CTU 2023

SUBJECT NAME: Beginner Java MY Semester 1

SUBJECT CODE: JD521

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31 August 2023:

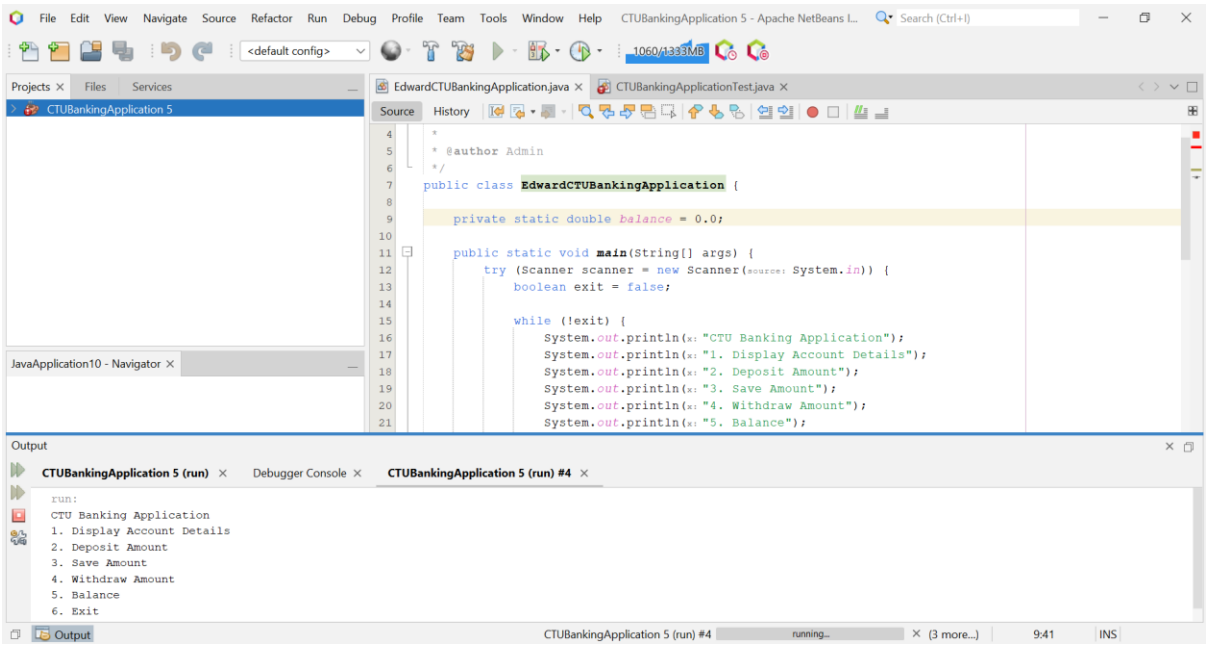
Question 1

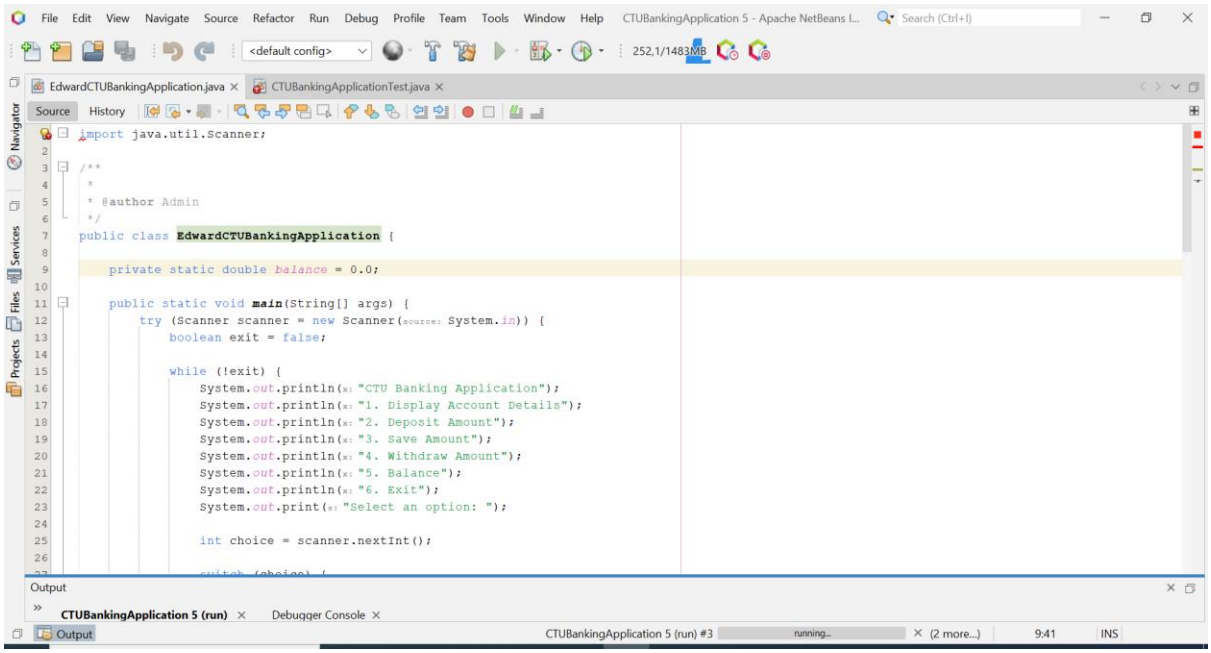
1.1 Create a basic Java Application that will help CTU banking clients to perform basic transactions.

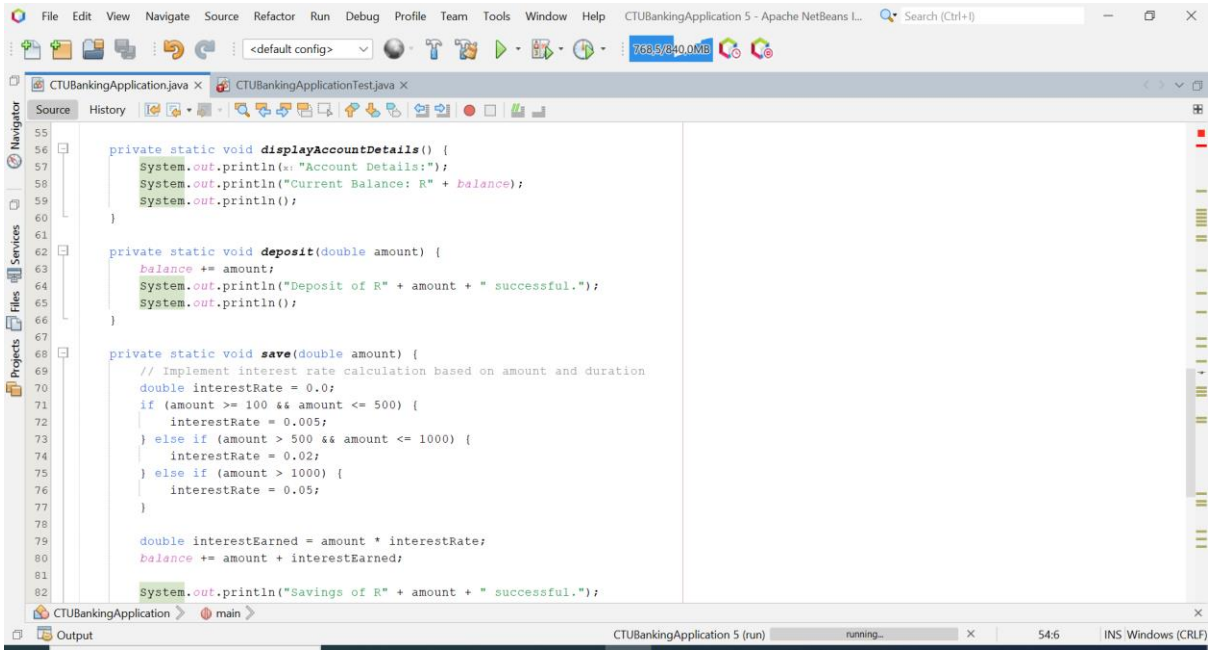
The Application should meet the following menu requirements:

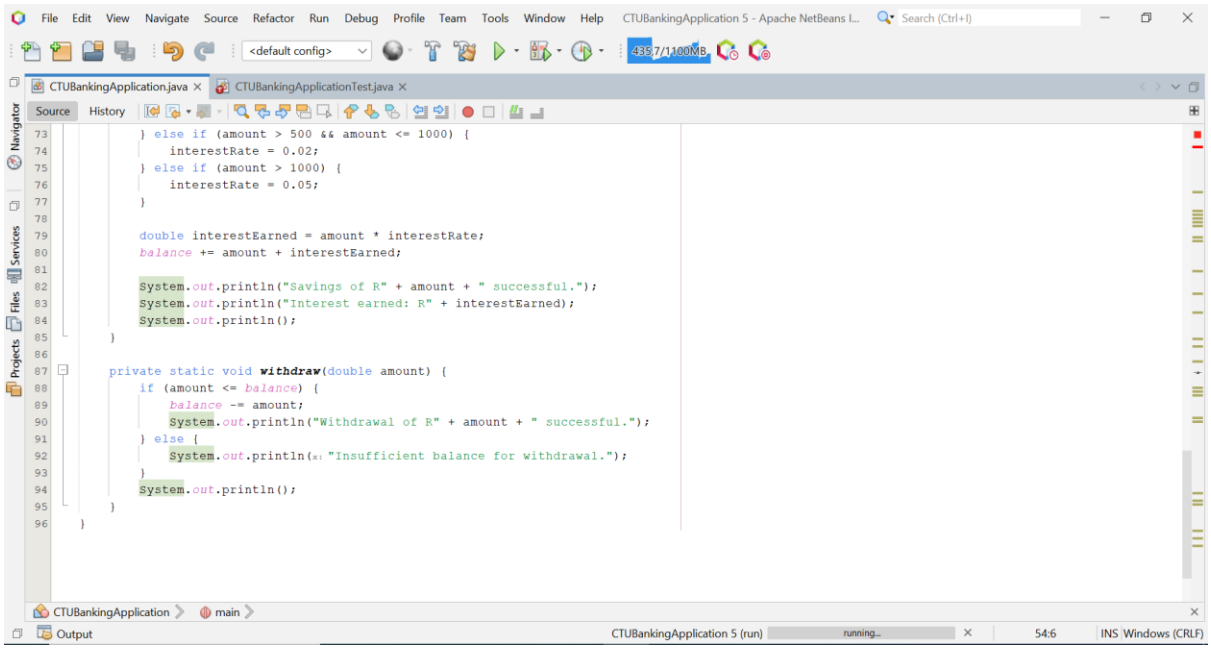
- Display all account details
- Deposit the amount
- Save the amount
- Withdraw the amount
- Exit

Screen shots:

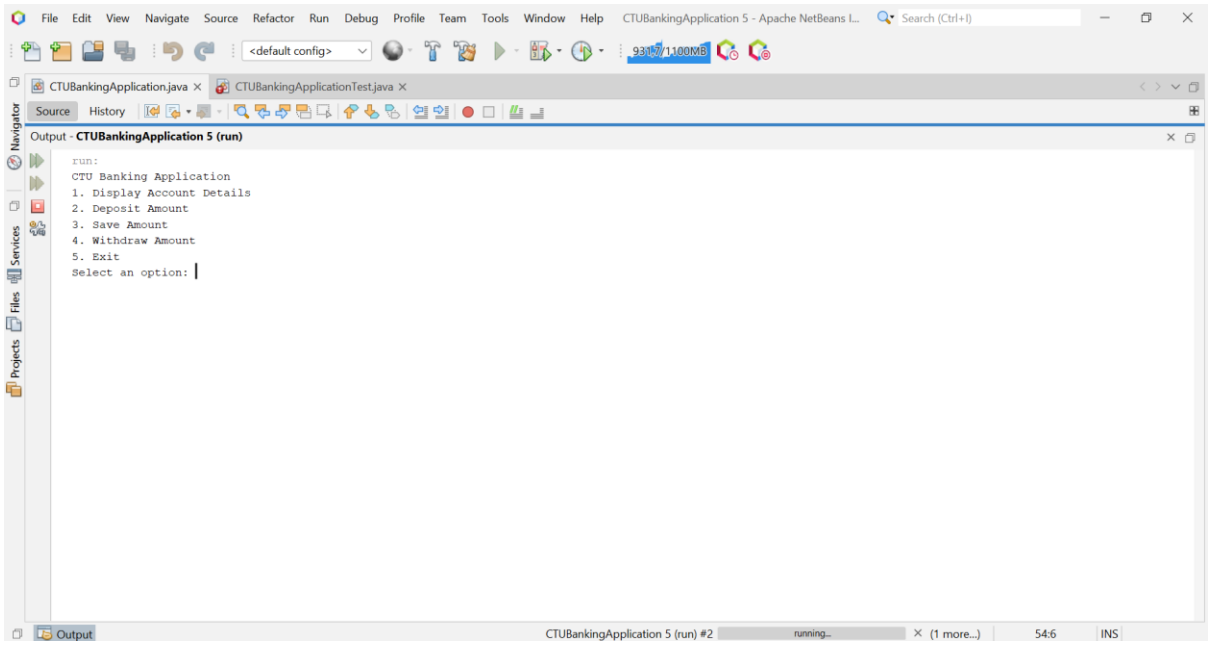



File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
CTUBankingApplication 5 - Apache NetBeans I...
Search (Ctrl+I)
<default config>
252.1/1483MB
EdwardCTUBankingApplication.java
CTUBankingApplicationTest.java
Source History
import java.util.Scanner;
/**
*
* @author Admin
*/
public class EdwardCTUBankingApplication {
private static double balance = 0.0;
public static void main(String[] args) {
try (Scanner scanner = new Scanner(source: System.in)) {
boolean exit = false;
while (!exit) {
System.out.println(x: "CTU Banking Application");
System.out.println(x: "1. Display Account Details");
System.out.println(x: "2. Deposit Amount");
System.out.println(x: "3. Save Amount");
System.out.println(x: "4. Withdraw Amount");
System.out.println(x: "5. Balance");
System.out.println(x: "6. Exit");
System.out.print(s: "Select an option: ");
int choice = scanner.nextInt();
Output
CTUBankingApplication 5 (run)
Debugger Console
CTUBankingApplication 5 (run) #3
running...
(2 more...)
9:41
INS

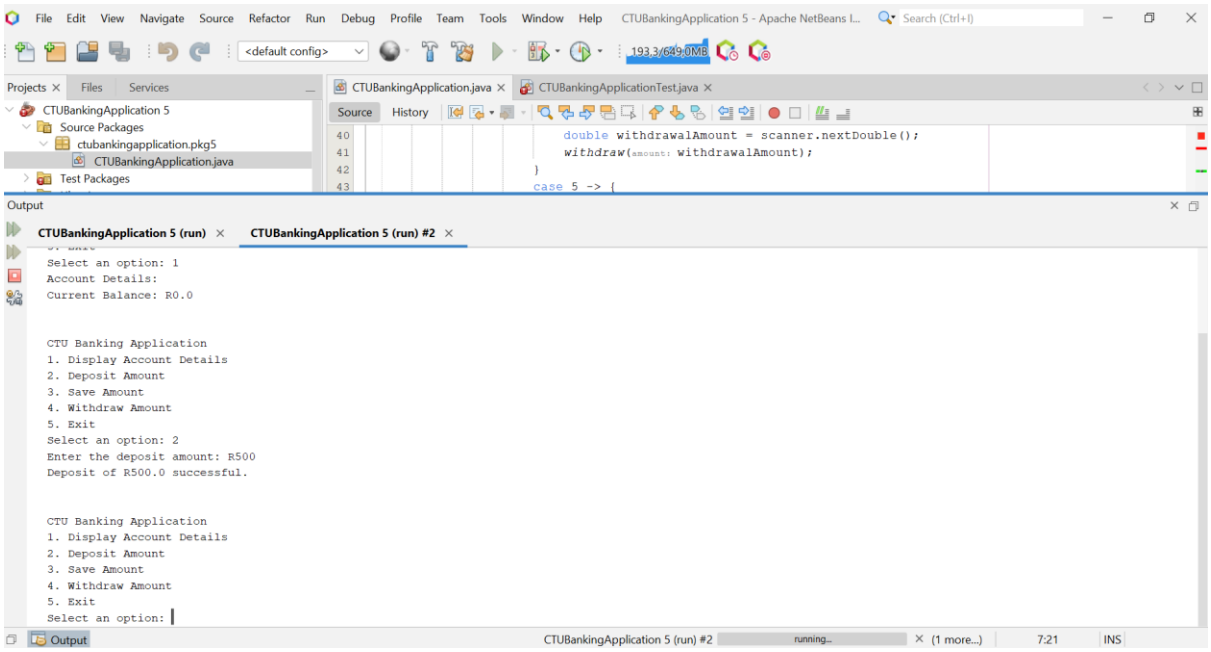

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
CTUBankingApplication 5 - Apache NetBeans I...
Search (Ctrl+I)
<default config>
768.5/840.0MB
CTUBankingApplication.java
CTUBankingApplicationTest.java
Source History
private static void displayAccountDetails() {
System.out.println(x: "Account Details:");
System.out.println("Current Balance: R" + balance);
System.out.println();
}
private static void deposit(double amount) {
balance += amount;
System.out.println("Deposit of R" + amount + " successful.");
System.out.println();
}
private static void save(double amount) {
// Implement interest rate calculation based on amount and duration
double interestRate = 0.0;
if (amount >= 100 && amount <= 500) {
interestRate = 0.005;
} else if (amount > 500 && amount <= 1000) {
interestRate = 0.02;
} else if (amount > 1000) {
interestRate = 0.05;
}
double interestEarned = amount * interestRate;
balance += amount + interestEarned;
System.out.println("Savings of R" + amount + " successful.");
CTUBankingApplication
main
Output
CTUBankingApplication 5 (run)
running...
54:6
INS Windows (CRLF)


File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
CTUBankingApplication 5 - Apache NetBeans I...
Search (Ctrl+I)
<default config>
435.7/1100MB
CTUBankingApplication.java
CTUBankingApplicationTest.java
Source History
} else if (amount > 500 && amount <= 1000) {
interestRate = 0.02;
} else if (amount > 1000) {
interestRate = 0.05;
}
double interestEarned = amount * interestRate;
balance += amount + interestEarned;
System.out.println("Savings of R" + amount + " successful.");
System.out.println("Interest earned: R" + interestEarned);
System.out.println();
}
private static void withdraw(double amount) {
if (amount <= balance) {
balance -= amount;
System.out.println("Withdrawal of R" + amount + " successful.");
} else {
System.out.println("Insufficient balance for withdrawal.");
}
System.out.println();
}
}
CTUBankingApplication
main
Output
CTUBankingApplication 5 (run)
running...
54:6
INS Windows (CRLF)

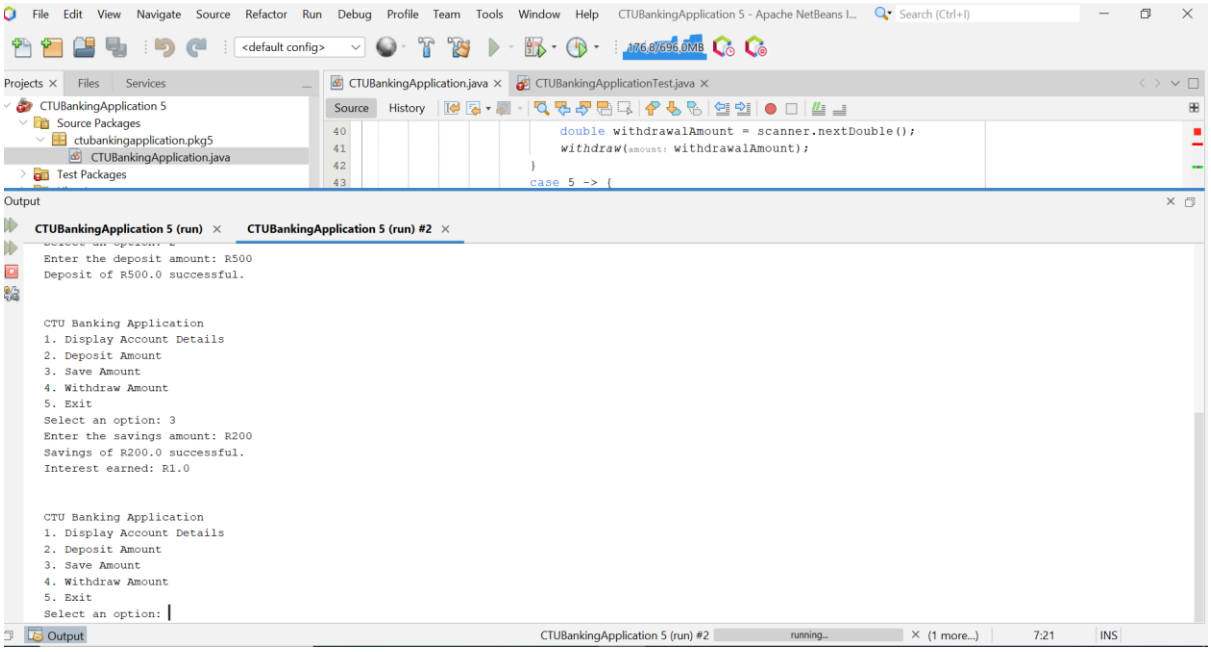
Output


File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
CTUBankingApplication 5 - Apache NetBeans I...
Search (Ctrl+I)
<default config>
931.7/1100MB
CTUBankingApplication.java
CTUBankingApplicationTest.java
Source History
Output - CTUBankingApplication 5 (run)
run:
CTU Banking Application
1. Display Account Details
2. Deposit Amount
3. Save Amount
4. Withdraw Amount
5. Exit
Select an option:
Output
CTUBankingApplication 5 (run) #2
running...
(1 more...)
54:6
INS

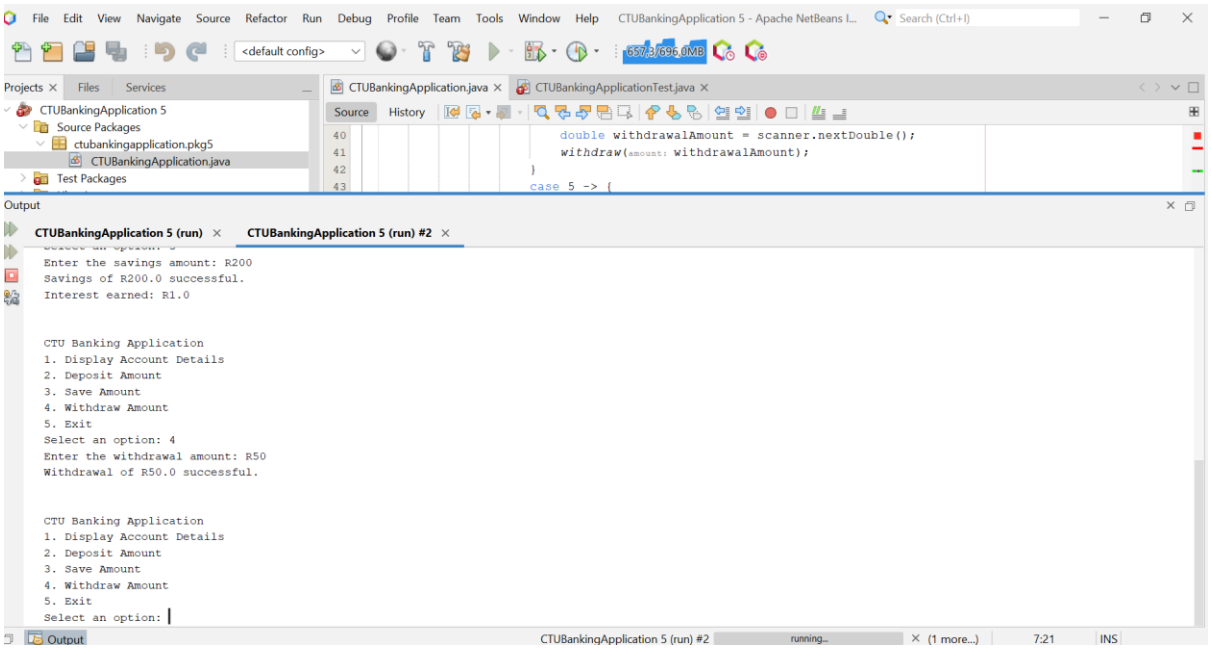
2-


File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
CTUBankingApplication 5 - Apache NetBeans I...
Search (Ctrl+I)
<default config>
193.3/649.0MB
Projects
Files
Services
CTUBankingApplication 5
Source Packages
ctubankingapplication.pkg5
CTUBankingApplication.java
Test Packages
CTUBankingApplication.java
CTUBankingApplicationTest.java
Source
History
40 double withdrawalAmount = scanner.nextDouble();
41 withdraw(amount: withdrawalAmount);
42 }
43 case 5 -> {
Output
CTUBankingApplication 5 (run)
CTUBankingApplication 5 (run) #2
Select an option: 1
Account Details:
Current Balance: R0.0
CTU Banking Application
1. Display Account Details
2. Deposit Amount
3. Save Amount
4. Withdraw Amount
5. Exit
Select an option: 2
Enter the deposit amount: R500
Deposit of R500.0 successful.
CTU Banking Application
1. Display Account Details
2. Deposit Amount
3. Save Amount
4. Withdraw Amount
5. Exit
Select an option:
Output
CTUBankingApplication 5 (run) #2
running...
(1 more...)
7:21
INS

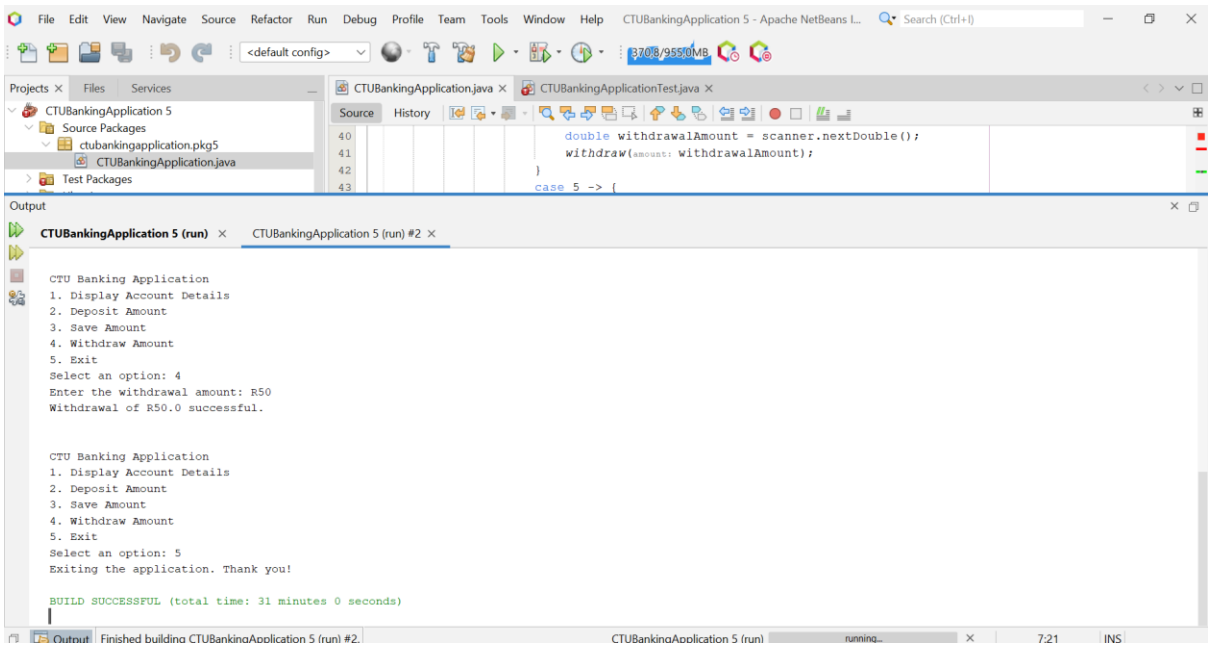
3-


File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
CTUBankingApplication 5 - Apache NetBeans I...
Search (Ctrl+I)
<default config>
176.8/696.0MB
Projects
Files
Services
CTUBankingApplication 5
Source Packages
ctubankingapplication.pkg5
CTUBankingApplication.java
Test Packages
CTUBankingApplication.java
CTUBankingApplicationTest.java
Source
History
40 double withdrawalAmount = scanner.nextDouble();
41 withdraw(amount: withdrawalAmount);
42 }
43 case 5 -> {
Output
CTUBankingApplication 5 (run)
CTUBankingApplication 5 (run) #2
Enter the deposit amount: R500
Deposit of R500.0 successful.
CTU Banking Application
1. Display Account Details
2. Deposit Amount
3. Save Amount
4. Withdraw Amount
5. Exit
Select an option: 3
Enter the savings amount: R200
Savings of R200.0 successful.
Interest earned: R1.0
CTU Banking Application
1. Display Account Details
2. Deposit Amount
3. Save Amount
4. Withdraw Amount
5. Exit
Select an option:
Output
CTUBankingApplication 5 (run) #2
running...
(1 more...)
7:21
INS

4-



5-



Code:

```
import java.util.Scanner;

/**
 *
```

```
 * @author Admin
 */
public class CTUBankingApplication {

    private static double balance = 0.0;

    public static void main(String[] args) {
        try (Scanner scanner = new Scanner(System.in)) {
            boolean exit = false;

            while (!exit) {
                System.out.println("CTU Banking Application");
                System.out.println("1. Display Account Details");
                System.out.println("2. Deposit Amount");
                System.out.println("3. Save Amount");
                System.out.println("4. Withdraw Amount");
                System.out.println("5. Balance");
                System.out.println("6. Exit");
                System.out.print("Select an option: ");

                int choice = scanner.nextInt();

                switch (choice) {
                    case 1 -> displayAccountDetails();
                    case 2 -> {
                        System.out.print("Enter the deposit amount: R");
                        double depositAmount = scanner.nextDouble();
                        deposit(depositAmount);
                    }
                    case 3 -> {
                        System.out.print("Enter the savings amount: R");
```

```
                double savingsAmount = scanner.nextDouble();
                save(savingsAmount);
            }
            case 4 -> {
                System.out.print("Enter the withdrawal amount: R");
                double withdrawalAmount = scanner.nextDouble();
                withdraw(withdrawalAmount);
            }
            case 5 -> {
                exit = true;
                System.out.println("Exiting the application. Thank you!");
            }
            default -> System.out.println("Invalid choice. Please select a valid option.");
        }

        System.out.println();
    }
  }
}

private static void displayAccountDetails() {
  System.out.println("Account Details:");
  System.out.println("Current Balance: R" + balance);
  System.out.println();
}

private static void deposit(double amount) {
  balance += amount;
  System.out.println("Deposit of R" + amount + " successful.");
  System.out.println();
}
```

```
    private static void save(double amount) {
        // Implement interest rate calculation based on amount and duration
        double interestRate = 0.0;
        if (amount >= 100 && amount <= 500) {
            interestRate = 0.005;
        } else if (amount > 500 && amount <= 1000) {
            interestRate = 0.02;
        } else if (amount > 1000) {
            interestRate = 0.05;
        }

        double interestEarned = amount * interestRate;
        balance += amount + interestEarned;

        System.out.println("Savings of R" + amount + " successful.");
        System.out.println("Interest earned: R" + interestEarned);
        System.out.println();
    }

    private static void withdraw(double amount) {
        if (amount <= balance) {
            balance -= amount;
            System.out.println("Withdrawal of R" + amount + " successful.");
        } else {
            System.out.println("Insufficient balance for withdrawal.");
        }
        System.out.println();
    }
}
```