12234
Enter Account Type (Savings/Current): Savings
Enter Initial Balance: 1000000

1. Deposit
2. Withdraw
3. Display Balance
4. Update Balance
5. Quit
Enter your choice: 1
Enter amount to deposit: 10000
Deposit successful. New balance: 1010000.0

1. Deposit
2. Withdraw
3. Display Balance
4. Update Balance
5. Quit
Enter your choice: 3
Account Balance: 1010000.0

1. Deposit
2. Withdraw
3. Display Balance
4. Update Balance
5. Quit
Enter your choice: 4
Interest computed and added. New balance: 1060500.0

1. Deposit
2. Withdraw
3. Display Balance
4. Update Balance
5. Quit
Enter your choice: 5
Thank you for banking with us.
```

Q. Develop a Java program to create a class Bank that maintains two kinds of account, one called savings and the other current account. The savings account provides compound interest and withdrawl facilities but no cheque facility. The current account provides cheque book facility but no interest.
Create a class account that stores customer name, acc. number and type of account. From this derive classes curr-acct, saving-acct to make them more specific to their requirements.
Include the necessary methods in order to achieve the following tasks

(a) Accept deposit from customer and update the balance
(b) Display the balance.
(c) Compute the deposit interest.
(d) Permit withdrawl and update the balance -

```java
import java.util.Scanner;

class Account {
    String customerName, accountNumber;
    double balance;
    String accountType;

    public Account (String customerName, String accNo,
                    String AccountType, double balance)
        this.customerName = customerName;
        this.accountNumber = accountNumber;
        this.accountType = accountType;
        this.balance = balance;
    }
    public void deposit ( double amount) {
        if (amount > 0) {
            balance += amount;
            System.out.println ("Deposit Successful");
        else {

            System.out.println ("Invalid Deposit");
```

```java
public void displayBalance () {
        System.out.println (" Account Balance: " + balance);
    }
    public abstract void withdraw ( double amount );
}

class CurAcct extends Account {
        private static final double Minimum_Balance = 10000 ;
        private static final double service_charge = 50 ;

        public void currentAcct ( String customerName, double balance)
            super ( customerName, accountNumber, "current", balance)
        }

        public void withdraw ( double amount ) {
            if (balance - amount >= 0) {
                balance - = amount ;
                System.out.println (" Withdraw Successful");
                updateBalance () ;
            }
            else {
                System.out.println (" Insufficient Balance");
            }
        public void updateBalance () {
            if ( Balance < Minimum_Balance ) {
                Balance -= service_charge ;
            }
        }
}

class SavAcct extends Account {
        private static final double Interest_Rate = 0.05 ;

        public SavAcct ( String customerName, double Balance) {
            super( customerName, account Number, "Savings",) ;
        }
}
```

```java
        public void compoundInterest () {
            double interest = balance * interest_rate;
            balance += interest;
            System.out.println ("Interest computed");
        }

        public void withdraw () {
            if (balance - amount >= 0) {
                balance -= amount;
                System ("Withdraw successful");
            }
            else {
                System.out.println ("Insufficient Balance");
            }
        }

        public void updateBalance () {
            compoundInterest () ;
        }

public Class Bank {
        public static void main ( String [] args) {
            Scanner sc = new Scanner (System.in) ;
            System.out.println (" Customer Name:") ;
            string name = sc. nextLine () ;
            System.out.println ("Account number:") ;
            String accNum = sc. nextLine () ;

            Account account ;

            if (type.equalsIgnoreCase ("Savings")) {
                account = new SavAcct (name, accNum);
            }
            else if ( type.equalsIgnoreCase ("Current")) {
                account = new CurrAcct () ;
            }
            else {

                System.out.println (" Invalid ");
```

```java
Boolean quit = False ;
while ( ! quit ) {
            System. println ( " \1. Deposit \n
                    2. Withdraw \n
                    3. Display Balance \n
                    4. Update Balance \n
                    5. Quit ) ;

        Switch ( choice ) {
            case 1 :  System. out. println ( " Enter Amount :") ;
                    double depositAmount = sc. nextDouble ()
                    account. deposit ( depositAmount) ;
                    break ;

            case 2 :  System. out. println ( " Withdraw Amt") ;
                    double withdrawAmt = sc. nextDouble () ;
                    account. withdraw ( withdrawAmt) ;
                    break ;

            case 3 :   account. displayBalance () ;
                    break ;

            case 4 :   account. updateBalance () ;
                    break ;

            case 5 :   quit = true ;
                    break ;
        }
}
System. out. println ( " Thank You") ;
}
```

Output ⇒

Enter Name : Shreyas
Account Number : 12234
Account Type : Savings
Enter Initial Balance : 100000

1. Deposit 2. Withdraw 3. Display Balance
4. Update Balance 5. Quit

Enter Amount to deposit : 10100
Deposit Sucessful : New Balance : 1010100.0

1. Deposit 2. Withdraw 3. Display Balance
4. Update Balance 5. Quit.

Enter your choice : 4

Interest computed . New balance : 1060500.0

1. Deposit
2. Withdraw
3. Display Balance
4. Update Balance
5. Quit

Enter choice : 5

Thank You for Banking with us.

Enter Name : Shreyas
Account Number : 1354
Account Type : Current
Enter Intial Balance : 20000

1. Deposit   2. Withdraw   3. Display Balance   4. Update Balance

Enter choice : 1
Enter Amount to deposit : 10000

Deposited Successfully. New Balance : 30,000.0

Enter choice : 4
Interest updated and Added.

Enter choice : 3
Balance is : 30125.0

Enter Choice : 5
Thank you