Experiment 3

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Branch: CSE   Section/Group: WM-902/B

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Subject Name: PBL in Java Lab   Subject Code: 20CSP-321

1. Aim/Overview of the practical:

      Create an application to calculate interest for FDs, RDs based on certain conditions using inheritance.

2. Task to be done:

  Calculate interest based on the type of the account and the status of the account holder. The rates of interest changes according to the amount (greater than or less than 1 crore), age of account holder (General or Senior citizen) and number of days if the type of account is FD or RD.

3. Source Code:

```
import java.util.Scanner;
//Abhishek Sharma //UID:
20BCS9162 abstract class
Account {
    Scanner input = new Scanner(System.in);
};

class FDAccount extends Account {
    double amount, Genral, Senoir, interestRate, total;
int noOfDays;    int ageOfHolder;    double
calculateintrest() {
        System.out.println("Enter FD Amount: ");
```

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```java
        this.amount = input.nextDouble();
        System.out.println("Enter FD number of days: ");
this.noOfDays = input.nextInt();
System.out.println("Enter Your Age: ");
this.ageOfHolder = input.nextInt();        if (noOfDays
< 0) {
        System.out.println("Invalid Days");
        System.exit(0);
    }
    if (ageOfHolder < 0) {
        System.out.println("Invalid age");
        System.exit(0);
    }
    if (amount < 10000000) {
        if ((noOfDays >= 7) && (noOfDays <= 14)) {
            Genral = 4.50;
            Senoir = 5.00;
        } else if ((noOfDays >= 15) && (noOfDays <= 29)) {
            Genral = 4.75;
            Senoir = 5.25;
        } else if ((noOfDays >= 30) && (noOfDays <= 45)) {
            Genral = 5.50;
            Senoir = 6.00;
        } else if ((noOfDays >= 46) && (noOfDays <= 60)) {
            Genral = 7;
            Senoir = 7.50;
        } else if ((noOfDays >= 61) && (noOfDays <= 184)) {
            Genral = 7.50;
            Senoir = 8.00;
        } else if ((noOfDays >= 185) && (noOfDays <= 365)) {
            Genral = 8.00;
            Senoir = 8.50;
        }
        interestRate = ((ageOfHolder < 50) ? Genral : Senoir);
    } else {
        if ((noOfDays >= 7) && (noOfDays <= 14)) {
interestRate = 6.50;
        } else if ((noOfDays >= 15) && (noOfDays <= 29)) {
            interestRate = 6.75;
```

```java
        } else if ((noOfDays >= 30) && (noOfDays <= 45)) {
interestRate = 6.75;
        } else if ((noOfDays >= 46) && (noOfDays <= 60)) {
interestRate = 8;
        } else if ((noOfDays >= 61) && (noOfDays <= 184)) {
interestRate = 8.50;
        } else if ((noOfDays >= 185) && (noOfDays <= 365)) {
interestRate = 10.00;
        }
    }
    total = ((amount * (interestRate) / 100));
return total;
    }
}

class SBAccount extends Account {
double interestRate;     double
amount;    int choice;     double
calculateintrest() {
    System.out.println("Enter Amount: ");
this.amount = input.nextDouble();
System.out.println("1.Nri account: ");
System.out.println("2. Normal account: ");
choice = input.nextInt();        if (choice == 1) {
interestRate = 0.06;        } else if (choice == 2)
{        interestRate = 0.04;
    } else if (choice < 0 || choice > 2) {
        System.out.println("Worng Input ! ");
        System.exit(0);
    }
    return amount * interestRate;
    }
}

class RDAccount extends Account {        double
interestRate, amount, Genral, Senoir, total;       int
noofMonths;        int ageOfHolder;        double
calculateintrest() {
    System.out.println("Enter RD Amount: ");
this.amount = input.nextDouble();
```
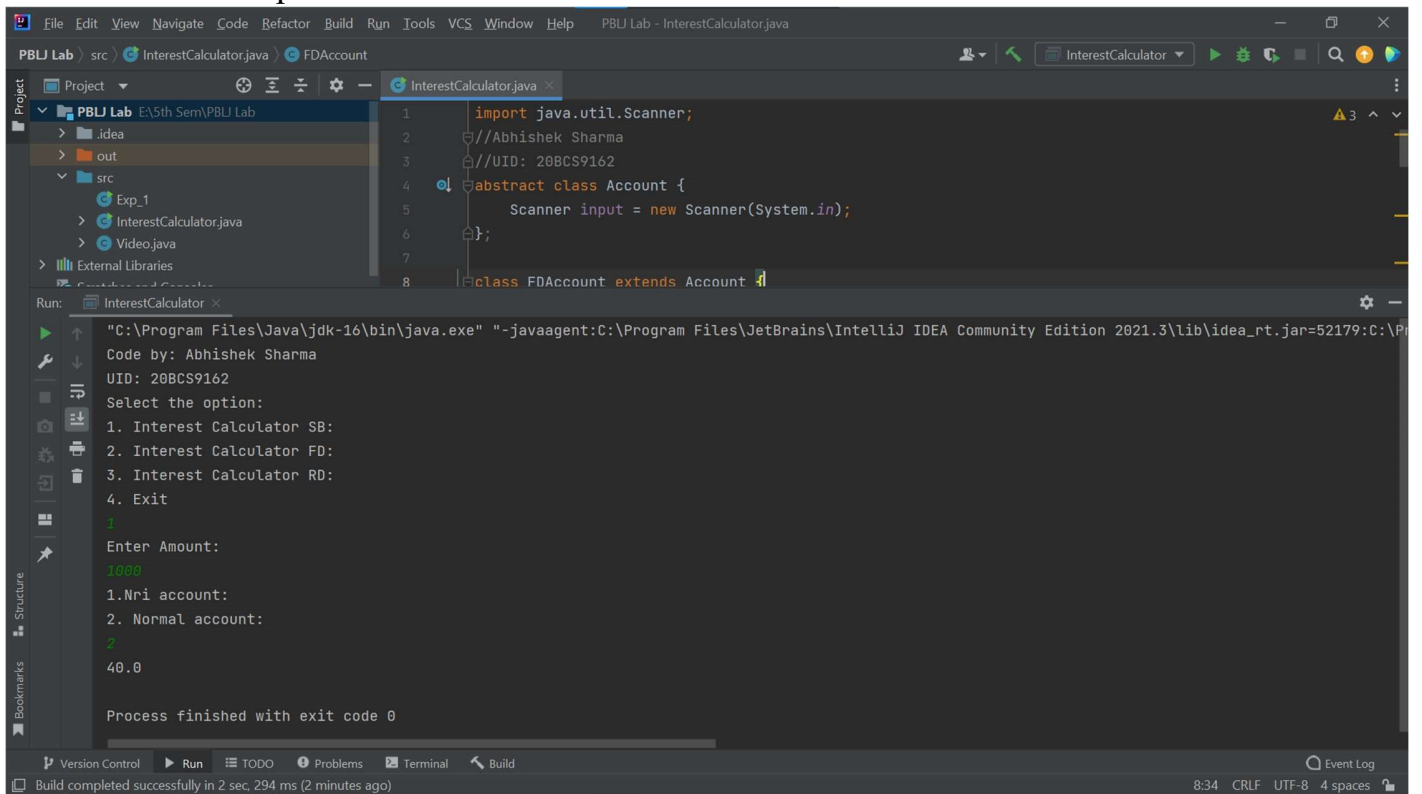
```java
System.out.println("Enter RD Months: ");
this.noofMonths = input.nextInt();
System.out.println("Enter Your Age: ");
this.ageOfHolder = input.nextInt();        if
(noofMonths < 0) {
        System.out.println("Invalid Months");
return 0;
    }
    if (ageOfHolder < 0) {
System.out.println("Invalid age");        return
0;
    }
    if (noofMonths <= 6) {
Genral = 7.50;
        Senoir = 8.00;
    } else if (noofMonths <= 9) {
        Genral = 7.55;
        Senoir = 8.25;
    } else if (noofMonths <= 12) {
        Genral = 8.00;
        Senoir = 8.50;
    } else if (noofMonths <= 15) {
        Genral = 8.25;
        Senoir = 8.75;
    } else if (noofMonths < 18) {
        Genral = 8.50;
        Senoir = 9.00;
    } else if (noofMonths < 21) {
        Genral = 8.75;
        Senoir = 9.25;
    }
    interestRate = ((ageOfHolder < 50) ? Genral : Senoir);
total = ((amount * (interestRate) / 100));        return total;
    }
} public class InterestCalculator {
public static void main(String[] args) {
        System.out.println("Code by: Abhishek Sharma");
System.out.println("UID: 20BCS9162");        try
(Scanner input = new Scanner(System.in)) {
System.out.println("Select the option: ");
```

```java
        System.out.println("1. Interest Calculator SB: ");
        System.out.println("2. Interest Calculator FD: ");
        System.out.println("3. Interest Calculator RD: ");
System.out.println("4. Exit");            int choice;
choice = input.nextInt();           switch (choice) {
case 1:
            SBAccount sb = new SBAccount();
System.out.println(sb.calculateintrest());
break;            case 2:
            FDAccount fb = new FDAccount();
System.out.println(fb.calculateintrest());
break;            case 3:
            RDAccount rd = new RDAccount();
rd.calculateintrest();                break;
case 4:             System.exit(0);
break;
        }
    }
  }
}
```

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4. Result/Output:

Learning outcomes (What I have learnt):

1. Familiar with Environment

2. Basic functions to perform on array and linked list

3. Uses of abstract class and inheritance

4. Uses of switch case

Evaluation Grid:

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.	Student Performance (Conduct of experiment) objectives/Outcomes.		12
2.	Viva Voce		10
3.	Submission of Work Sheet (Record)		8
	Total		30