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Division: B

Subject: JAVA Practical

Assignment-2

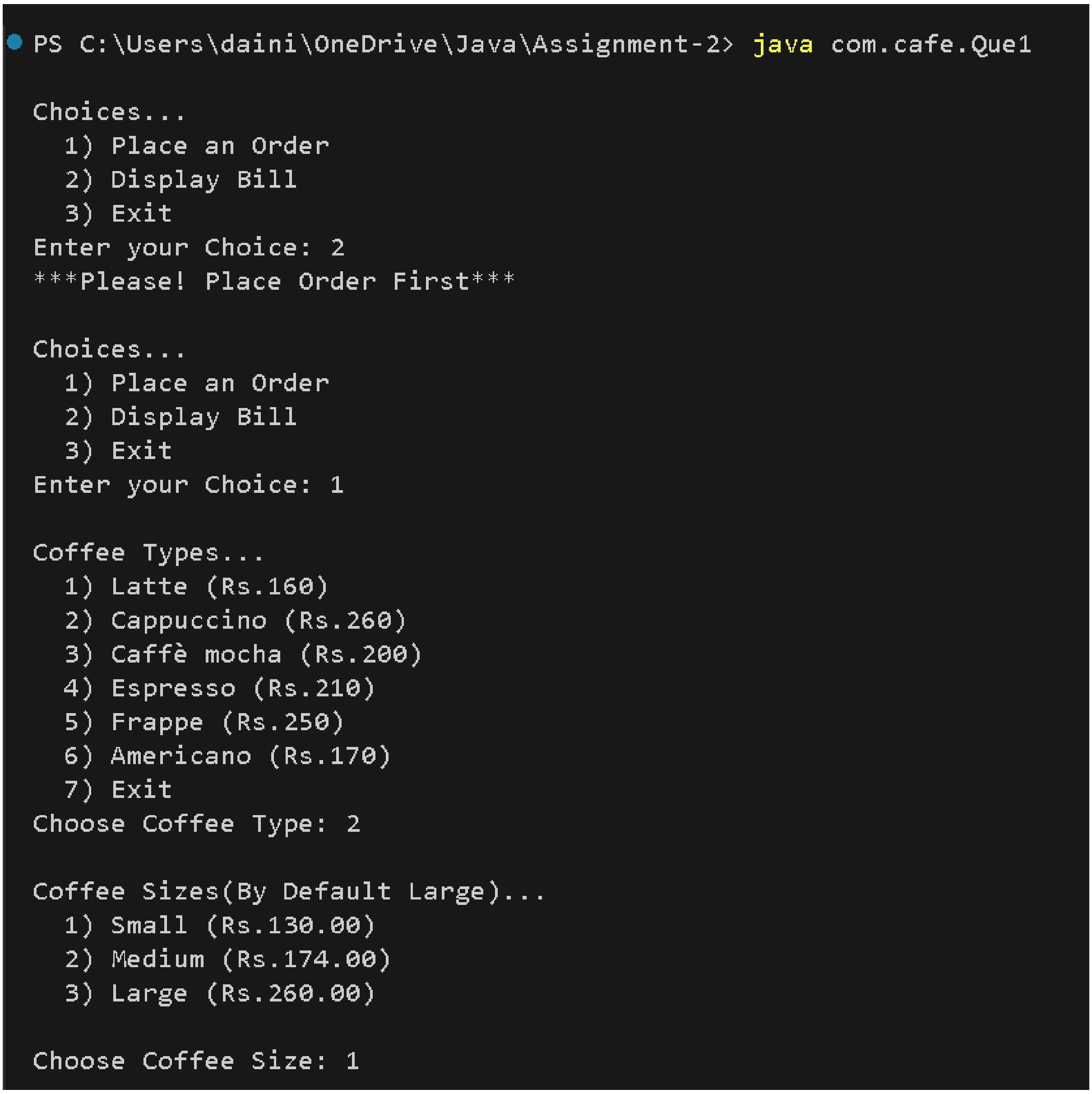
Question-1

```
package com.cafe;


import java.util.ArrayList;
import java.util.Scanner;


interface CoffeeOrder {
    void selectCoffee(String coffeeType);
    void selectSize(String size);
    void displayOrder();
    int getPrice();
}
class CafeOrder implements CoffeeOrder {
    String coffeeType;
    double price;
    ArrayList<ArrayList<Object>> Orders = new ArrayList<ArrayList<Object>>();


    public void selectCoffee(String coffeeType) {
        this.coffeeType = coffeeType;
        CafeOrder C1 = new CafeOrder();


        if(coffeeType == "Latte")
            this.price = 160;
        if(coffeeType == "Cappuccino")
            this.price = 260;
        if(coffeeType == "Caffè mocha")
            this.price = 200;
        if(coffeeType == "Espresso")
            this.price = 210;
        if(coffeeType == "Frappe")
            this.price = 250;
        if(coffeeType == "Americano")
            this.price = 170;
    }

    public void selectSize(String size) {
        ArrayList<Object> ind = new ArrayList<Object>();
        ind.add(this.coffeeType);
        ind.add(size);

        if(size=="small")
            ind.add(this.price/2);
        if(size=="medium")
            ind.add(this.price/1.5);
        if(size=="large")
            ind.add(this.price);
        Orders.add(ind);
    }

    public void displayOrder() {
        double total = 0;
        System.out.print("\n\nBill Details...\n------------------------------------");
        for(int i=0; i<Orders.size(); i++)
        {
            System.out.printf("\n%d) %s (%s): 
Rs.%.2f",i+1,Orders.get(i).get(0),Orders.get(i).get(1),Orders.get(i).get(2));
            total += (double)Orders.get(i).get(2);
        }
        System.out.println("\n\nTotal Payable Amount: Rs."+total+"\n");
    }
    public int getPrice() {
        return 0;
    }
}

class Que1 {
    static CafeOrder C = new CafeOrder();
    static Scanner S = new Scanner(System.in);

    static void chooseType()
    {
        while(true)
        {
            System.out.println("\nCoffee Types...");
            System.out.println("  1) Latte (Rs.160)");
            System.out.println("  2) Cappuccino (Rs.260)");
            System.out.println("  3) Caffè mocha (Rs.200)");
            System.out.println("  4) Espresso (Rs.210)");
            System.out.println("  5) Frappe (Rs.250)");
            System.out.println("  6) Americano (Rs.170)");
            System.out.println("  7) Exit");

            System.out.print("Choose Coffee Type: ");
            int choice = S.nextInt();

            switch(choice)
            {
```

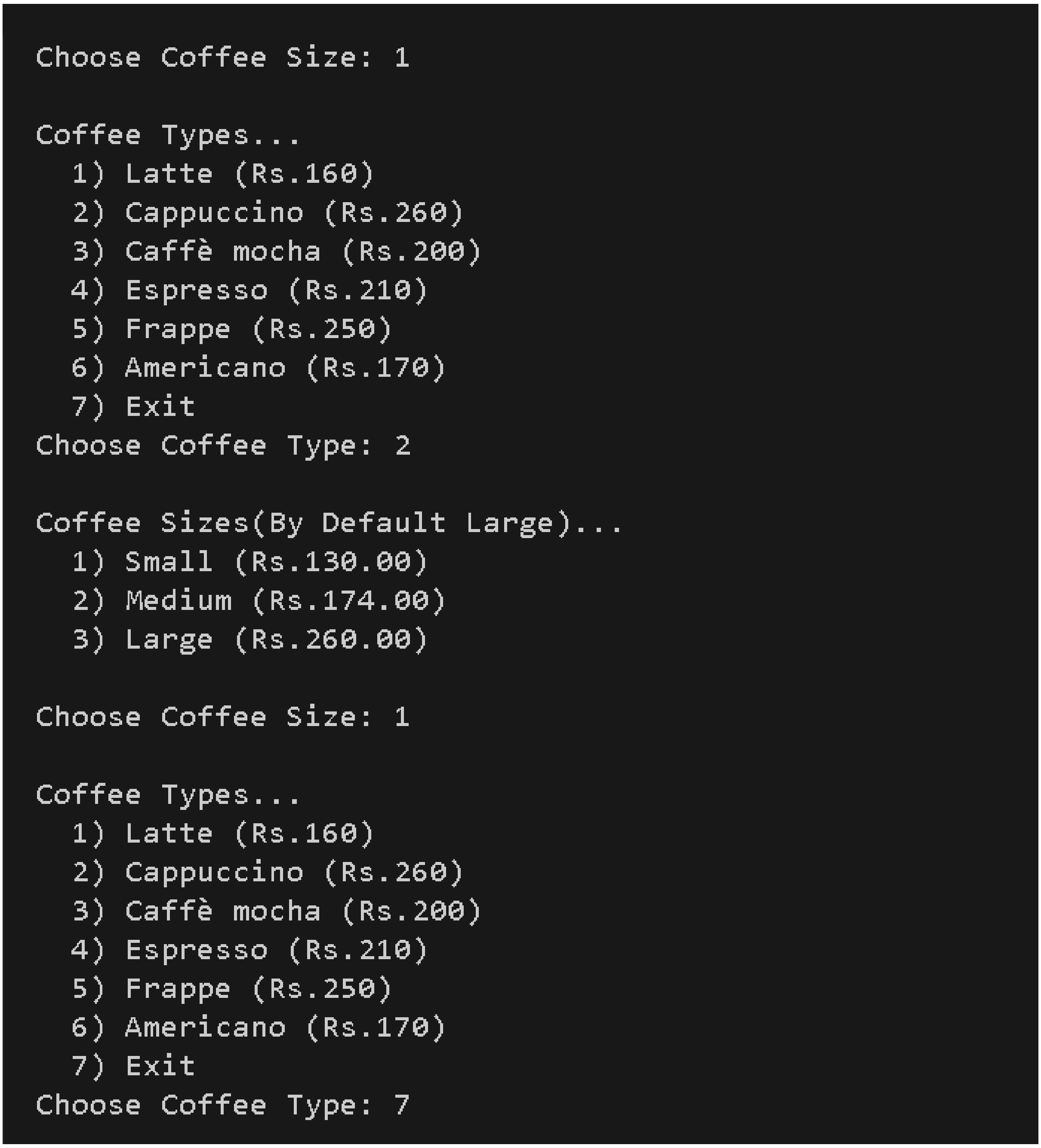
```
case 1:
   C.selectCoffee("Latte");
   chooseSize();
   break;

case 2:
   C.selectCoffee("Cappuccino");
   chooseSize();
   break;

case 3:
   C.selectCoffee("Caffè mocha");
   chooseSize();
   break;

case 4:
   C.selectCoffee("Espresso");
   chooseSize();
   break;

case 5:
   C.selectCoffee("Frappe");
   chooseSize();
   break;

case 6:
   C.selectCoffee("Americano");
   chooseSize();
   break;
```

```
            default:
                return;
        }
    }
}

static void chooseSize()
{
    System.out.println("\nCoffee Sizes(By Default Large)...");
    System.out.printf("  1) Small (Rs.%.2f)",Math.ceil(C.price/2));
    System.out.printf("\n  2) Medium (Rs.%.2f)",Math.ceil(C.price/1.5));
    System.out.printf("\n  3) Large (Rs.%.2f)",C.price);
    System.out.print("\n\nChoose Coffee Size: ");
    int choice = S.nextInt();
    switch(choice)
    {
        case 1:
            C.selectSize("small");
            break;
        case 2:
            C.selectSize("medium");
            break;
        default:
            C.selectSize("large");
            break;
    }
}
```

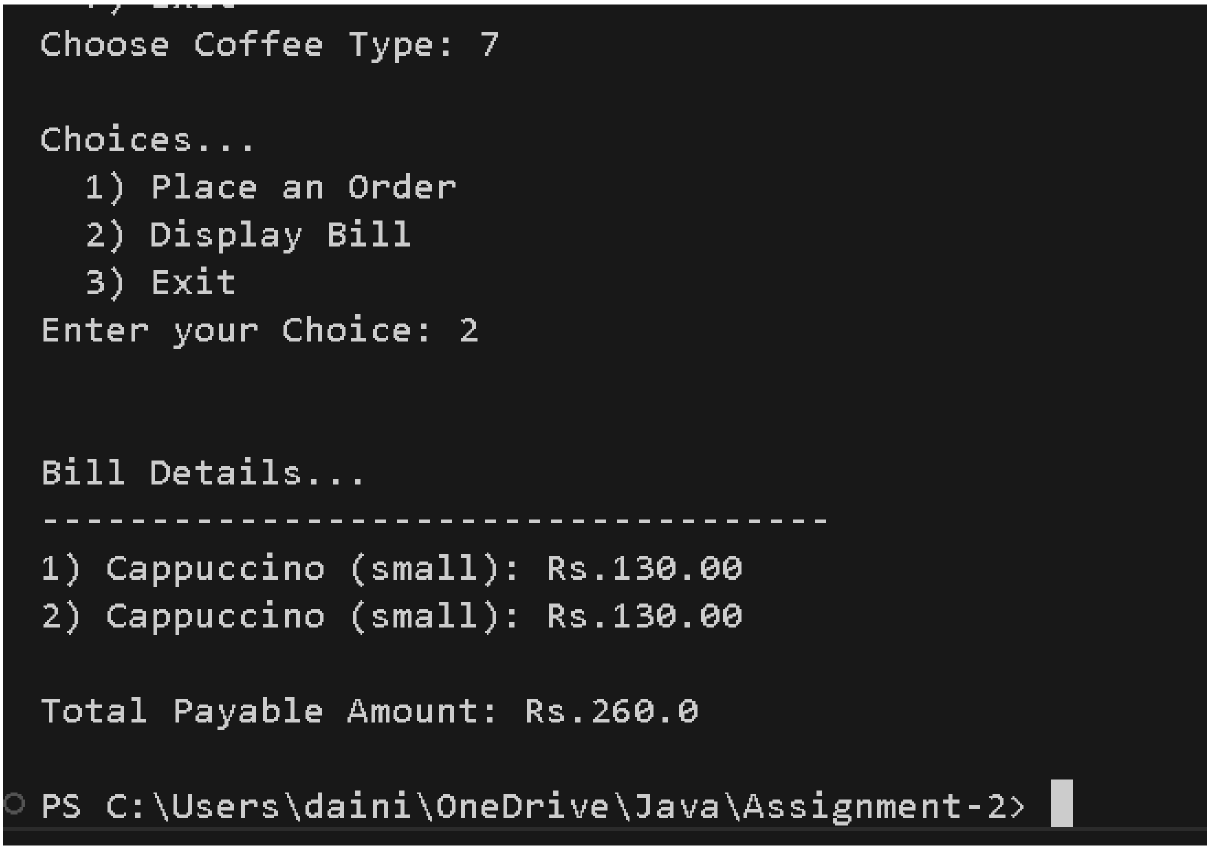
```
public static void main(String args[])
{
   while(true)
   {
      System.out.println("\nChoices...");
      System.out.println("  1) Place an Order");
      System.out.println("  2) Display Bill");
      System.out.println("  3) Exit");
      System.out.print("Enter your Choice: ");
      int choice = S.nextInt();

      switch(choice)
      {
         case 1:
            chooseType();
            break;

         case 2:
            try {
               C.Orders.get(0);
               C.displayOrder();
               return;
            }
            catch(Exception e) {
               System.out.println("***Please! Place Order First***");
            }
            break;

         default:
          return;
      }
    }
  }
}
```



```
PS C:\Users\daini\OneDrive\Java\Assignment-2> java com.cafe.Que1

Choices...
  1) Place an Order
  2) Display Bill
  3) Exit
Enter your Choice: 2
***Please! Place Order First***

Choices...
  1) Place an Order
  2) Display Bill
  3) Exit
Enter your Choice: 1

Coffee Types...
  1) Latte (Rs.160)
  2) Cappuccino (Rs.260)
  3) Caffè mocha (Rs.200)
  4) Espresso (Rs.210)
  5) Frappe (Rs.250)
  6) Americano (Rs.170)
  7) Exit
Choose Coffee Type: 2

Coffee Sizes(By Default Large)...
  1) Small (Rs.130.00)
  2) Medium (Rs.174.00)
  3) Large (Rs.260.00)

Choose Coffee Size: 1
```



```
Choose Coffee Size: 1

Coffee Types...
  1) Latte (Rs.160)
  2) Cappuccino (Rs.260)
  3) Caffè mocha (Rs.200)
  4) Espresso (Rs.210)
  5) Frappe (Rs.250)
  6) Americano (Rs.170)
  7) Exit
Choose Coffee Type: 2

Coffee Sizes(By Default Large)...
  1) Small (Rs.130.00)
  2) Medium (Rs.174.00)
  3) Large (Rs.260.00)

Choose Coffee Size: 1

Coffee Types...
  1) Latte (Rs.160)
  2) Cappuccino (Rs.260)
  3) Caffè mocha (Rs.200)
  4) Espresso (Rs.210)
  5) Frappe (Rs.250)
  6) Americano (Rs.170)
  7) Exit
Choose Coffee Type: 7
```



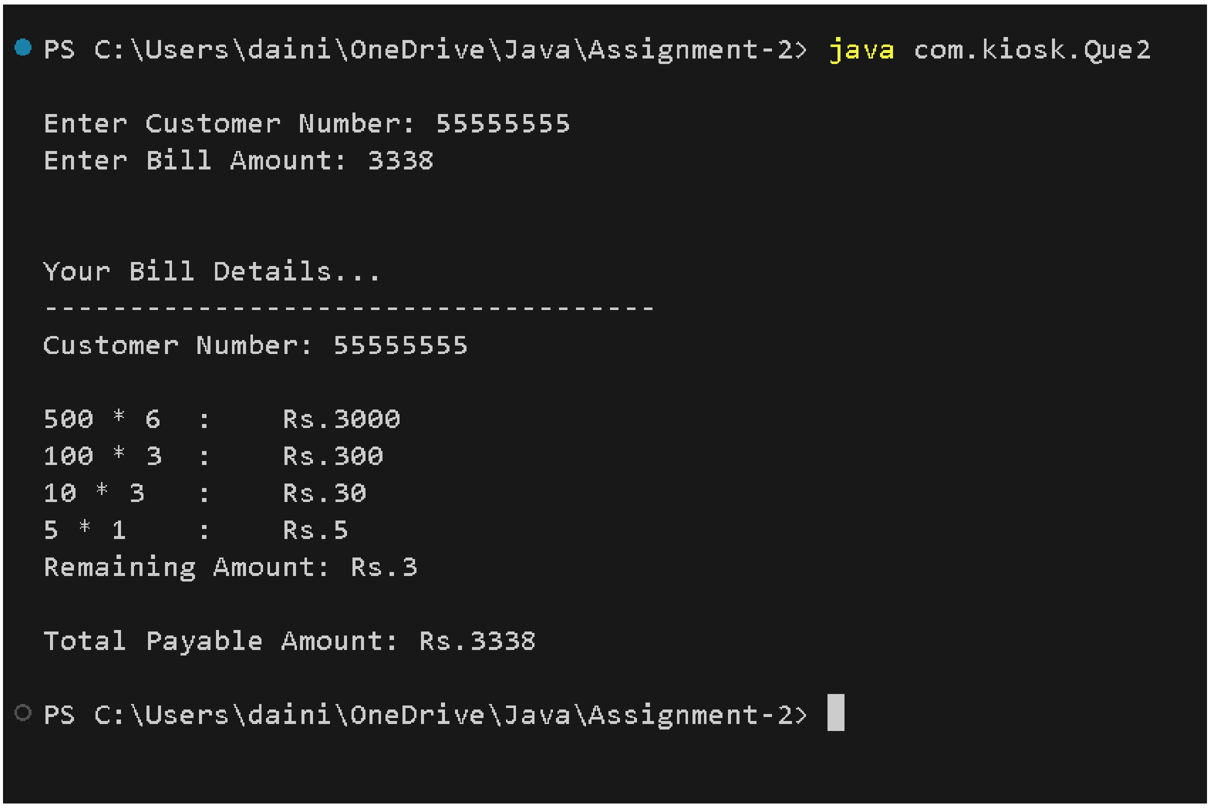
```
Choose Coffee Type: 7

Choices...
   1) Place an Order
   2) Display Bill
   3) Exit
Enter your Choice: 2


Bill Details...
------------------------------------
1) Cappuccino (small): Rs.130.00
2) Cappuccino (small): Rs.130.00

Total Payable Amount: Rs.260.0

PS C:\Users\daini\OneDrive\Java\Assignment-2>
```

Question-2

```
package com.kiosk;


import java.util.Scanner;


interface DenominationHandler
{
   void FiveHundredHandler(long amount);
   void OneHundredHandler(long amount);
   void TenHandler(long amount);
   void FiveHandler(long amount);
}
```

```
class Kiosk implements DenominationHandler {
  static Kiosk K = new Kiosk();

  int fiveHundred = 0;
  int oneHundred = 0;
  int ten = 0;
  int five = 0;

  static long custNo;
  static long payAmount;
  int rem;

  Kiosk() {
  }

  Kiosk(long custNo, long payAmount)
  {
    this.custNo = custNo;
    this.payAmount = payAmount;

    K.FiveHundredHandler(payAmount);
  }

  public void FiveHundredHandler(long amount) {
    while(amount>=500)
    {
      amount -= 500;
```

```
        fiveHundred++;
    }
    K.OneHundredHandler(amount);
}
public void OneHundredHandler(long amount) {
    while(amount>=100)
    {
        amount -= 100;
        oneHundred++;
    }
    K.TenHandler(amount);
}
public void TenHandler(long amount) {
    while(amount>=10)
    {
        amount -= 10;
        ten++;
    }
    K.FiveHandler(amount);
}
public void FiveHandler(long amount) {
    while(amount>=5)
    {
        amount -= 5;
        five++;
    }
    this.rem = (int)amount;
    K.displayDetails();
    }
    public void displayDetails() {
        System.out.println("\n\nYour Bill Details...\n-----------------------------------");
        System.out.println("Customer Number: "+custNo);
        System.out.printf("\n500 * %d  :    Rs.%d",fiveHundred,fiveHundred*500);
        System.out.printf("\n100 * %d  :    Rs.%d",oneHundred,oneHundred*100);
        System.out.printf("\n10 * %d   :    Rs.%d",ten,ten*10);
        System.out.printf("\n5 * %d    :    Rs.%d",five,five*5);
        System.out.println("\nRemaining Amount: Rs."+rem);
        System.out.println("\nTotal Payable Amount: Rs."+payAmount+"\n");
    }
}

class Que2 {
    public static void main(String[] args)
    {
        Scanner S = new Scanner(System.in);
        System.out.print("\nEnter Customer Number: ");
        long custNo = S.nextLong();

        System.out.print("Enter Bill Amount: ");
        long amount = S.nextLong();

        Kiosk K1 = new Kiosk(custNo,amount);
    }
}
```



```
PS C:\Users\daini\OneDrive\Java\Assignment-2> java com.kiosk.Que2

Enter Customer Number: 55555555
Enter Bill Amount: 3338


Your Bill Details...
------------------------------------
Customer Number: 55555555

500 * 6  :     Rs.3000
100 * 3  :     Rs.300
10 * 3   :     Rs.30
5 * 1    :     Rs.5
Remaining Amount: Rs.3

Total Payable Amount: Rs.3338

PS C:\Users\daini\OneDrive\Java\Assignment-2> 
```

Question-3

```
package com.bank.exceptions;


public class BankingException extends Exception {
    public BankingException(String str) {
        super(str);
    }
}
```

```
package com.bank;


import java.util.Scanner;
import com.bank.exceptions.BankingException;
```

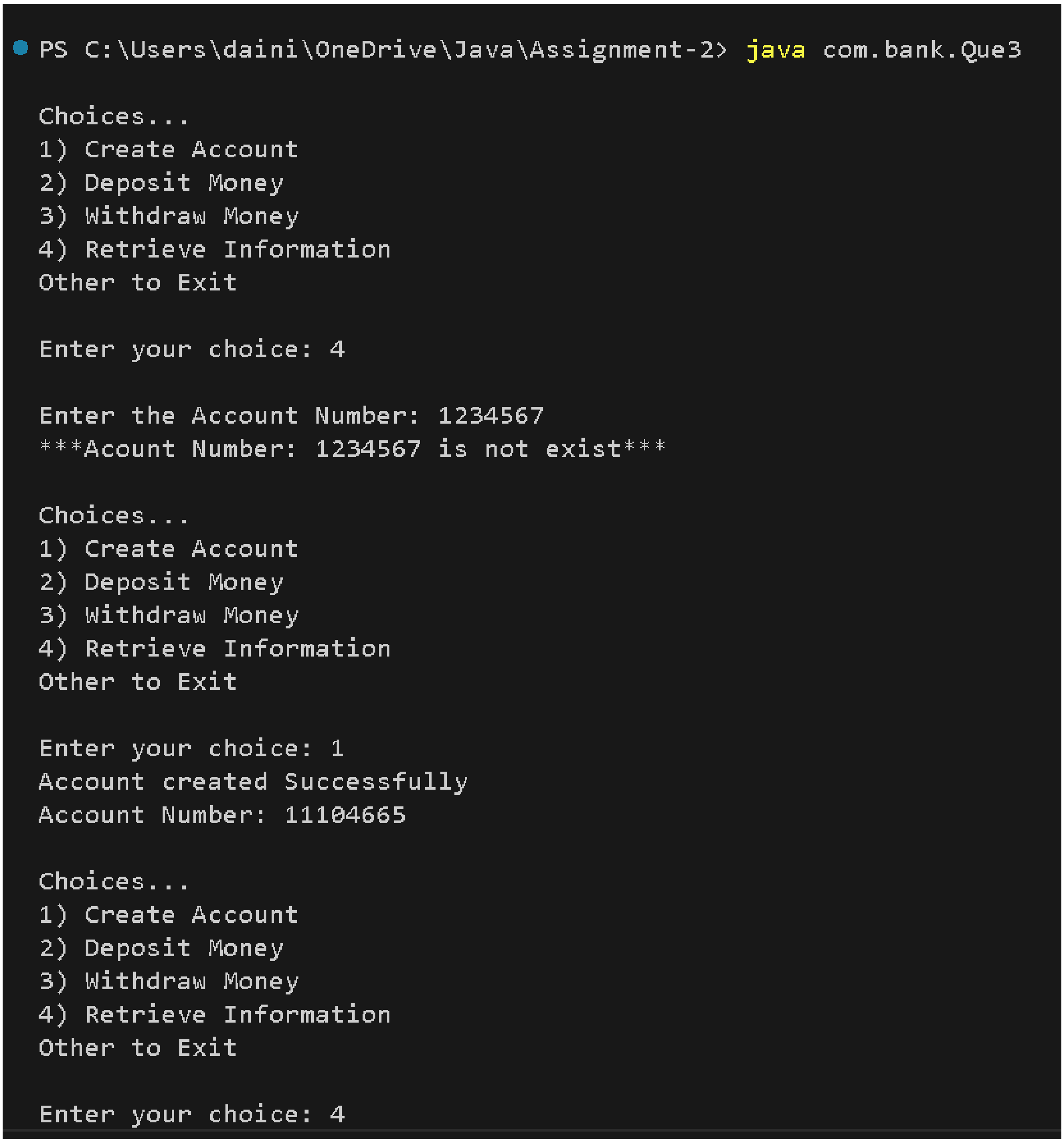
```
}



interface BankingOperations {

    void deposit(double amount) throws Exception;
    void withdraw(double amount) throws Exception;

    double getBalance();
}

class Account implements BankingOperations {
    private long accNo;
    private double balance;

    Account(long accNo, double balance) {
        this.accNo = accNo;
        this.balance = balance;
    }

    long getAccNo() {
        return this.accNo;
    }

    @Override
    public double getBalance() {
        return this.balance;
    }

    @Override
    public void deposit(double amount) throws Exception {
        if(amount > 0) {
            this.balance += amount;
            System.out.printf("\n***Rs.%.2f Deposited Successfully***\n",amount);
            System.out.println("Balance: Rs."+this.balance);
        }
        else {
            throw new BankingException("***Deposit Amount is invalid***");
        }
    }

    @Override
    public void withdraw(double amount) throws Exception {
        if(amount <= 0) {
            throw new BankingException("***Withdrawal Amount must be greater than 
0***");
        }
        if(amount>this.balance) {
            throw new BankingException("***Insufficient Balance***");
        }
        else {
            this.balance -= amount;
            System.out.printf("\n***Rs.%.2f Withdraw Successfully***\n",amount);
            System.out.println("Balance: Rs."+this.balance);
        }
    }
}
```

```
class BankingSystem extends Account {
   BankingSystem(long accNo, double balance) {
      super(accNo, balance);
      System.out.println("Account created Successfully");
      System.out.println("Account Number: "+this.getAccNo());
   }
   void retrieveInfo() {
      System.out.println("Account Number: "+this.getAccNo());
      System.out.println("Balance: Rs."+this.getBalance());
   }
}

public class Que3 {

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

      BankingSystem B[] = new BankingSystem[15];
      int index = 0;
      long accNo;
      double amount;
      boolean checkAcc = false;

      while(true) {
         System.out.println("\nChoices...");
         System.out.println("1) Create Account");
         System.out.println("2) Deposit Money");
         System.out.println("3) Withdraw Money");
```

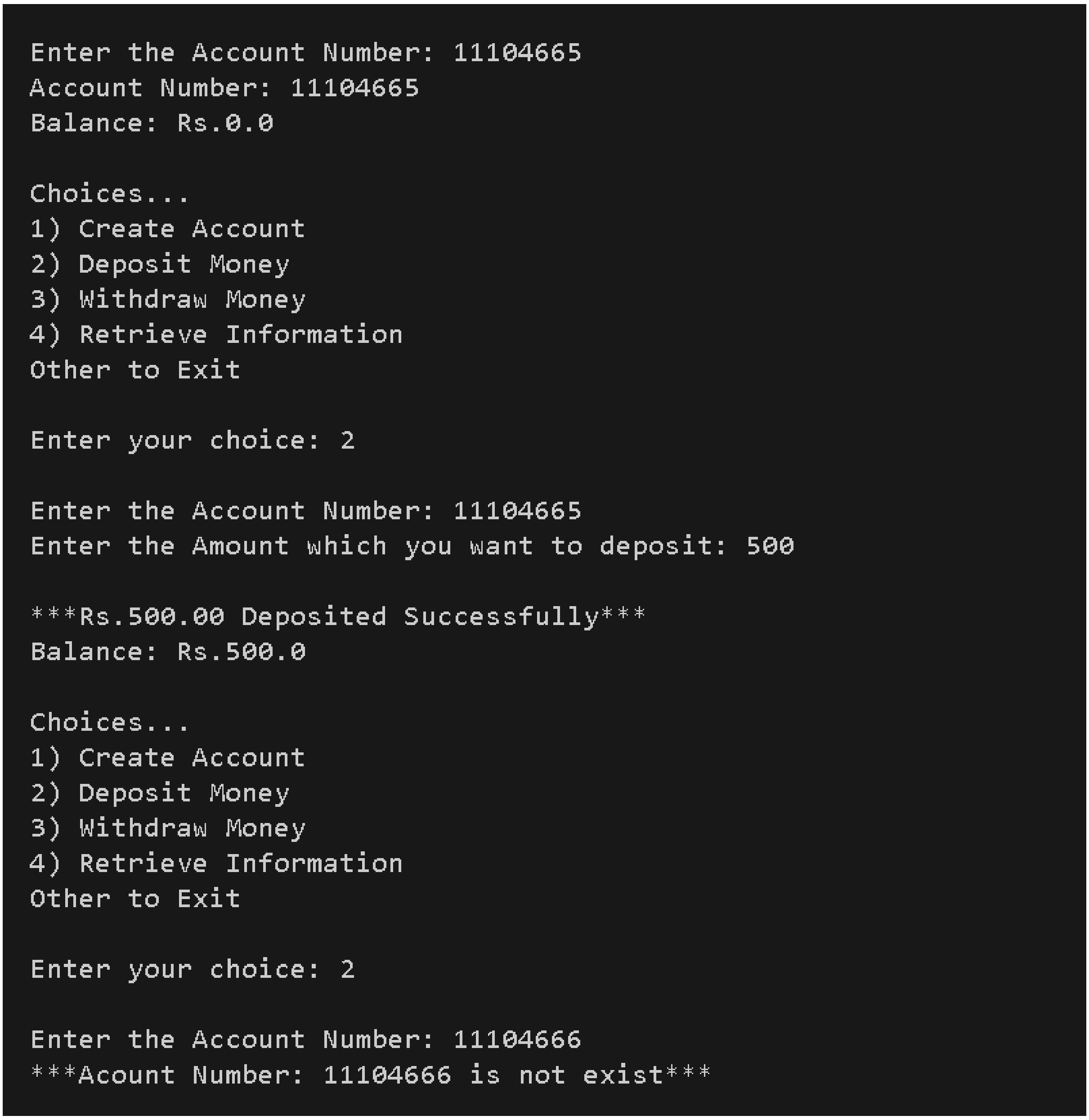
```java
System.out.println("4) Retrieve Information");
System.out.println("Other to Exit");

System.out.print("\nEnter your choice: ");
int choice = S.nextInt();

switch(choice) {
  case 1:
    if(index<15) {
      accNo = (int)(Math.random()*111111111);
      for(int i=0; i<index; i++) {
        if(B[i].getAccNo() == accNo) {
          accNo = (int)(Math.random()*111111111);
        }
      }
      B[index] = new BankingSystem(accNo, 0);
      index++;
    }
    else {
      System.out.println("***You exceeded the maximum limit of account creation. So, You can't Create the Account***");
    }
    break;

  case 2:
    System.out.print("\nEnter the Account Number: ");
    accNo = S.nextLong();
    for(int i=0; i<index; i++) {
        if(B[i].getAccNo() == accNo) {
            System.out.print("Enter the Amount which you want to deposit: ");
            amount = S.nextDouble();

            try {
                B[i].deposit(amount);
            }
            catch(Exception e)
            {
                System.out.println("\n"+e.getMessage());
            }

            checkAcc = true;
        }
    }
    if(!checkAcc) {
        System.out.println("***Acount Number: "+accNo+" is not exist***");
    }
    checkAcc = false;
    break;

case 3:
    System.out.print("\nEnter the Account Number: ");
    accNo = S.nextLong();

    for(int i=0; i<index; i++) {
        if(B[i].getAccNo() == accNo && B[i].getBalance()>0) {
```

```
      System.out.print("Enter the Amount which you want to withdraw: ");
      amount = S.nextDouble();


      try {
        B[i].withdraw(amount);
      }
      catch(Exception e)
      {
        System.out.println("\n"+e.getMessage());
      }


      checkAcc = true;
    }
  }
  if(!checkAcc) {
    System.out.println("***Acount Number: "+accNo+" is not exist***");
  }
  checkAcc = false;
  break;


case 4:
  System.out.print("\nEnter the Account Number: ");
  accNo = S.nextLong();


  for(int i=0; i<index; i++) {
    if(B[i].getAccNo() == accNo) {
      B[i].retrieveInfo();
      checkAcc = true;
```

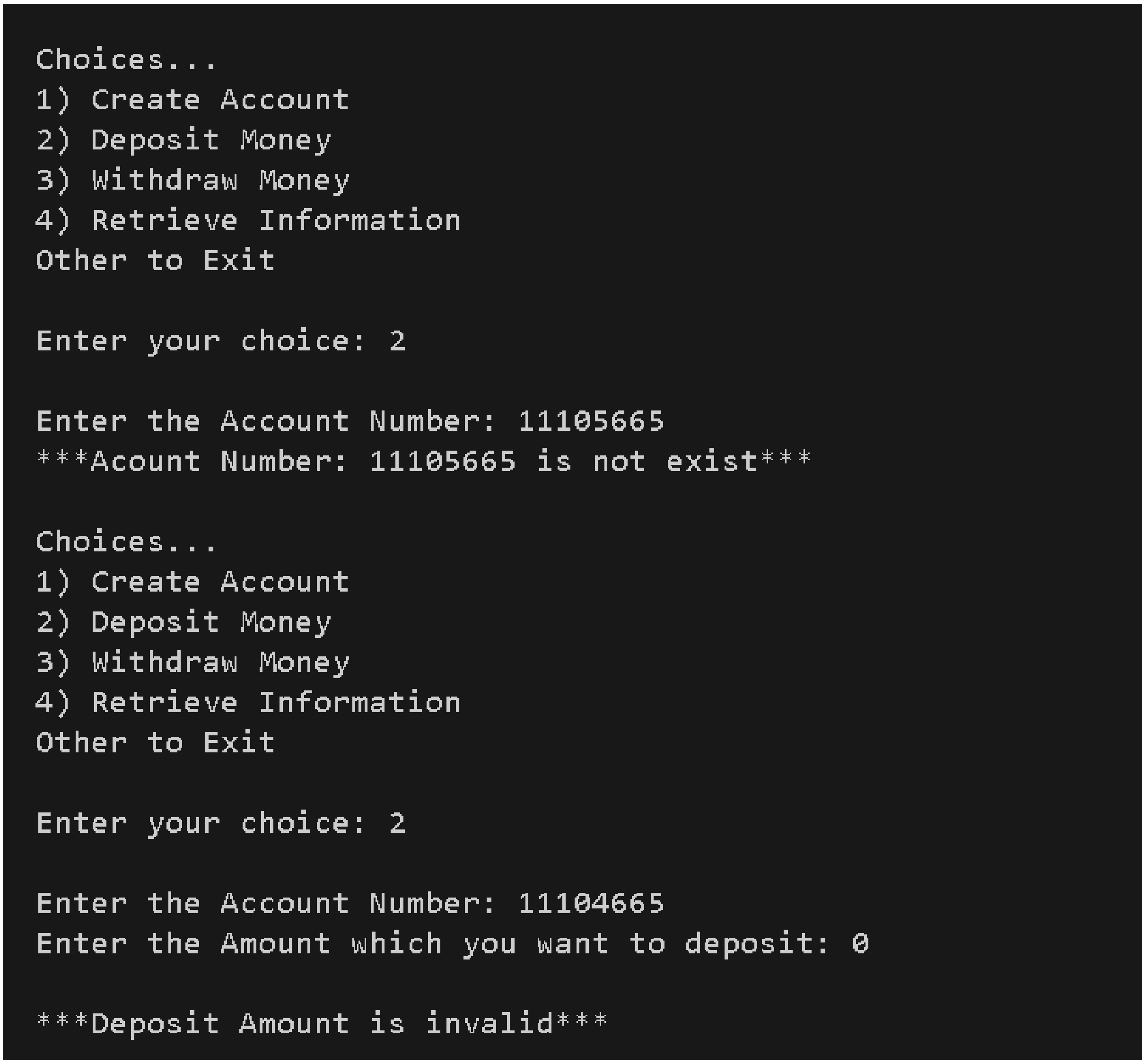
```
                    }
                }
                if(!checkAcc) {
                    System.out.println("***Acount Number: "+accNo+" is not exist***");
                }
                checkAcc = false;
                break;

            default:
                return;
        }
    }
  }
}
```



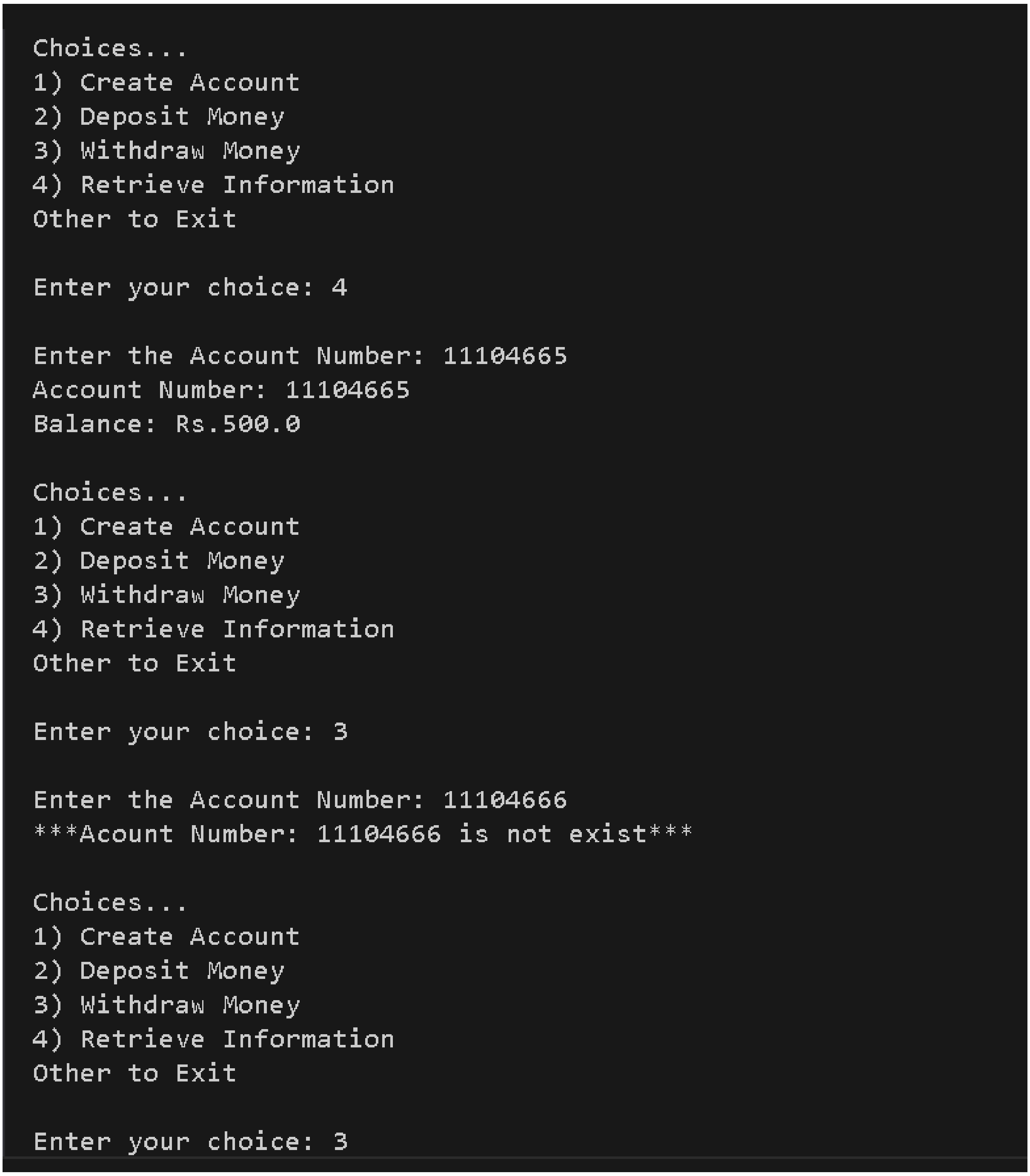
```
PS C:\Users\daini\OneDrive\Java\Assignment-2> java com.bank.Que3

Choices...
1) Create Account
2) Deposit Money
3) Withdraw Money
4) Retrieve Information
Other to Exit

Enter your choice: 4

Enter the Account Number: 1234567
***Acount Number: 1234567 is not exist***

Choices...
1) Create Account
2) Deposit Money
3) Withdraw Money
4) Retrieve Information
Other to Exit

Enter your choice: 1
Account created Successfully
Account Number: 11104665

Choices...
1) Create Account
2) Deposit Money
3) Withdraw Money
4) Retrieve Information
Other to Exit

Enter your choice: 4
```



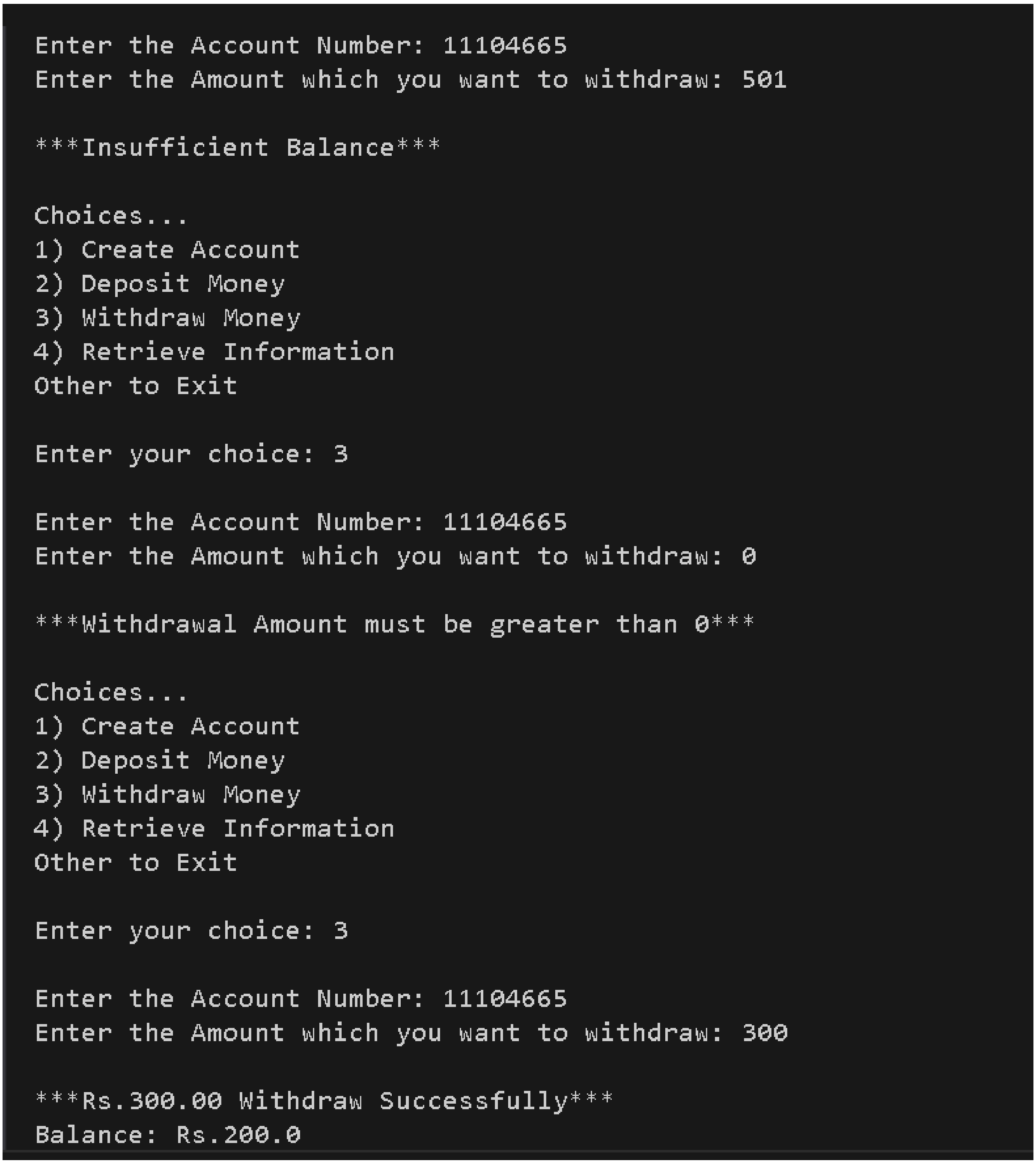
```
Enter the Account Number: 11104665
Account Number: 11104665
Balance: Rs.0.0

Choices...
1) Create Account
2) Deposit Money
3) Withdraw Money
4) Retrieve Information
Other to Exit

Enter your choice: 2

Enter the Account Number: 11104665
Enter the Amount which you want to deposit: 500

***Rs.500.00 Deposited Successfully***
Balance: Rs.500.0

Choices...
1) Create Account
2) Deposit Money
3) Withdraw Money
4) Retrieve Information
Other to Exit

Enter your choice: 2

Enter the Account Number: 11104666
***Acount Number: 11104666 is not exist***
```



```
Choices...
1) Create Account
2) Deposit Money
3) Withdraw Money
4) Retrieve Information
Other to Exit

Enter your choice: 2

Enter the Account Number: 11105665
***Acount Number: 11105665 is not exist***

Choices...
1) Create Account
2) Deposit Money
3) Withdraw Money
4) Retrieve Information
Other to Exit

Enter your choice: 2

Enter the Account Number: 11104665
Enter the Amount which you want to deposit: 0

***Deposit Amount is invalid***
```



```
Choices...
1) Create Account
2) Deposit Money
3) Withdraw Money
4) Retrieve Information
Other to Exit

Enter your choice: 4

Enter the Account Number: 11104665
Account Number: 11104665
Balance: Rs.500.0

Choices...
1) Create Account
2) Deposit Money
3) Withdraw Money
4) Retrieve Information
Other to Exit

Enter your choice: 3

Enter the Account Number: 11104666
***Acount Number: 11104666 is not exist***

Choices...
1) Create Account
2) Deposit Money
3) Withdraw Money
4) Retrieve Information
Other to Exit

Enter your choice: 3
```



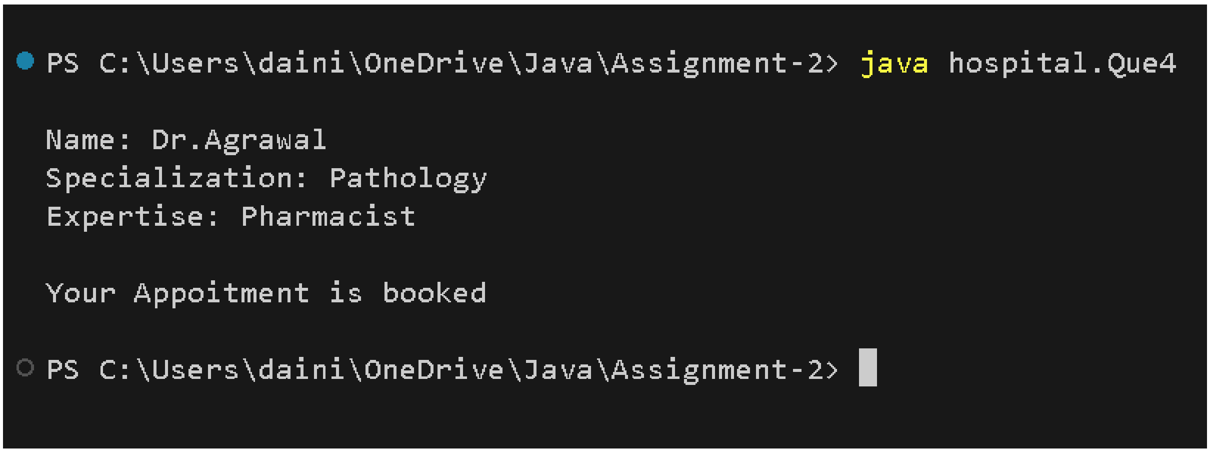
```
Enter the Account Number: 11104665
Enter the Amount which you want to withdraw: 501

***Insufficient Balance***

Choices...
1) Create Account
2) Deposit Money
3) Withdraw Money
4) Retrieve Information
Other to Exit

Enter your choice: 3

Enter the Account Number: 11104665
Enter the Amount which you want to withdraw: 0

***Withdrawal Amount must be greater than 0***

Choices...
1) Create Account
2) Deposit Money
3) Withdraw Money
4) Retrieve Information
Other to Exit

Enter your choice: 3

Enter the Account Number: 11104665
Enter the Amount which you want to withdraw: 300

***Rs.300.00 Withdraw Successfully***
Balance: Rs.200.0
```

Question-4

```
package hospital;


public abstract class Doctor {

    public String name, specialization;
    public Doctor(String name, String specialization) {
        this.name = name;
        this.specialization = specialization;
    }

    public String getName() {
        return this.name;
    }

    public String getSpecialization() {
        return this.specialization;
    }

    public abstract void bookAppointment();
}

class Appointment {
    private Doctor DS;

    Appointment(Doctor DS) {
        this.DS = DS;
    }

    void schedule() {
        System.out.println("\nName: "+DS.getName());
        System.out.println("Specialization: "+DS.getSpecialization());
        DS.bookAppointment();
    }
}
```

```
package hospital.doctors;

import hospital.Doctor;

public class Specialist extends hospital.Doctor {
    private String expertise;

    public Specialist(String ...args) {
        super(args[0], args[1]);
        this.expertise = args[2];
    }

    public void bookAppointment() {
        System.out.println("Expertise: "+this.expertise);
        System.out.println("\nYour Appoitment is booked\n");
    }
}
```

```
package hospital;
import hospital.doctors.Specialist;

public class Que4 {
    public static void main(String[] args) {
        Specialist S = new Specialist("Dr.Agrawal","Pathology","Pharmacist");

        Appointment A = new Appointment(S);
        A.schedule();
    }
}
```



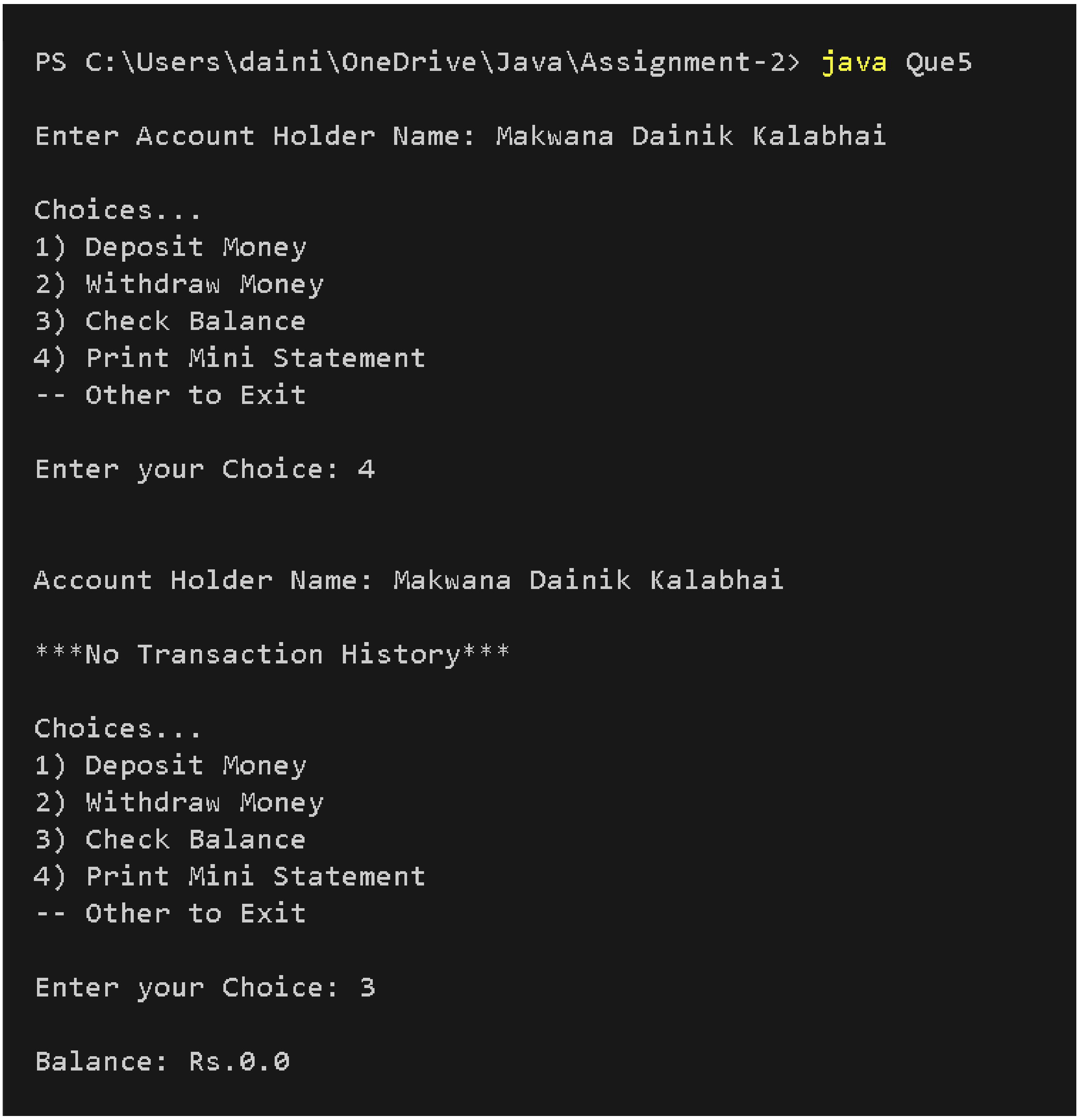
```
PS C:\Users\daini\OneDrive\Java\Assignment-2> java hospital.Que4

Name: Dr.Agrawal
Specialization: Pathology
Expertise: Pharmacist

Your Appoitment is booked

PS C:\Users\daini\OneDrive\Java\Assignment-2>
```

Question-5

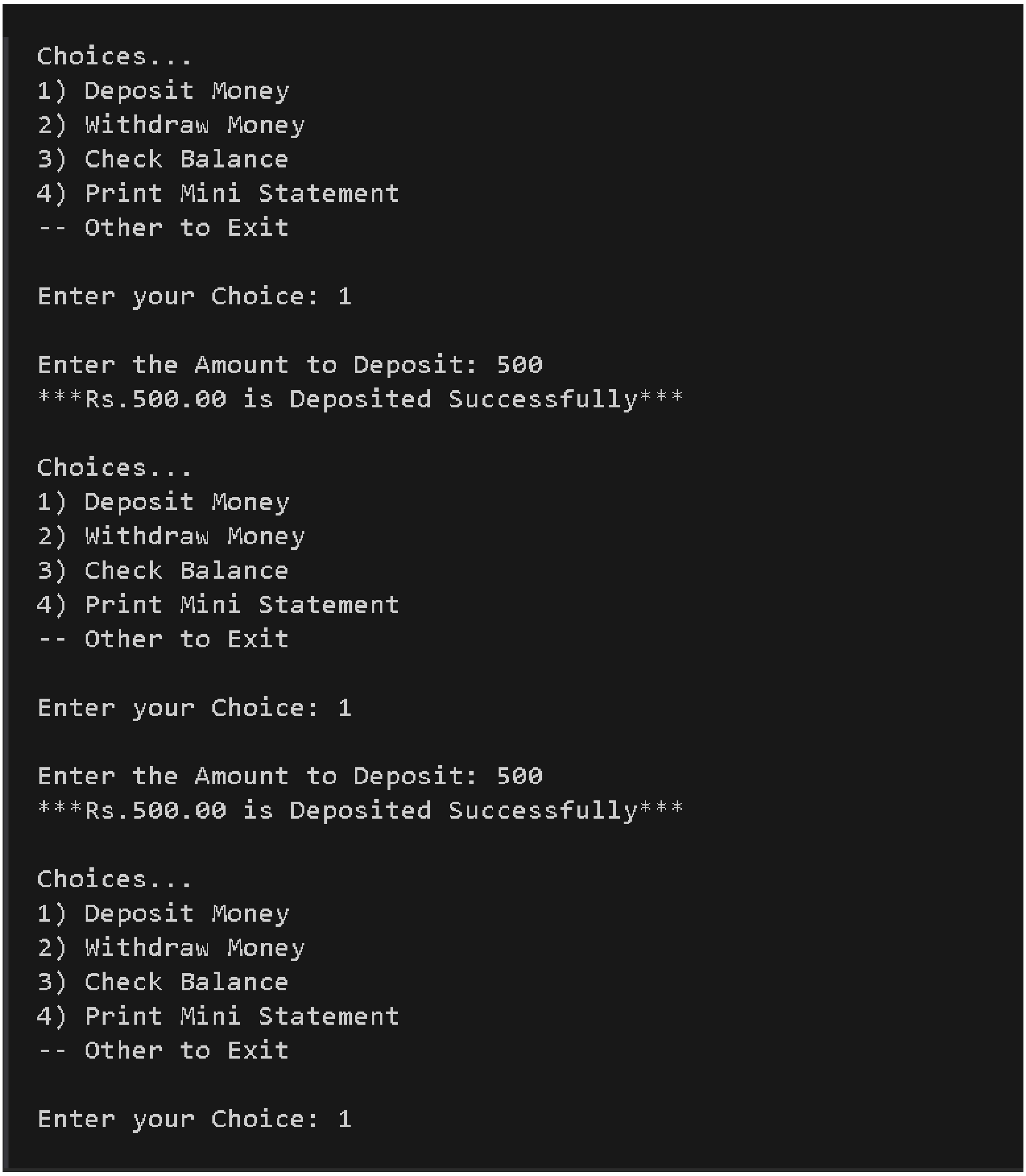
```
import java.util.List;
import java.util.ArrayList;
import java.util.Scanner;

class BankAccount {
    private String accountHolder;
    private double balance;
    List<String> transactions = new ArrayList<String>();

    BankAccount(String accountHolder) {
        this.accountHolder = accountHolder;
        this.balance = 0;
    }

    void deposit(double amount) {
        if(amount > 0) {
            this.balance += amount;
            System.out.printf("***Rs.%.2f is Deposited Successfully***\n",amount);
            transactions.add("Deposited Rs."+amount+"\tBalance: Rs."+this.balance);
        }
        else {
            System.out.println("***Deposit amount must be greater than 0***\n");
        }
    }

    void withdraw(double amount) {
        if(amount <= 0) {
            System.out.println("***Withdrawn Amount must be greater than 0***\n");
        }
        else if(amount>this.balance) {
            System.out.println("***Insuficient Balance***\n");
        }
        else {
            this.balance -= amount;
            System.out.printf("\nRs.%.2f is Withdrawn Successfully\n",amount);
            transactions.add("Withdraw Rs."+amount+"\tBalance: Rs."+this.balance);
        }
    }

    void printMiniStatement() {
        System.out.println("\n\nAccount Holder Name: "+this.accountHolder);

        try {
            transactions.get(0);
            System.out.println("\n\tTransaction History");
            System.out.println("----------------------------------------");
            for(int i=0; i<transactions.size(); i++) {
                System.out.printf(transactions.get(i)+"\n");
            }
        }
        catch(Exception e) {
            System.out.println("\n***No Transaction History***");
        }
    }

    double getBalance() {
        return this.balance;
    }
}

class Que5 {
    public static void main(String[] args) {
        Scanner S = new Scanner(System.in);
        System.out.print("\nEnter Account Holder Name: ");
        String name = S.nextLine();

        double amount;

        BankAccount B = new BankAccount(name);

        while(true) {
```

```
System.out.println("\nChoices...");
System.out.println("1) Deposit Money");
System.out.println("2) Withdraw Money");
System.out.println("3) Check Balance");
System.out.println("4) Print Mini Statement");
System.out.println("-- Other to Exit");

System.out.print("\nEnter your Choice: ");
int choice = S.nextInt();

switch(choice) {
    case 1:
        System.out.print("\nEnter the Amount to Deposit: ");
        amount = S.nextDouble();
        B.deposit(amount);
        break;

    case 2:
        System.out.print("\nEnter the Amount to Withdraw: ");
        amount = S.nextDouble();
        B.withdraw(amount);
        break;

    case 3:
        System.out.println("\nBalance: Rs."+B.getBalance()+"\n");
        break;

    case 4:
```

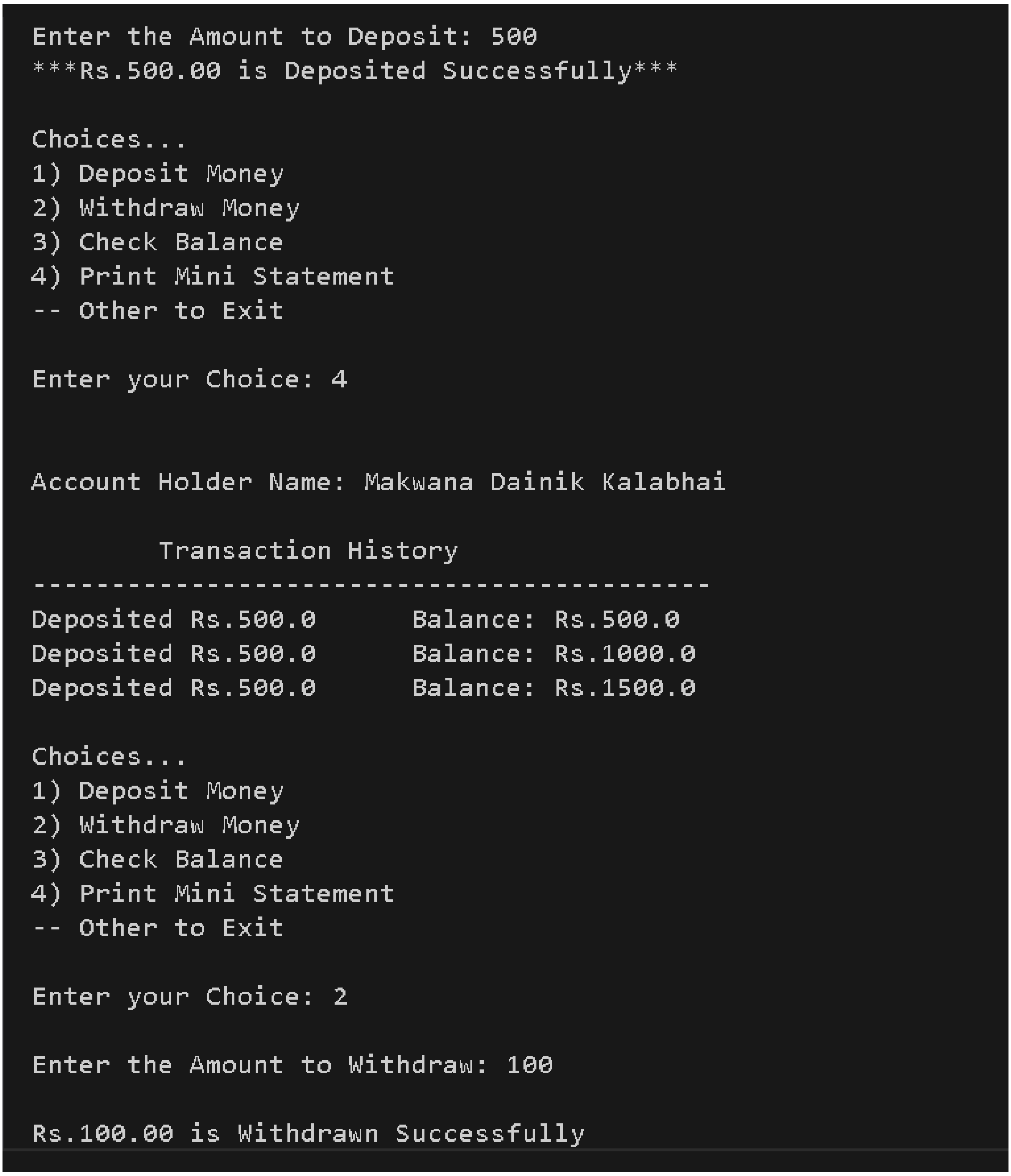
```
                B.printMiniStatement();
                break;

            default:
                return;
        }
    }
  }
}
```



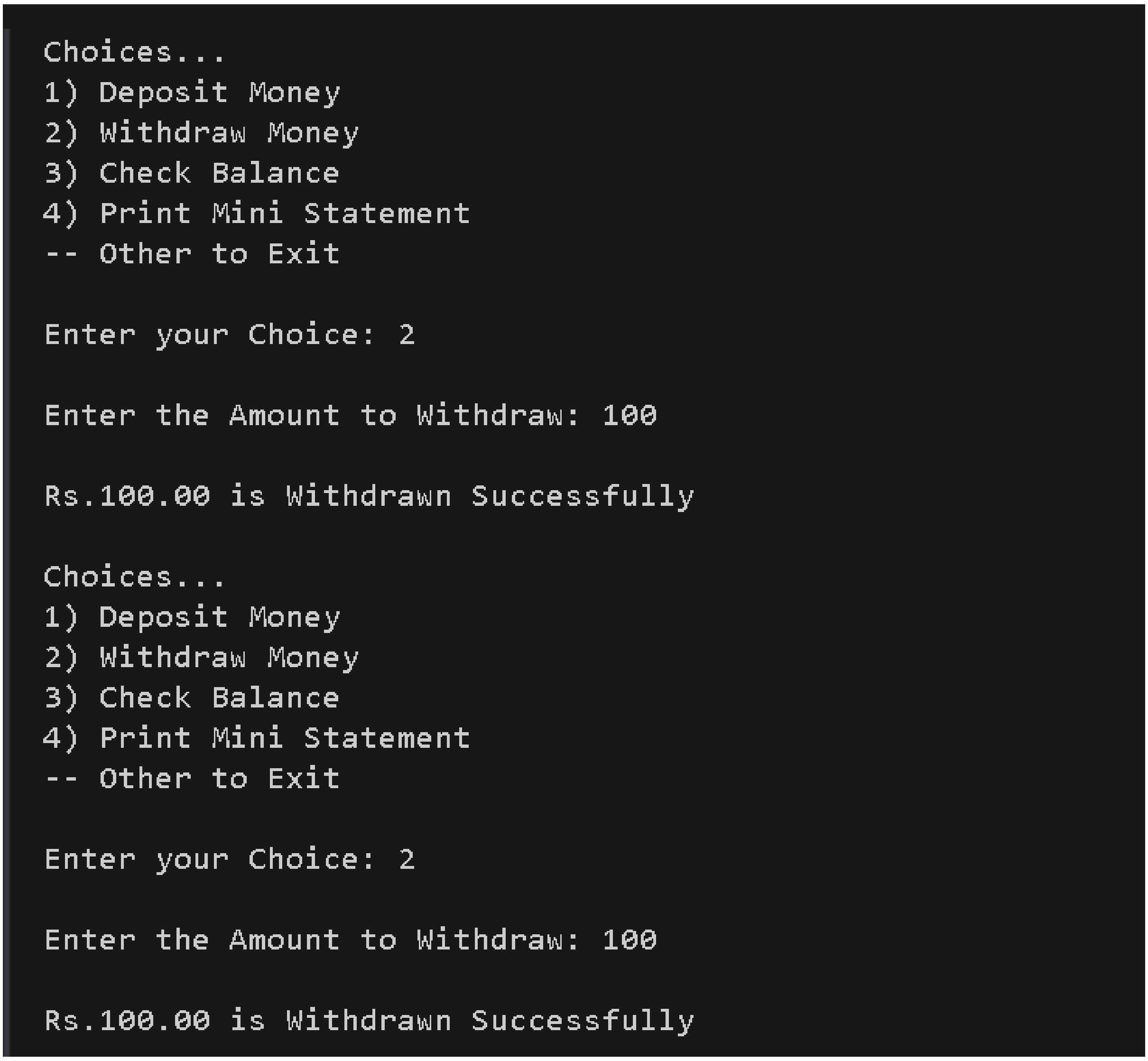
```
PS C:\Users\daini\OneDrive\Java\Assignment-2> java Que5

Enter Account Holder Name: Makwana Dainik Kalabhai

Choices...
1) Deposit Money
2) Withdraw Money
3) Check Balance
4) Print Mini Statement
-- Other to Exit

Enter your Choice: 4


Account Holder Name: Makwana Dainik Kalabhai

***No Transaction History***

Choices...
1) Deposit Money
2) Withdraw Money
3) Check Balance
4) Print Mini Statement
-- Other to Exit

Enter your Choice: 3

Balance: Rs.0.0
```



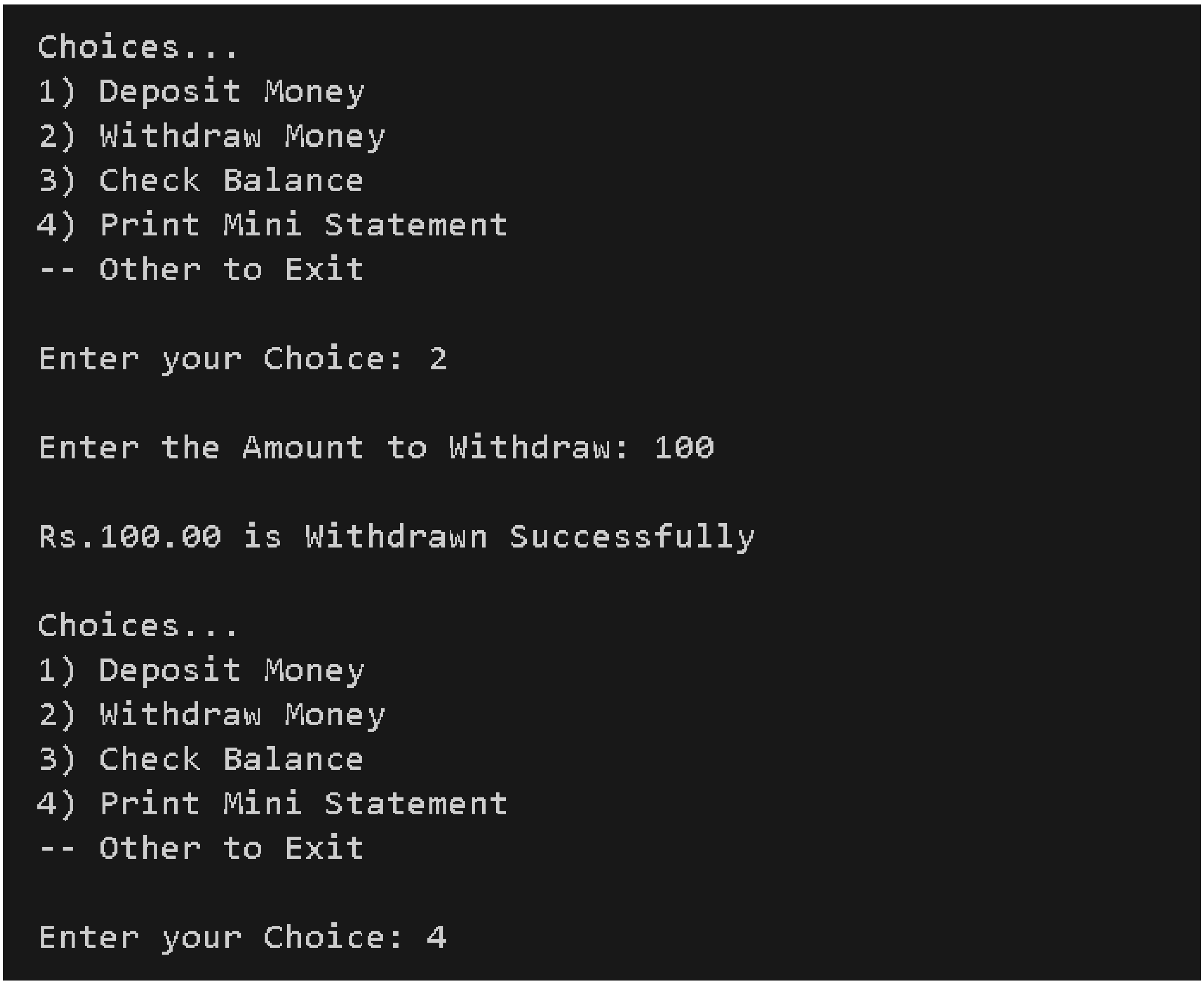
```
Choices...
1) Deposit Money
2) Withdraw Money
3) Check Balance
4) Print Mini Statement
-- Other to Exit

Enter your Choice: 1

Enter the Amount to Deposit: 500
***Rs.500.00 is Deposited Successfully***

Choices...
1) Deposit Money
2) Withdraw Money
3) Check Balance
4) Print Mini Statement
-- Other to Exit

Enter your Choice: 1

Enter the Amount to Deposit: 500
***Rs.500.00 is Deposited Successfully***

Choices...
1) Deposit Money
2) Withdraw Money
3) Check Balance
4) Print Mini Statement
-- Other to Exit

Enter your Choice: 1
```



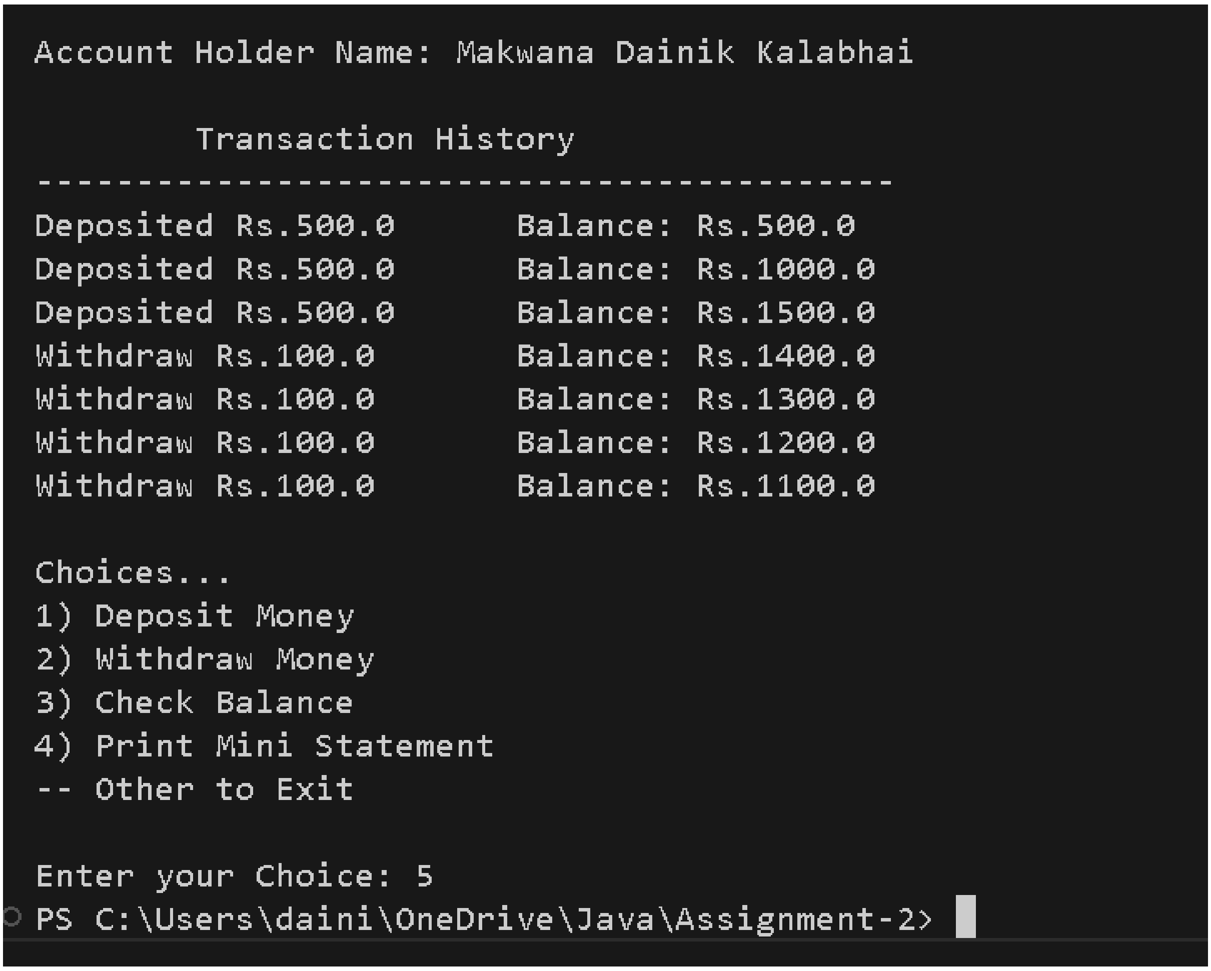
```
Enter the Amount to Deposit: 500
***Rs.500.00 is Deposited Successfully***

Choices...
1) Deposit Money
2) Withdraw Money
3) Check Balance
4) Print Mini Statement
-- Other to Exit

Enter your Choice: 4


Account Holder Name: Makwana Dainik Kalabhai

        Transaction History
-------------------------------------------
Deposited Rs.500.0      Balance: Rs.500.0
Deposited Rs.500.0      Balance: Rs.1000.0
Deposited Rs.500.0      Balance: Rs.1500.0

Choices...
1) Deposit Money
2) Withdraw Money
3) Check Balance
4) Print Mini Statement
-- Other to Exit

Enter your Choice: 2

Enter the Amount to Withdraw: 100

Rs.100.00 is Withdrawn Successfully
```



```
Choices...
1) Deposit Money
2) Withdraw Money
3) Check Balance
4) Print Mini Statement
-- Other to Exit

Enter your Choice: 2

Enter the Amount to Withdraw: 100

Rs.100.00 is Withdrawn Successfully

Choices...
1) Deposit Money
2) Withdraw Money
3) Check Balance
4) Print Mini Statement
-- Other to Exit

Enter your Choice: 2

Enter the Amount to Withdraw: 100

Rs.100.00 is Withdrawn Successfully
```



```
Choices...
1) Deposit Money
2) Withdraw Money
3) Check Balance
4) Print Mini Statement
-- Other to Exit

Enter your Choice: 2

Enter the Amount to Withdraw: 100

Rs.100.00 is Withdrawn Successfully

Choices...
1) Deposit Money
2) Withdraw Money
3) Check Balance
4) Print Mini Statement
-- Other to Exit

Enter your Choice: 4
```



```
Account Holder Name: Makwana Dainik Kalabhai

        Transaction History
-------------------------------------------
Deposited Rs.500.0        Balance: Rs.500.0
Deposited Rs.500.0        Balance: Rs.1000.0
Deposited Rs.500.0        Balance: Rs.1500.0
Withdraw Rs.100.0         Balance: Rs.1400.0
Withdraw Rs.100.0         Balance: Rs.1300.0
Withdraw Rs.100.0         Balance: Rs.1200.0
Withdraw Rs.100.0         Balance: Rs.1100.0

Choices...
1) Deposit Money
2) Withdraw Money
3) Check Balance
4) Print Mini Statement
-- Other to Exit

Enter your Choice: 5
PS C:\Users\daini\OneDrive\Java\Assignment-2>
```

Question-6

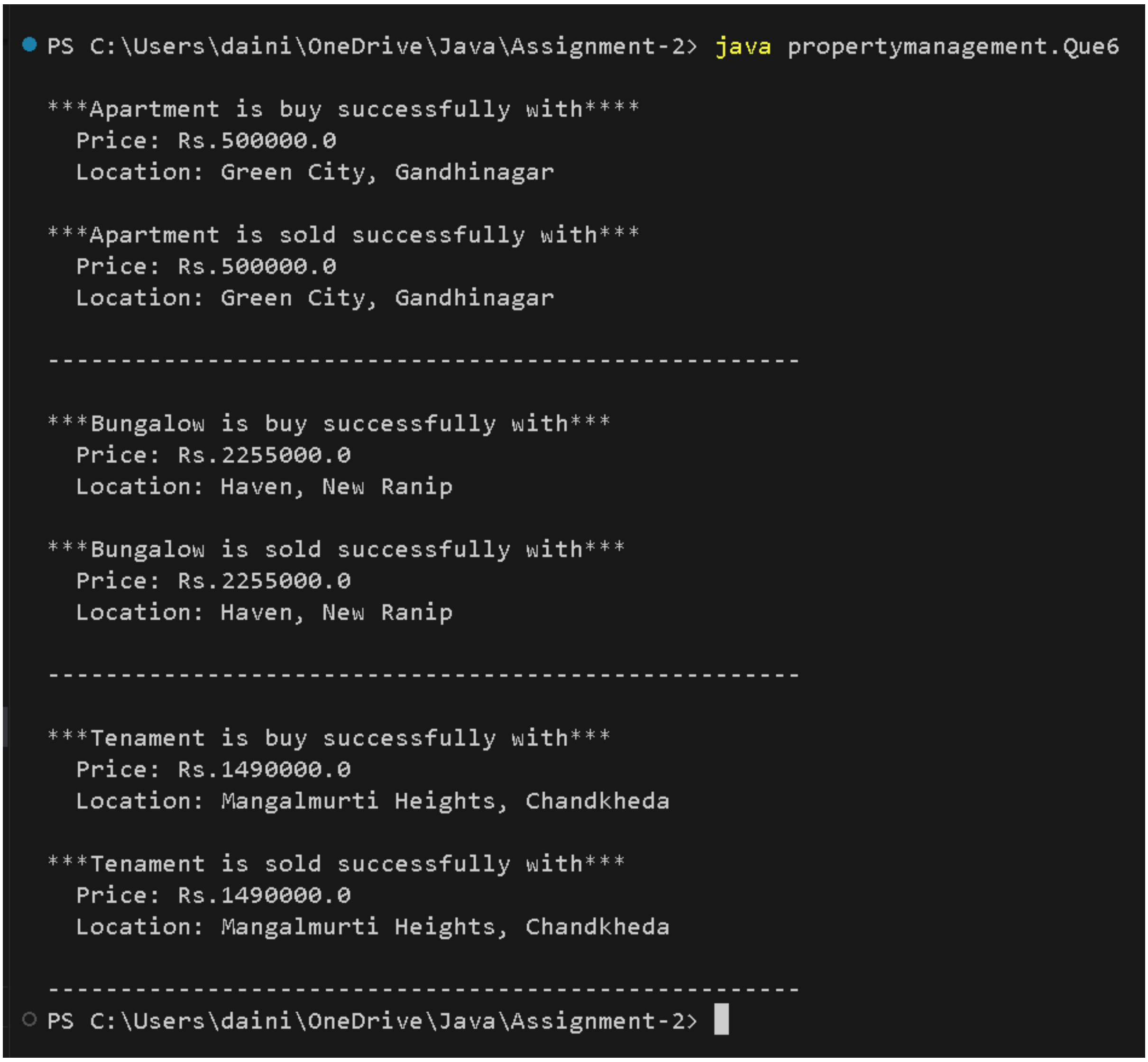
```
package propertymanagement;


class Apartments implements Property {
    String location;
    double price;


    Apartments(String location, double price) {
        this.location = location;
        this.price = price;
    }

    public void buy() {
        System.out.println("\n***Apartment is buy successfully with***\n  Price: 
Rs."+this.price+"\n  Location: "+this.location);
    }

    public void sell() {
        System.out.println("\n***Apartment is sold successfully with***\n  Price: 
Rs."+this.price+"\n  Location: "+this.location);
    }
}
```

```
package propertymanagement;

class Bungalow implements Property {
    String location;
    double price;

    Bungalow(String location, double price) {
        this.location = location;
        this.price = price;
    }

    public void buy() {
        System.out.println("\n***Bungalow is buy successfully with***\n  Price: 
Rs."+this.price+"\n  Location: "+this.location);
    }
    public void sell() {
        System.out.println("\n***Bungalow is sold successfully with***\n  Price: Rs."+this.price+"\n  Location: "+this.location);
    }
}
```

```
package propertymanagement;

class Tenaments implements Property {
    String location;
    double price;

    Tenaments(String location, double price) {
        this.location = location;
        this.price = price;
    }

    public void buy() {
        System.out.println("\n***Tenament is buy successfully with***\n  Price: Rs."+this.price+"\n  Location: "+this.location);
    }

    public void sell() {
        System.out.println("\n***Tenament is sold successfully with***\n  Price: Rs."+this.price+"\n  Location: "+this.location);
    }
}
```

```
package propertymanagement;
```

```
class Que6 {
    public static void main(String[] args) {
        Property P[] = new Property[6];
        P[0] = new Apartments("Green City, Gandhinagar",500000);
        P[1] = new Bungalow("Haven, New Ranip", 2255000);
        P[2] = new Tenaments("Mangalmurti Heights, Chandkheda", 1490000);

        for(int i=0; i<3; i++) {
            P[i].buy();
            P[i].sell();
            System.out.println("\n----------------------------------------------------");
        }
    }
}
```



```
● PS C:\Users\daini\OneDrive\Java\Assignment-2> java propertymanagement.Que6

  ***Apartment is buy successfully with****
    Price: Rs.500000.0
    Location: Green City, Gandhinagar

  ***Apartment is sold successfully with***
    Price: Rs.500000.0
    Location: Green City, Gandhinagar

  ----------------------------------------------------

  ***Bungalow is buy successfully with***
    Price: Rs.2255000.0
    Location: Haven, New Ranip

  ***Bungalow is sold successfully with***
    Price: Rs.2255000.0
    Location: Haven, New Ranip

  ----------------------------------------------------

  ***Tenament is buy successfully with***
    Price: Rs.1490000.0
    Location: Mangalmurti Heights, Chandkheda

  ***Tenament is sold successfully with***
    Price: Rs.1490000.0
    Location: Mangalmurti Heights, Chandkheda

  ----------------------------------------------------
○ PS C:\Users\daini\OneDrive\Java\Assignment-2>
```

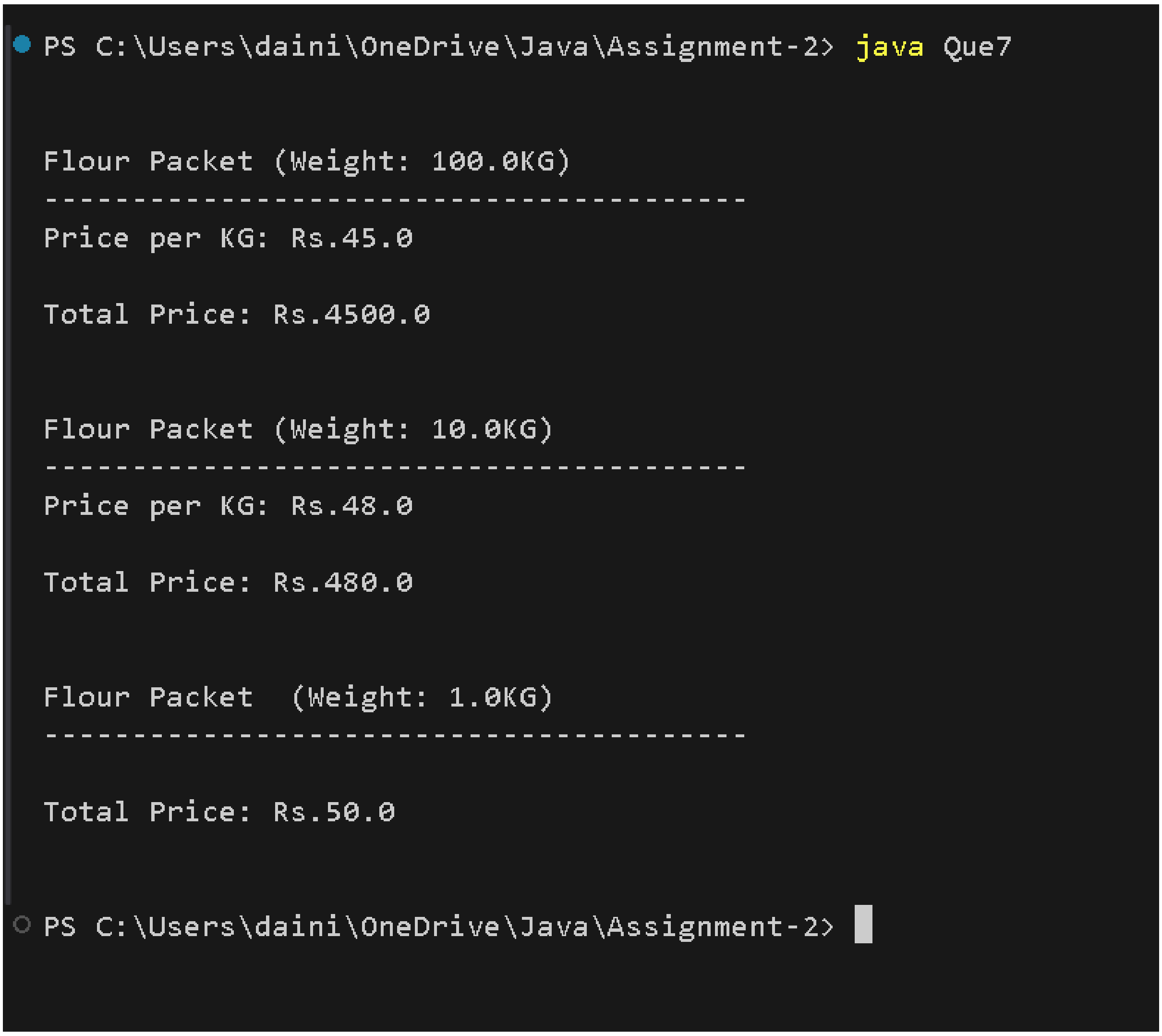
```
    }
```

Question-7

```
class Flour {
    private double weight, price;

    Flour(double ...args) {
        this.weight = args[0];
        this.price = args[1];
    }

    double getWeight() {
        return this.weight;
    }

    double getPrice() {
        return this.price;
    }

    double calcPrice() {
        return weight*price;
    }
}

class FlourItem {
    Flour defaultFlour() {
        return new Flour(1, 50);
    }
}
```

```
interface FlourItemInterface {
   Flour getQuintal();
   Flour get10kg();
   Flour get1kg();
}

class FlourStore implements FlourItemInterface {
   public Flour getQuintal() {
      return new Flour(100, 45);
   }
   public Flour get10kg() {
      return new Flour(10, 48);
   }
   public Flour get1kg() {
      return new Flour(1, 50);
   }
}

class Que7 {
   public static void main(String[] args) {
      FlourItemInterface FS = new FlourStore();

      System.out.println("\n\nFlour Packet (Weight:
"+FS.getQuintal().getWeight()+"KG)");
      System.out.println("----------------------------------------");
      System.out.println("Price per KG: Rs."+FS.getQuintal().getPrice());
      System.out.println("\nTotal Price: Rs."+FS.getQuintal().calcPrice());
```

```
        System.out.println("\n\nFlour Packet (Weight: 
"+FS.get10kg().getWeight()+"KG)");
        System.out.println("----------------------------------------");
        System.out.println("Price per KG: Rs."+FS.get10kg().getPrice());
        System.out.println("\nTotal Price: Rs."+FS.get10kg().calcPrice());


        System.out.println("\n\nFlour Packet  (Weight: "+FS.get1kg().getWeight()+"KG)");
        System.out.println("----------------------------------------");
        System.out.println("\nTotal Price: Rs."+FS.get1kg().calcPrice()+"\n\n");
    }
}
```



```
PS C:\Users\daini\OneDrive\Java\Assignment-2> java Que7


Flour Packet (Weight: 100.0KG)
----------------------------------------
Price per KG: Rs.45.0

Total Price: Rs.4500.0


Flour Packet (Weight: 10.0KG)
----------------------------------------
Price per KG: Rs.48.0

Total Price: Rs.480.0


Flour Packet  (Weight: 1.0KG)
----------------------------------------

Total Price: Rs.50.0


PS C:\Users\daini\OneDrive\Java\Assignment-2> 
```

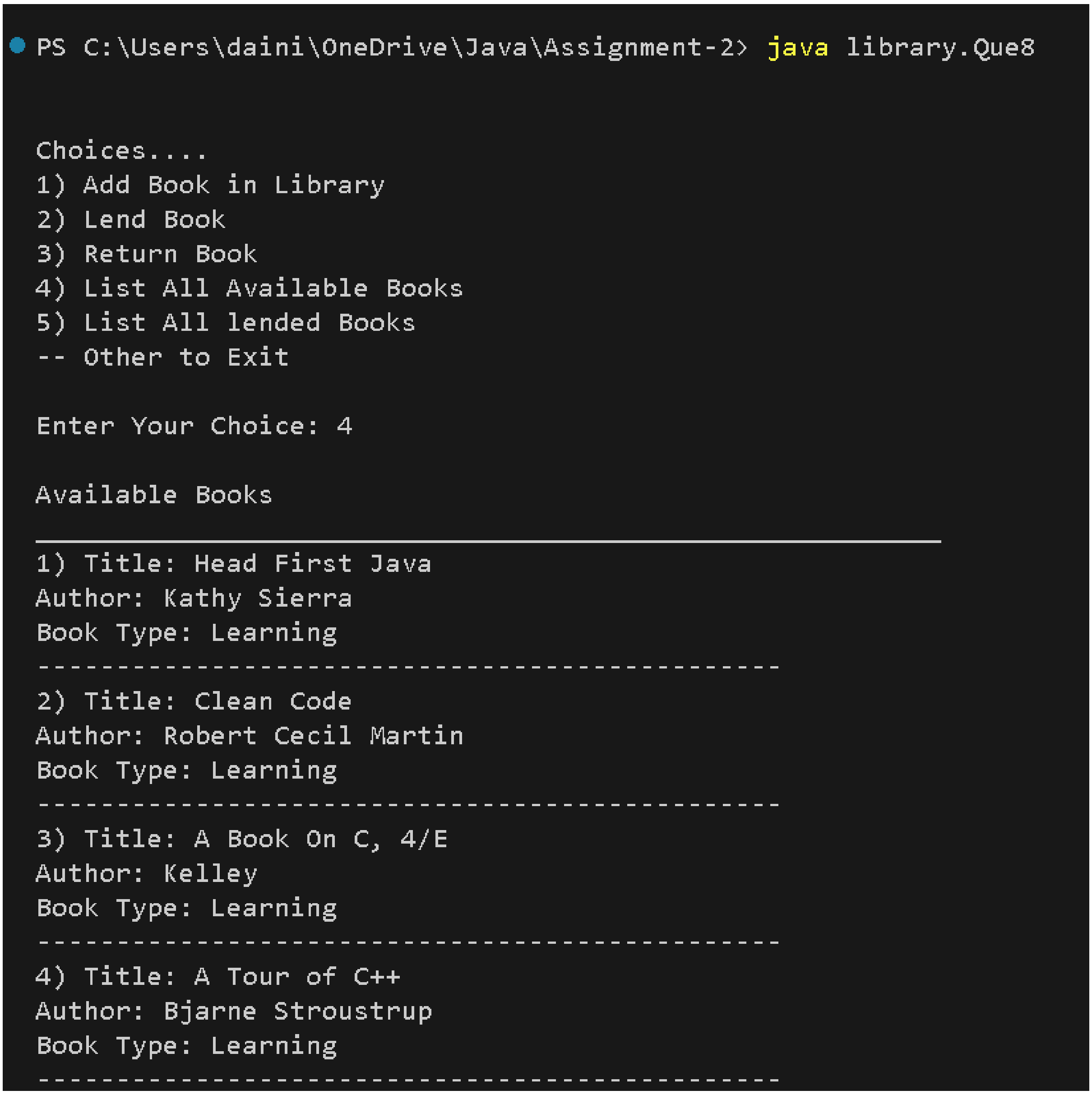
Question-8

```
package library;

import java.util.Scanner;
import java.util.ArrayList;

abstract class AbstractBook {
    private String title, author;
    String bookType;
    boolean isLent;

    AbstractBook(String ...a) {
        this.title = a[0];
        this.author = a[1];
        this.bookType = a[2];
        this.isLent = false;
    }

    String getTitle() {
        return this.title;
    }

    String getAuthor() {
        return this.author;
    }

    abstract String getBookType();
    public String toString() {
        return ("Title: "+this.title+"\nAuthor: "+this.author+"\nBook Type: "+this.bookType);
    }
}

class Book extends AbstractBook {
    Book(String ...a) {
        super(a);
    }

    String getBookType() {
        return this.bookType;
    }
}

class Library {
    ArrayList<Book> B = new ArrayList<Book>();

    Library() {
        B.add(new Book("Head First Java","Kathy Sierra","Learning"));
        B.add(new Book("Clean Code","Robert Cecil Martin","Learning"));
        B.add(new Book("A Book On C, 4/E","Kelley","Learning"));
        B.add(new Book("A Tour of C++","Bjarne Stroustrup","Learning"));
        B.add(new Book("A Smarter Way to Learn JavaScript","Mark Myers","Learning"));
        B.add(new Book("HTML & CSS: Design and Build Web Sites","Jon Duckett","Learning"));
        B.add(new Book("React and React Native","Adam Boduch","Learning"));
    }
    void addBook(String ...a) {
        B.add(new Book(a[0], a[1], a[2]));
        System.out.println("\n***Book added Succefully***");
        System.out.println(B.get(B.size()-1).toString());
    }

    void lendBook(int num) {
        for(int i=0; i<B.size(); i++) {
            if((i+1) == num) {
                B.get(i).isLent = true;
                System.out.println("\n***Book Lended Successfully***");
                System.out.println(B.get(i).toString());
                return;
            }
        }
    }

    void returnBook(int num) {
        for(int i=0; i<B.size(); i++) {
            if((i+1) == num) {
                B.get(i).isLent = false;
                System.out.println("\n***Book Return Successfully***");
                System.out.println(B.get(i).toString());
                return;
            }
        }
    }

    void printAvBook() {
      int count = 0;
      for(int i=0; i<B.size(); i++) {
        if(!B.get(i).isLent) {
          count++;
          break;
        }
      }
      if(count > 0) {
        System.out.println("\nAvailable Books");
        System.out.println("______________________________________________
__________");
        for(int i=0; i<B.size(); i++) {
          if(!B.get(i).isLent) {
            System.out.println((i+1)+") "+B.get(i).toString());
            System.out.println("---------------------------------------------");
            count++;
          }
        }
      }
      else {
        System.out.println("***All Books are Lended Now***");
      }
    }
    void printNotAvBook() {
      int count = 0;
```

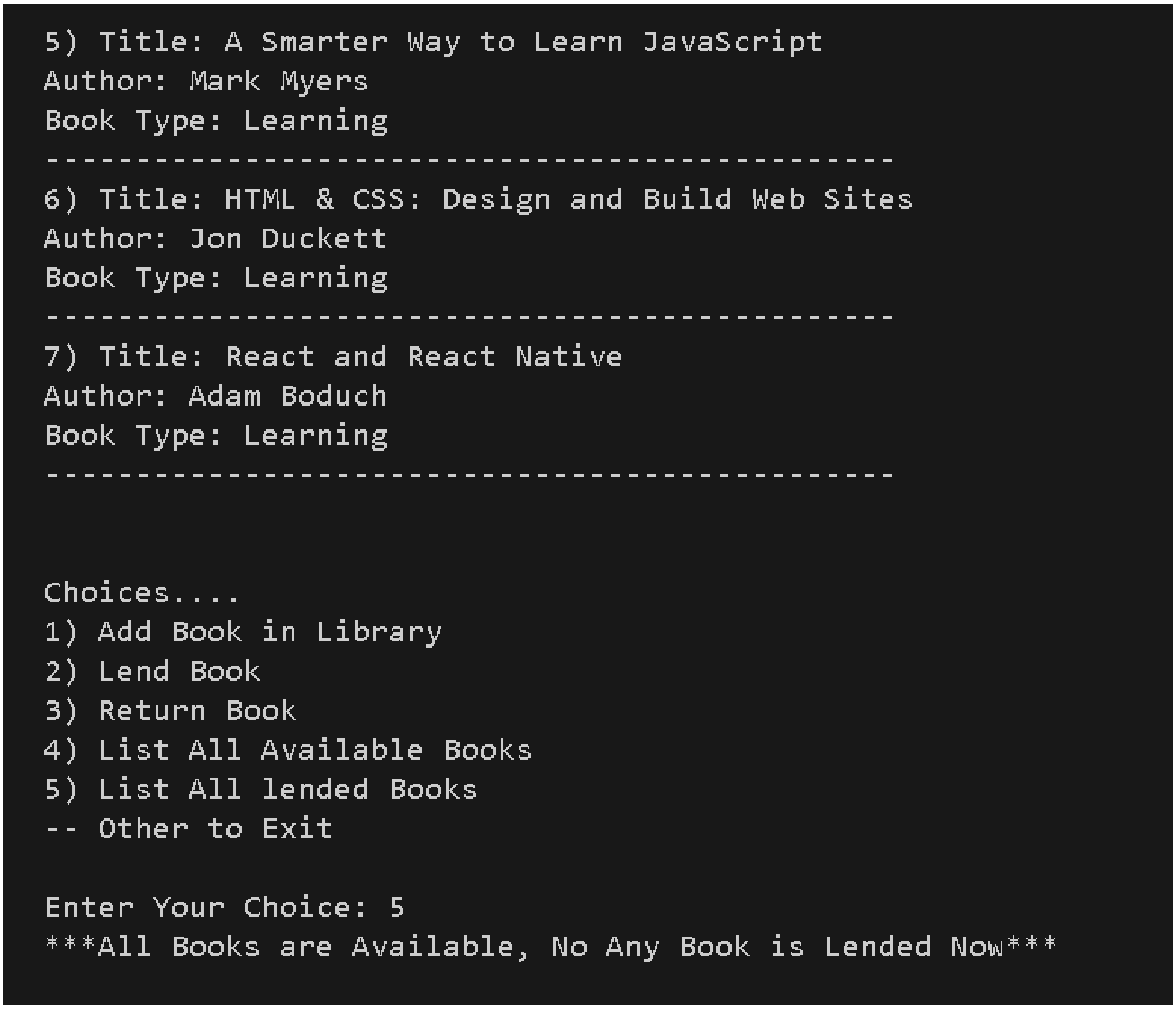
```
        for(int i=0; i<B.size(); i++) {
           if(B.get(i).isLent) {
              count++;
              break;
           }
        }
        if(count > 0) {
           System.out.println("\nAll Lended Books");
           System.out.println("______________________________________________________");
           for(int i=0; i<B.size(); i++) {
              if(B.get(i).isLent) {
                 System.out.println((i+1)+") "+B.get(i).toString());
                 System.out.println("---------------------------------------------");
                 count++;
              }
           }
        }
        else {
           System.out.println("***All Books are Available, No Any Book is Lended Now***");
        }
   }
}

class Que8 {
   public static void main(String[] args) {
```

```
Scanner S = new Scanner(System.in);

Library L = new Library();
int choice, num;
String title, author, bookType;

while(true) {
   System.out.println("\n\nChoices....");
   System.out.println("1) Add Book in Library");
   System.out.println("2) Lend Book");
   System.out.println("3) Return Book");
   System.out.println("4) List All Available Books");
   System.out.println("5) List All lended Books");
   System.out.println("-- Other to Exit");

   System.out.print("\nEnter Your Choice: ");
   choice = S.nextInt();

   switch(choice) {
      case 1:
         Scanner S1 = new Scanner(System.in);
         System.out.print("Enter Title of the Book: ");
         title = S1.nextLine();

         Scanner S2 = new Scanner(System.in);
         System.out.print("Enter Author of the Book: ");
         author = S2.nextLine();
```

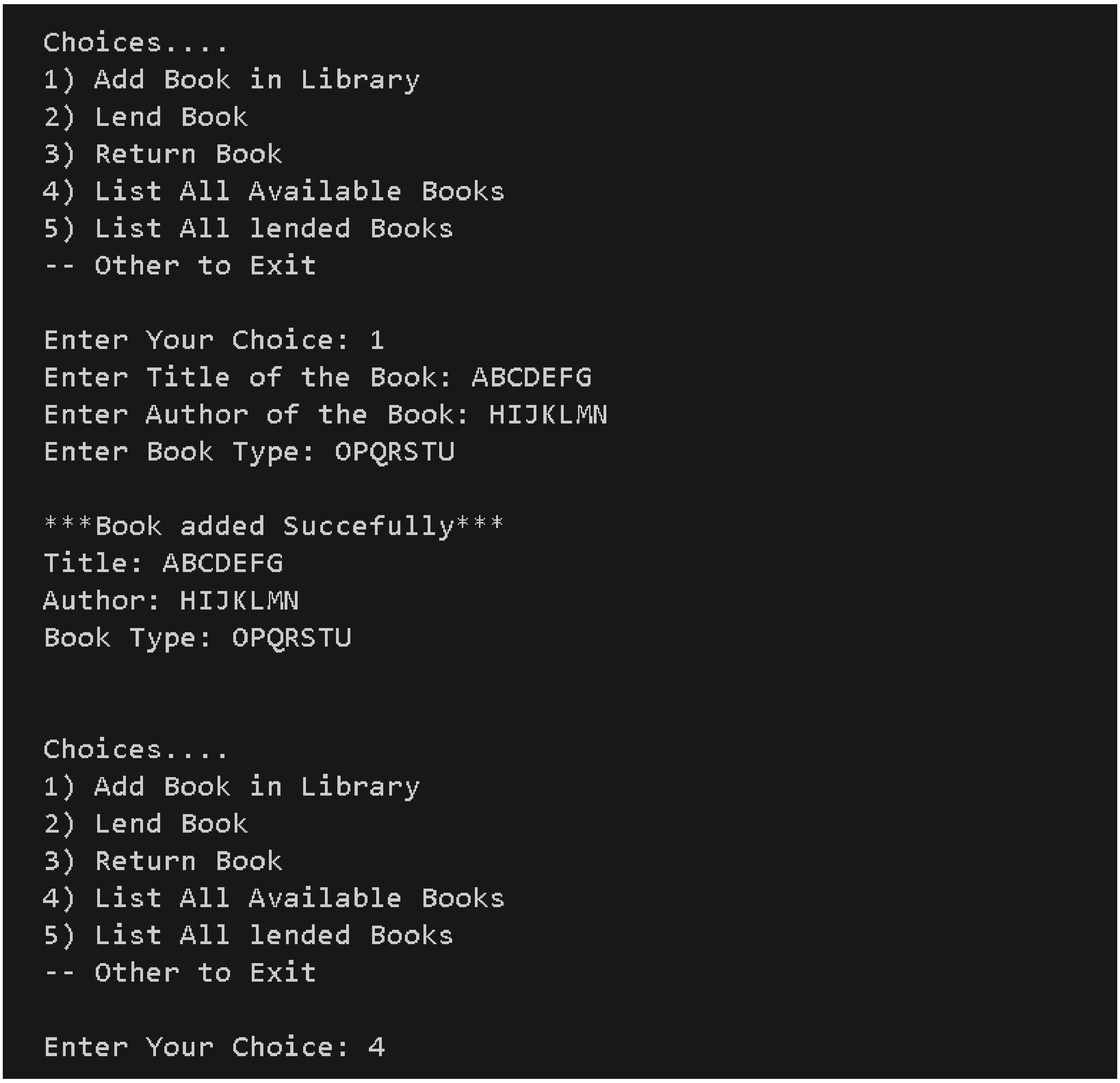
```
          Scanner S3 = new Scanner(System.in);
          System.out.print("Enter Book Type: ");
          bookType = S3.nextLine();
          L.addBook(title, author, bookType);
          break;

        case 2:
          L.printAvBook();
          System.out.print("\nEnter the Number of the Book, Which you want to Lend: ");
          num = S.nextInt();
          L.lendBook(num);
          break;

        case 3:
          L.printNotAvBook();
          System.out.print("\nEnter the Number of the Book, Which you want to Return: ");
          num = S.nextInt();
          L.returnBook(num);
          break;

        case 4:
          L.printAvBook();
          break;

        case 5:
          L.printNotAvBook();
          break;

        default:
          return;
      }
    }
  }
}
```



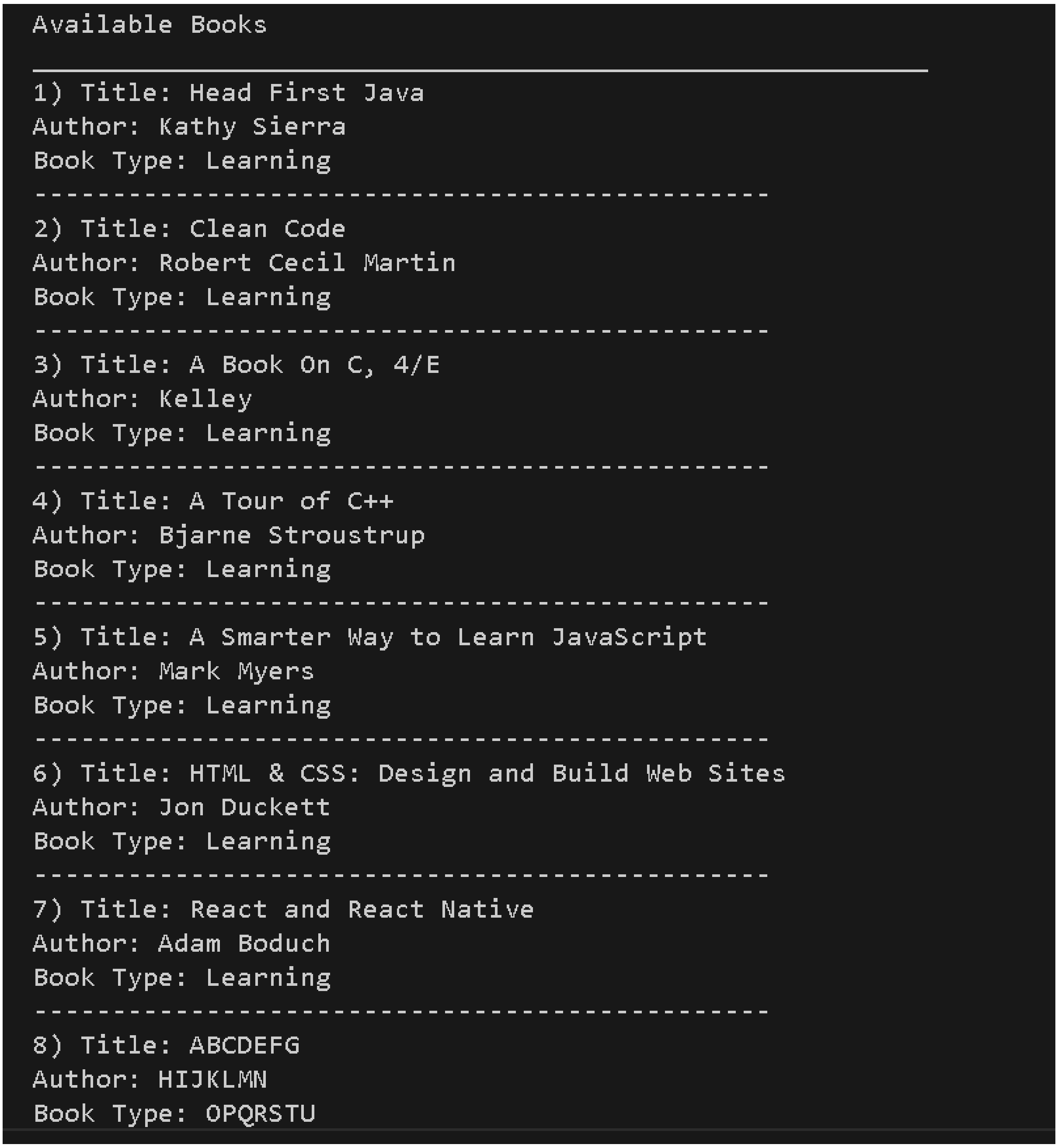
```
PS C:\Users\daini\OneDrive\Java\Assignment-2> java library.Que8


Choices....
1) Add Book in Library
2) Lend Book
3) Return Book
4) List All Available Books
5) List All lended Books
-- Other to Exit

Enter Your Choice: 4

Available Books
_________________________________________________________
1) Title: Head First Java
Author: Kathy Sierra
Book Type: Learning
-----------------------------------------------
2) Title: Clean Code
Author: Robert Cecil Martin
Book Type: Learning
-----------------------------------------------
3) Title: A Book On C, 4/E
Author: Kelley
Book Type: Learning
-----------------------------------------------
4) Title: A Tour of C++
Author: Bjarne Stroustrup
Book Type: Learning
-----------------------------------------------
```



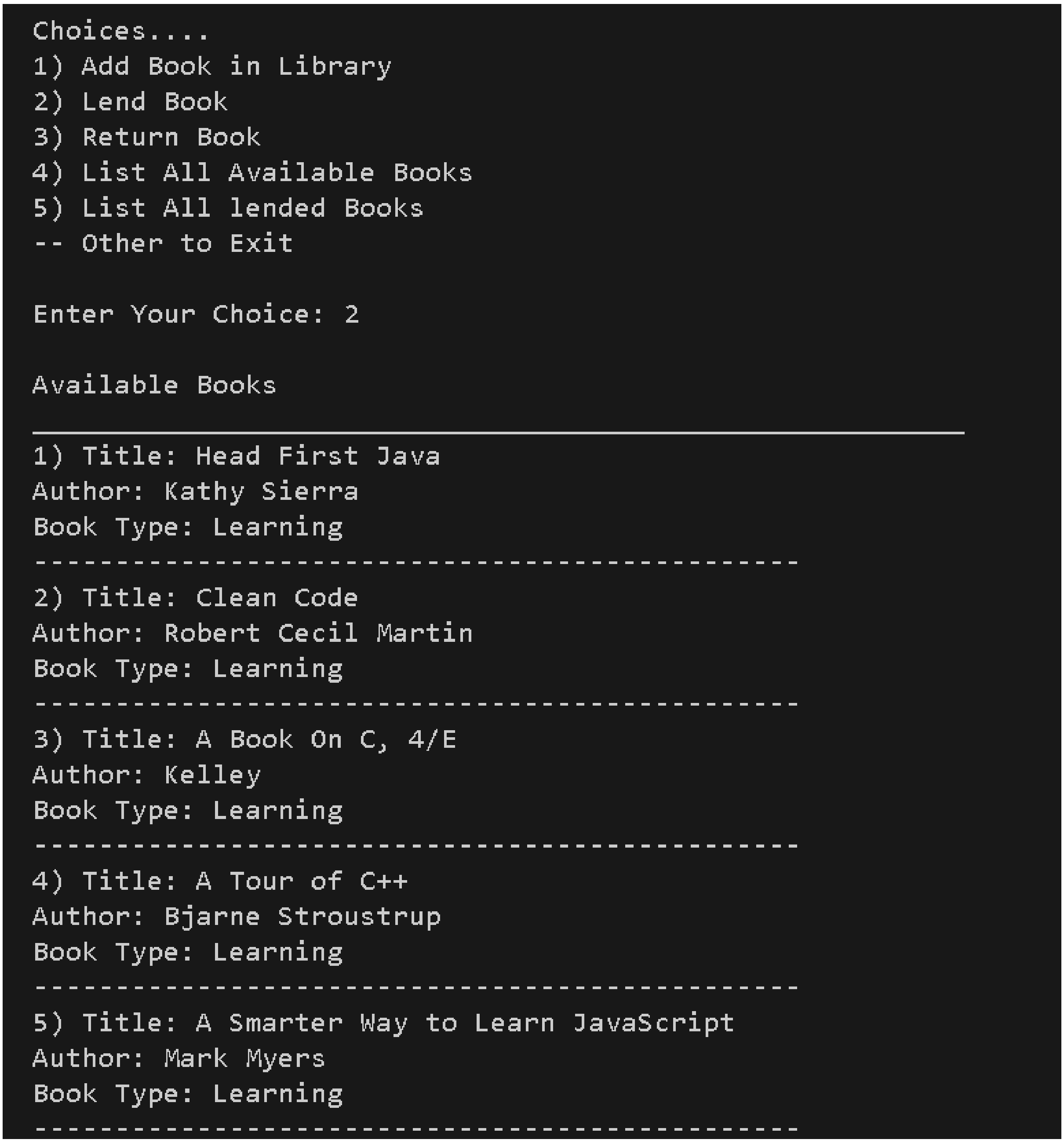
```
5) Title: A Smarter Way to Learn JavaScript
Author: Mark Myers
Book Type: Learning
-----------------------------------------------
6) Title: HTML & CSS: Design and Build Web Sites
Author: Jon Duckett
Book Type: Learning
-----------------------------------------------
7) Title: React and React Native
Author: Adam Boduch
Book Type: Learning
-----------------------------------------------


Choices....
1) Add Book in Library
2) Lend Book
3) Return Book
4) List All Available Books
5) List All lended Books
-- Other to Exit

Enter Your Choice: 5
***All Books are Available, No Any Book is Lended Now***
```



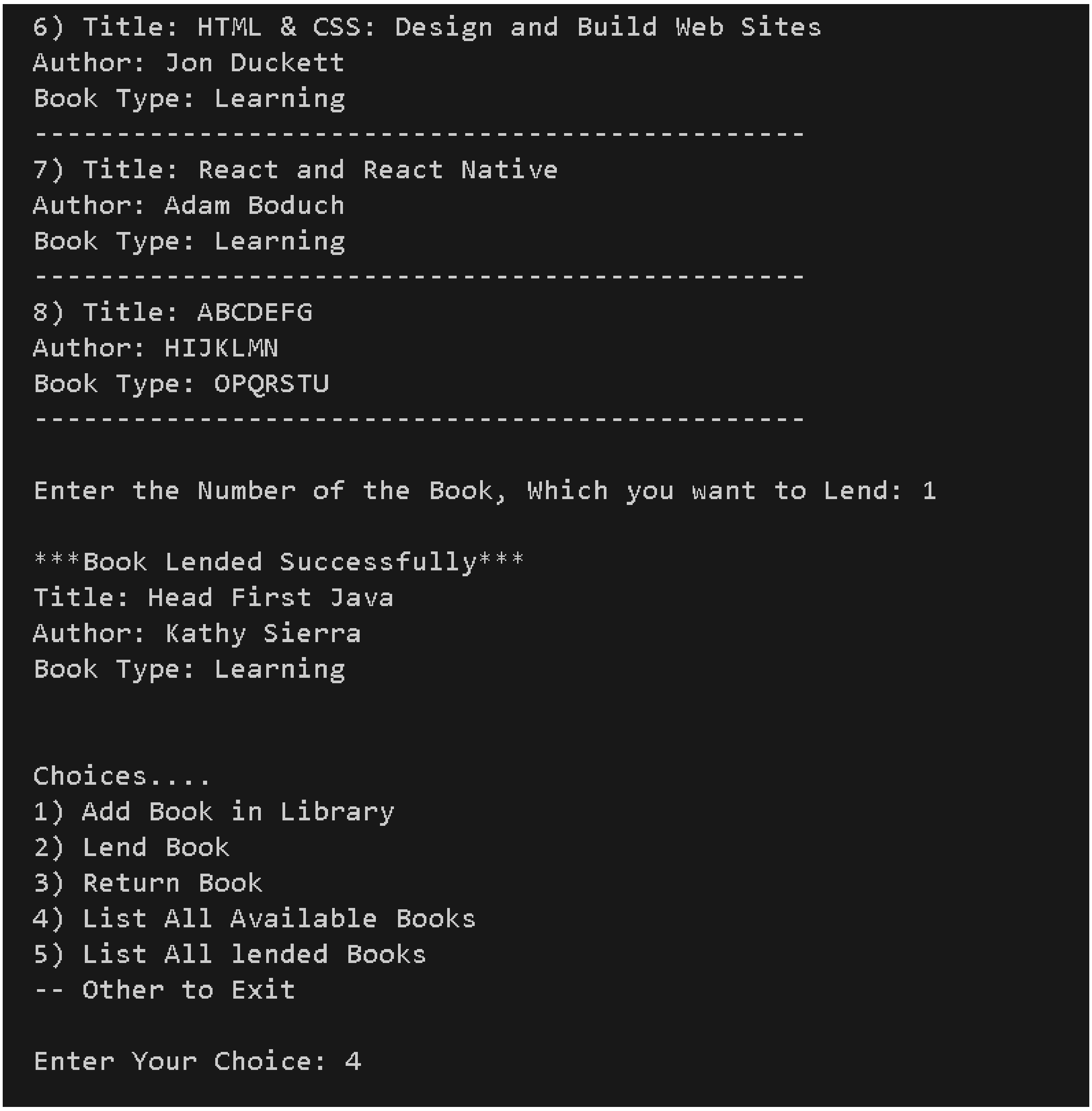
```
Choices....
1) Add Book in Library
2) Lend Book
3) Return Book
4) List All Available Books
5) List All lended Books
-- Other to Exit

Enter Your Choice: 1
Enter Title of the Book: ABCDEFG
Enter Author of the Book: HIJKLMN
Enter Book Type: OPQRSTU

***Book added Succefully***
Title: ABCDEFG
Author: HIJKLMN
Book Type: OPQRSTU


Choices....
1) Add Book in Library
2) Lend Book
3) Return Book
4) List All Available Books
5) List All lended Books
-- Other to Exit

Enter Your Choice: 4
```



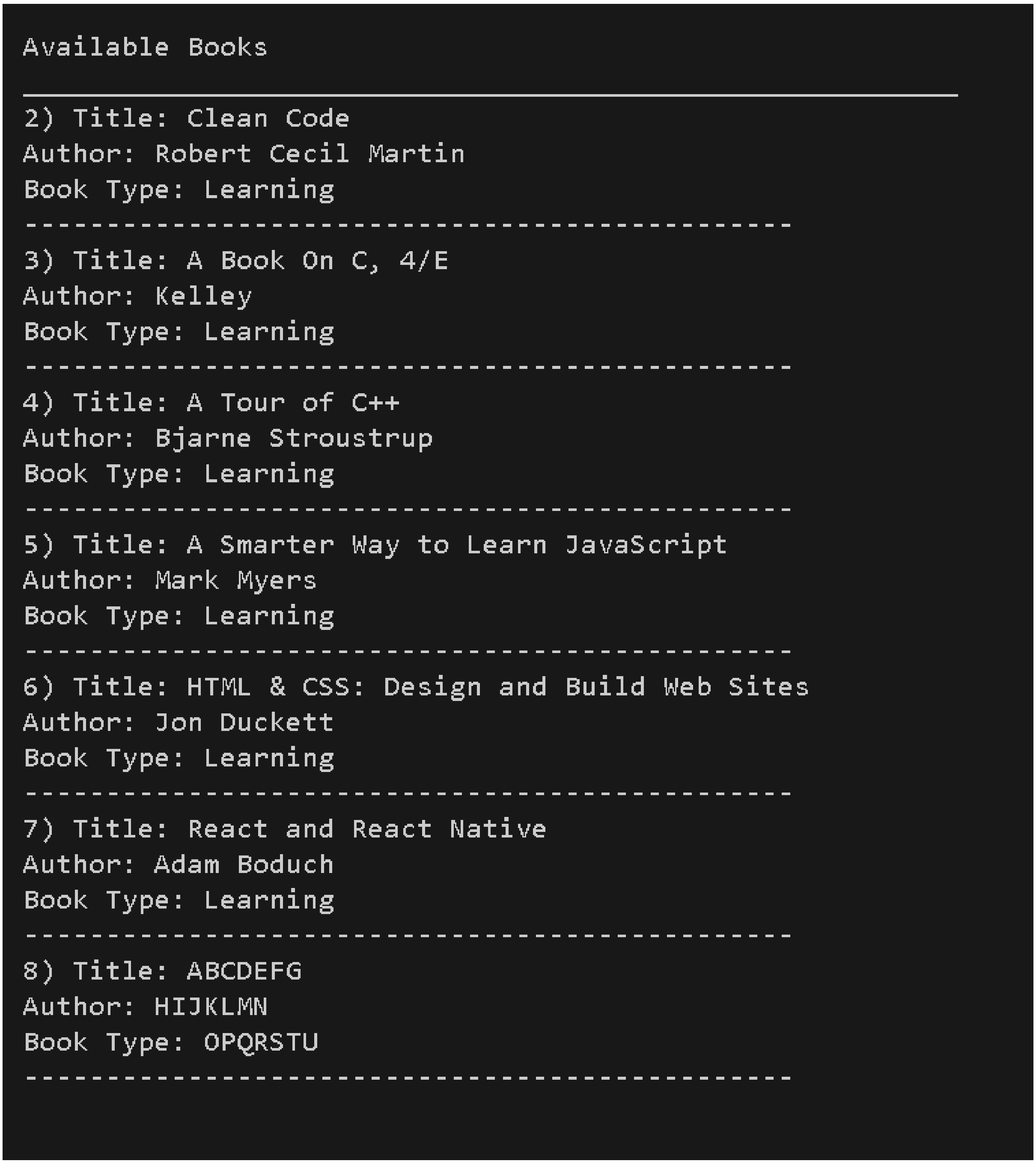
```
Available Books
_________________________________________________________
1) Title: Head First Java
Author: Kathy Sierra
Book Type: Learning
-----------------------------------------------
2) Title: Clean Code
Author: Robert Cecil Martin
Book Type: Learning
-----------------------------------------------
3) Title: A Book On C, 4/E
Author: Kelley
Book Type: Learning
-----------------------------------------------
4) Title: A Tour of C++
Author: Bjarne Stroustrup
Book Type: Learning
-----------------------------------------------
5) Title: A Smarter Way to Learn JavaScript
Author: Mark Myers
Book Type: Learning
-----------------------------------------------
6) Title: HTML & CSS: Design and Build Web Sites
Author: Jon Duckett
Book Type: Learning
-----------------------------------------------
7) Title: React and React Native
Author: Adam Boduch
Book Type: Learning
-----------------------------------------------
8) Title: ABCDEFG
Author: HIJKLMN
Book Type: OPQRSTU
```



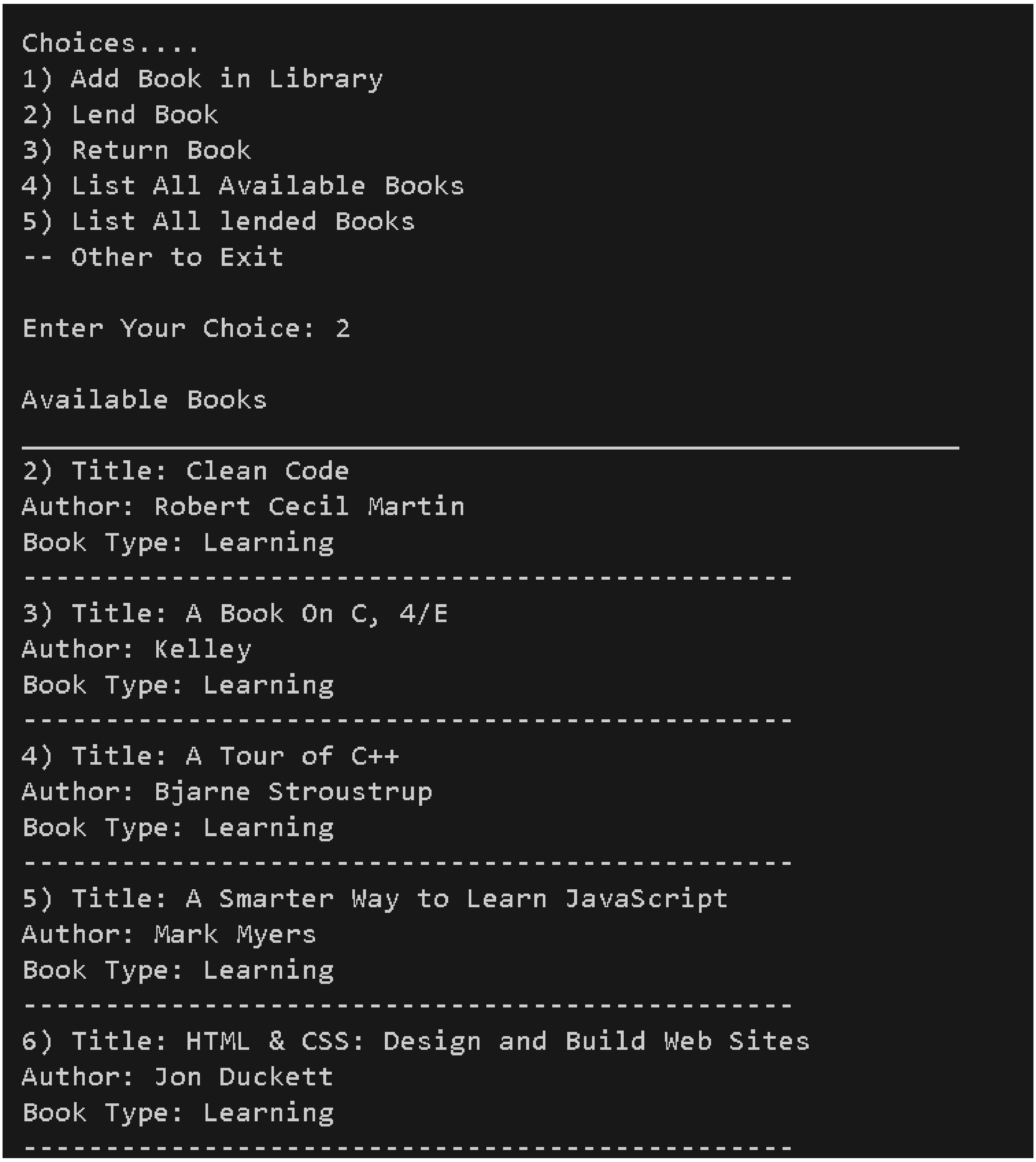
```
Choices....
1) Add Book in Library
2) Lend Book
3) Return Book
4) List All Available Books
5) List All lended Books
-- Other to Exit

Enter Your Choice: 2

Available Books
_________________________________________________________
1) Title: Head First Java
Author: Kathy Sierra
Book Type: Learning
-----------------------------------------------
2) Title: Clean Code
Author: Robert Cecil Martin
Book Type: Learning
-----------------------------------------------
3) Title: A Book On C, 4/E
Author: Kelley
Book Type: Learning
-----------------------------------------------
4) Title: A Tour of C++
Author: Bjarne Stroustrup
Book Type: Learning
-----------------------------------------------
5) Title: A Smarter Way to Learn JavaScript
Author: Mark Myers
Book Type: Learning
-----------------------------------------------
```



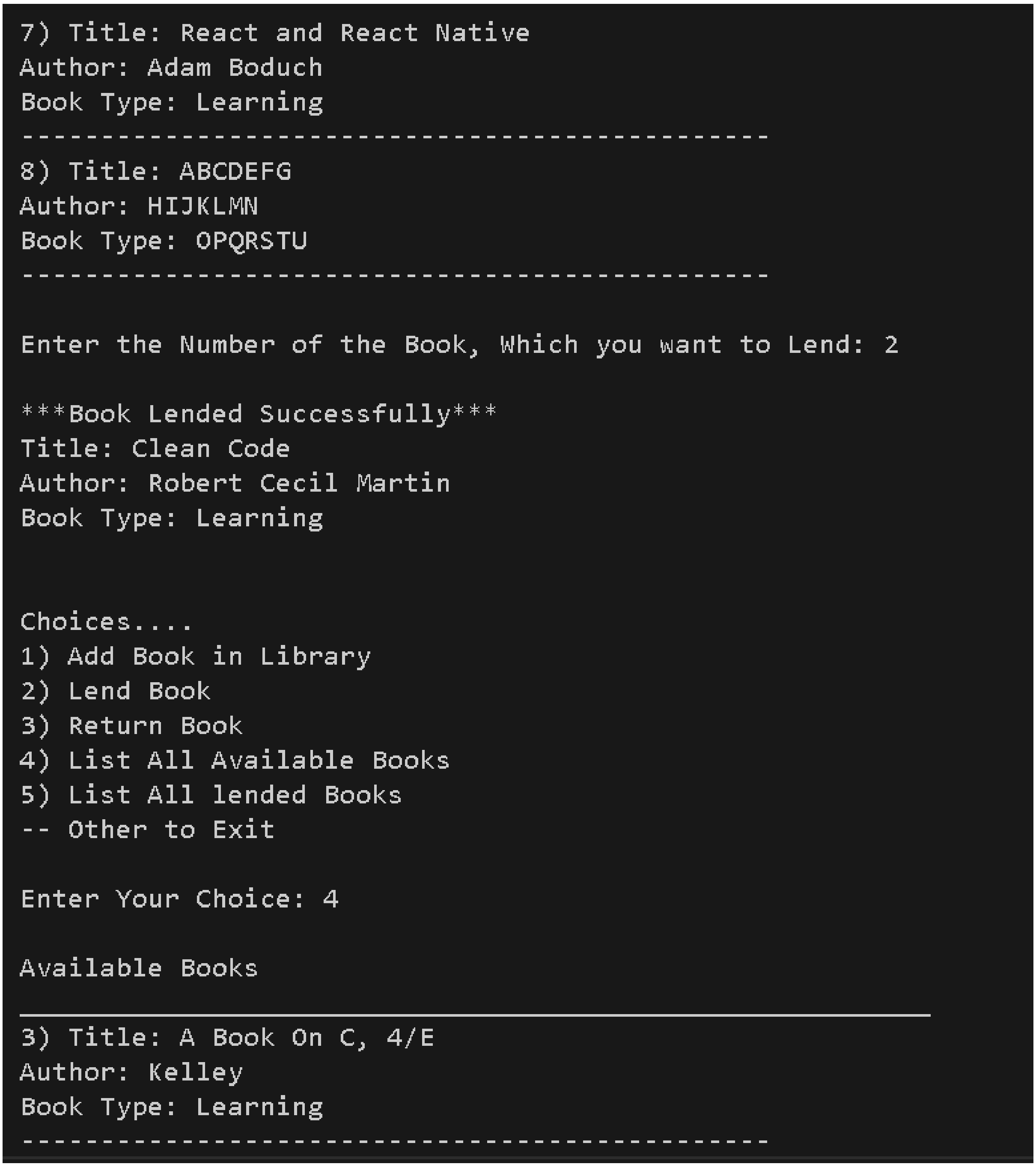
```
6) Title: HTML & CSS: Design and Build Web Sites
Author: Jon Duckett
Book Type: Learning
----------------------------------------------
7) Title: React and React Native
Author: Adam Boduch
Book Type: Learning
----------------------------------------------
8) Title: ABCDEFG
Author: HIJKLMN
Book Type: OPQRSTU
----------------------------------------------

Enter the Number of the Book, Which you want to Lend: 1

***Book Lended Successfully***
Title: Head First Java
Author: Kathy Sierra
Book Type: Learning


Choices....
1) Add Book in Library
2) Lend Book
3) Return Book
4) List All Available Books
5) List All lended Books
-- Other to Exit

Enter Your Choice: 4
```



```
Available Books
________________________________________________________
2) Title: Clean Code
Author: Robert Cecil Martin
Book Type: Learning
-----------------------------------------------
3) Title: A Book On C, 4/E
Author: Kelley
Book Type: Learning
-----------------------------------------------
4) Title: A Tour of C++
Author: Bjarne Stroustrup
Book Type: Learning
-----------------------------------------------
5) Title: A Smarter Way to Learn JavaScript
Author: Mark Myers
Book Type: Learning
-----------------------------------------------
6) Title: HTML & CSS: Design and Build Web Sites
Author: Jon Duckett
Book Type: Learning
-----------------------------------------------
7) Title: React and React Native
Author: Adam Boduch
Book Type: Learning
-----------------------------------------------
8) Title: ABCDEFG
Author: HIJKLMN
Book Type: OPQRSTU
-----------------------------------------------
```



```
Choices....
1) Add Book in Library
2) Lend Book
3) Return Book
4) List All Available Books
5) List All lended Books
-- Other to Exit

Enter Your Choice: 2

Available Books
_________________________________________________________
2) Title: Clean Code
Author: Robert Cecil Martin
Book Type: Learning
-----------------------------------------------
3) Title: A Book On C, 4/E
Author: Kelley
Book Type: Learning
-----------------------------------------------
4) Title: A Tour of C++
Author: Bjarne Stroustrup
Book Type: Learning
-----------------------------------------------
5) Title: A Smarter Way to Learn JavaScript
Author: Mark Myers
Book Type: Learning
-----------------------------------------------
6) Title: HTML & CSS: Design and Build Web Sites
Author: Jon Duckett
Book Type: Learning
-----------------------------------------------
```



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7) Title: React and React Native
Author: Adam Boduch
Book Type: Learning
-----------------------------------------------
8) Title: ABCDEFG
Author: HIJKLMN
Book Type: OPQRSTU
-----------------------------------------------

Enter the Number of the Book, Which you want to Lend: 2

***Book Lended Successfully***
Title: Clean Code
Author: Robert Cecil Martin
Book Type: Learning


Choices....
1) Add Book in Library
2) Lend Book
3) Return Book
4) List All Available Books
5) List All lended Books
-- Other to Exit

Enter Your Choice: 4

Available Books
_________________________________________________________
3) Title: A Book On C, 4/E
Author: Kelley
Book Type: Learning
-----------------------------------------------
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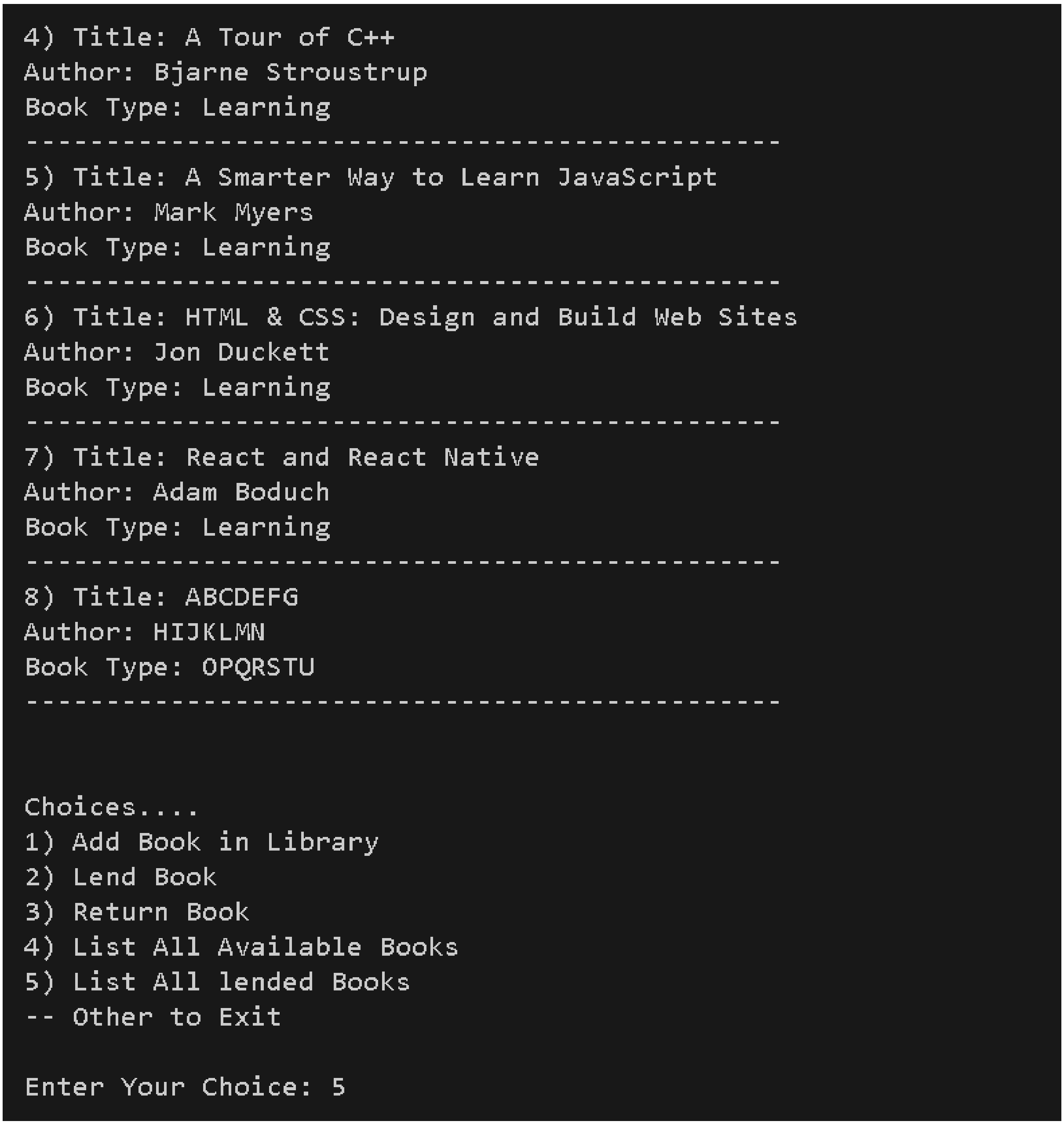

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4) Title: A Tour of C++
Author: Bjarne Stroustrup
Book Type: Learning
-----------------------------------------------
5) Title: A Smarter Way to Learn JavaScript
Author: Mark Myers
Book Type: Learning
-----------------------------------------------
6) Title: HTML & CSS: Design and Build Web Sites
Author: Jon Duckett
Book Type: Learning
-----------------------------------------------
7) Title: React and React Native
Author: Adam Boduch
Book Type: Learning
-----------------------------------------------
8) Title: ABCDEFG
Author: HIJKLMN
Book Type: OPQRSTU
-----------------------------------------------



Choices....
1) Add Book in Library
2) Lend Book
3) Return Book
4) List All Available Books
5) List All lended Books
-- Other to Exit

Enter Your Choice: 5
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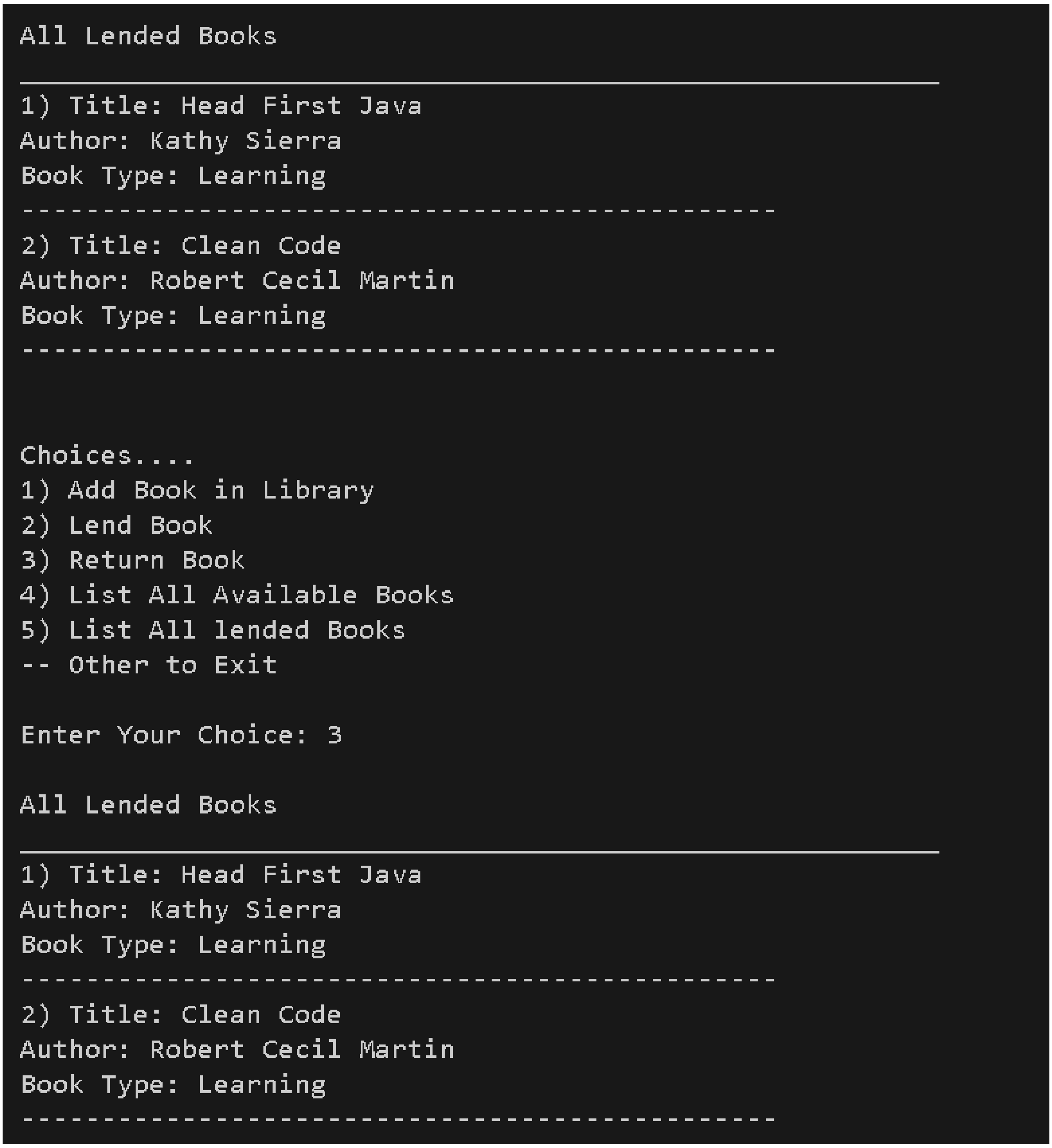

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All Lended Books

_________________________________________________________
1) Title: Head First Java
Author: Kathy Sierra
Book Type: Learning
-----------------------------------------------
2) Title: Clean Code
Author: Robert Cecil Martin
Book Type: Learning
-----------------------------------------------

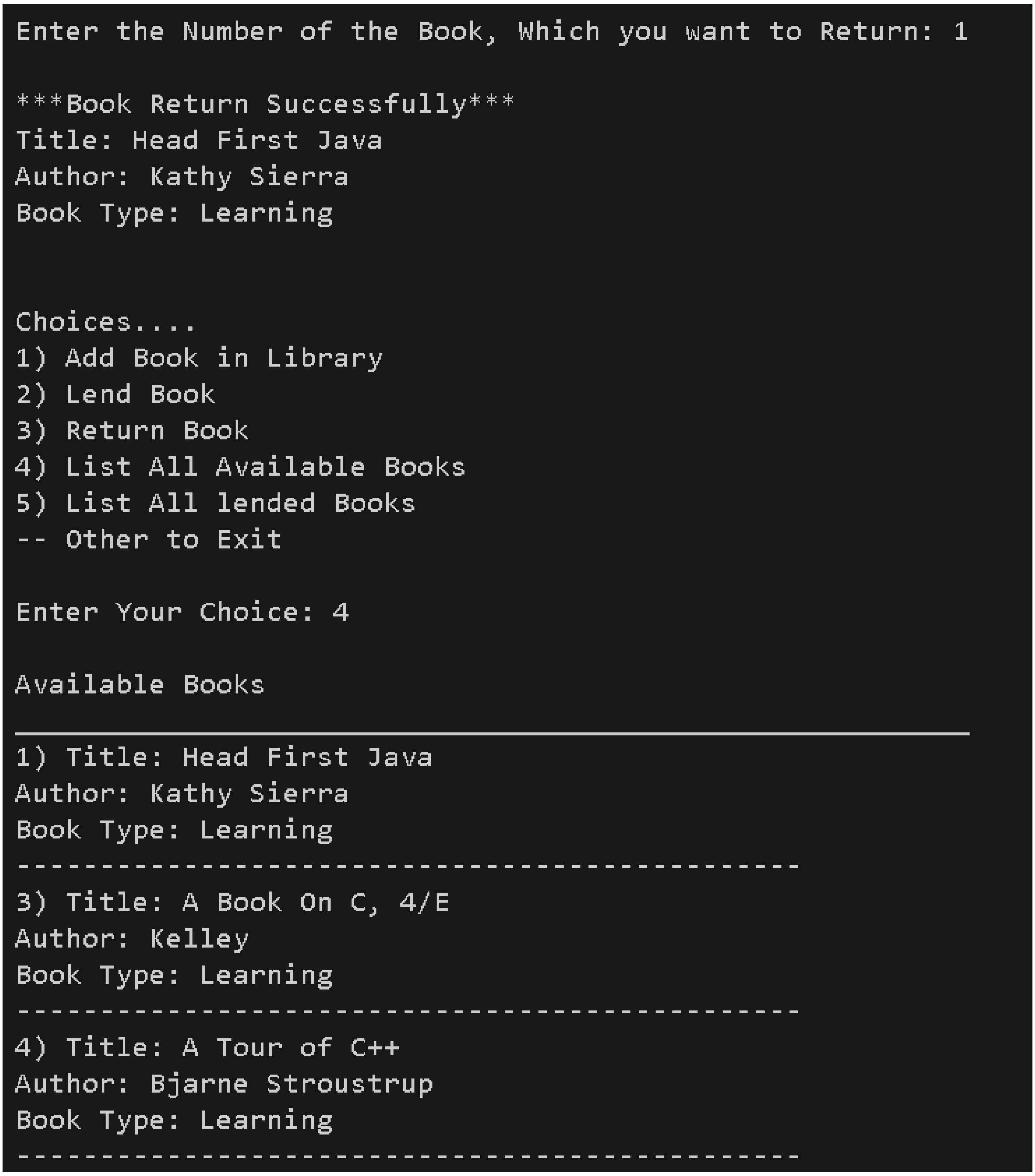


Choices....
1) Add Book in Library
2) Lend Book
3) Return Book
4) List All Available Books
5) List All lended Books
-- Other to Exit

Enter Your Choice: 3

All Lended Books

_________________________________________________________
1) Title: Head First Java
Author: Kathy Sierra
Book Type: Learning
-----------------------------------------------
2) Title: Clean Code
Author: Robert Cecil Martin
Book Type: Learning
-----------------------------------------------
```



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Enter the Number of the Book, Which you want to Return: 1

***Book Return Successfully***
Title: Head First Java
Author: Kathy Sierra
Book Type: Learning


Choices....
1) Add Book in Library
2) Lend Book
3) Return Book
4) List All Available Books
5) List All lended Books
-- Other to Exit

Enter Your Choice: 4

Available Books
_________________________________________________________
1) Title: Head First Java
Author: Kathy Sierra
Book Type: Learning
-----------------------------------------------
3) Title: A Book On C, 4/E
Author: Kelley
Book Type: Learning
-----------------------------------------------
4) Title: A Tour of C++
Author: Bjarne Stroustrup
Book Type: Learning
-----------------------------------------------
```

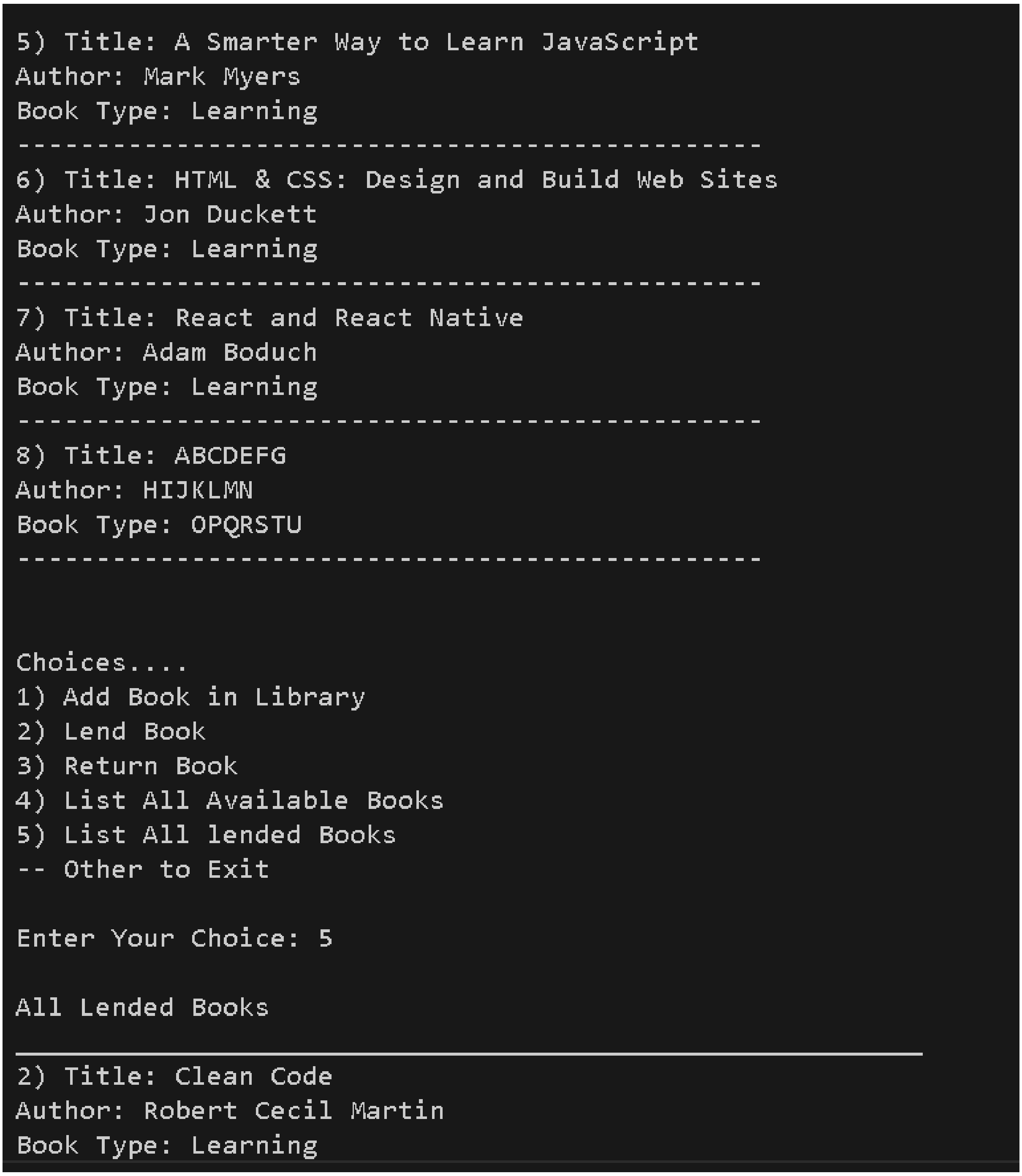

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5) Title: A Smarter Way to Learn JavaScript
Author: Mark Myers
Book Type: Learning
-----------------------------------------------
6) Title: HTML & CSS: Design and Build Web Sites
Author: Jon Duckett
Book Type: Learning
-----------------------------------------------
7) Title: React and React Native
Author: Adam Boduch
Book Type: Learning
-----------------------------------------------
8) Title: ABCDEFG
Author: HIJKLMN
Book Type: OPQRSTU
-----------------------------------------------

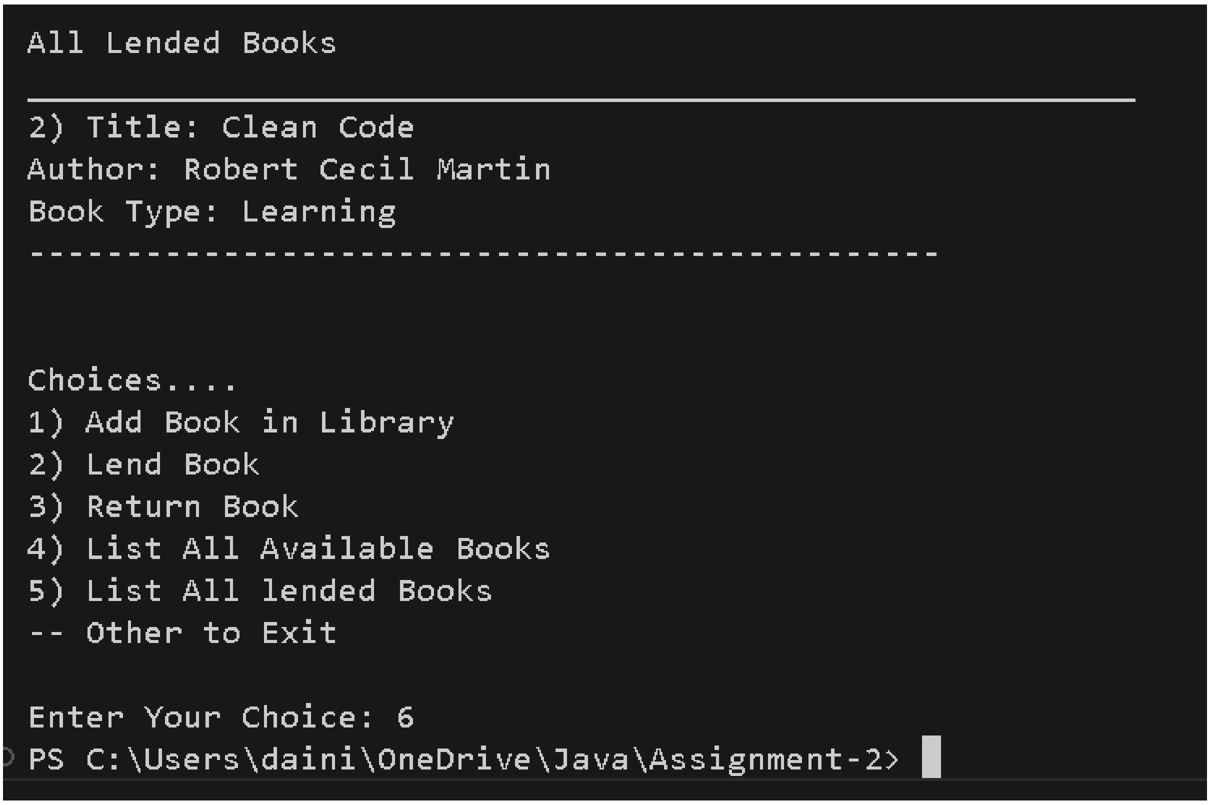


Choices....
1) Add Book in Library
2) Lend Book
3) Return Book
4) List All Available Books
5) List All lended Books
-- Other to Exit

Enter Your Choice: 5

All Lended Books

─────────────────────────────────────────────────────────
2) Title: Clean Code
Author: Robert Cecil Martin
Book Type: Learning
```



```
All Lended Books
____________________________________________________________
2) Title: Clean Code
Author: Robert Cecil Martin
Book Type: Learning
--------------------------------------------------



Choices....
1) Add Book in Library
2) Lend Book
3) Return Book
4) List All Available Books
5) List All lended Books
-- Other to Exit

Enter Your Choice: 6
PS C:\Users\daini\OneDrive\Java\Assignment-2> 
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