

Experiment 1.3

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Subject Name: Project-based learning in Java

Subject Code: 21CSH-319

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

2. Objective: The objective of this program is to understand the concept of inheritance and make an application using it.

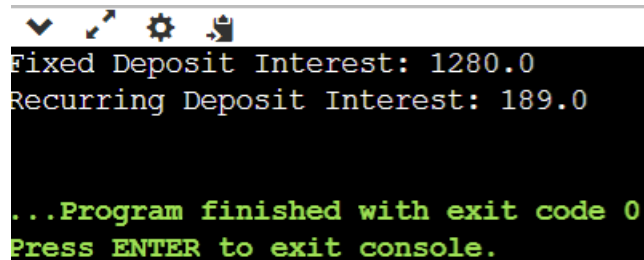
3. Code:

```
class Deposit {  
    protected double principal;  
  
    protected double rate;  
  
    protected int time;  
  
  
    public Deposit(double principal, double rate, int time) {  
        this.principal = principal;  
        this.rate = rate;  
        this.time = time;  
    }  
  
  
    public double calculateInterest() {  
        return 0.0;  
    }  
}
```

```
class FixedDeposit extends Deposit {  
    private boolean isSeniorCitizen;  
  
    public FixedDeposit(double principal, double rate, int time, boolean isSeniorCitizen) {  
        super(principal, rate, time);  
        this.isSeniorCitizen = isSeniorCitizen;  
    }  
  
    @Override  
    public double calculateInterest() {  
        double baseRate = isSeniorCitizen ? 0.08 : 0.07;  
        return principal * rate * time * baseRate;  
    }  
}  
  
class RecurringDeposit extends Deposit {  
    private double monthlyDeposit;  
  
    public RecurringDeposit(double monthlyDeposit, double rate, int time) {  
        super(0, rate, time);  
        this.monthlyDeposit = monthlyDeposit;  
    }  
  
    @Override  
    public double calculateInterest() {  
        double totalPrincipal = monthlyDeposit * time;  
        return totalPrincipal * rate * time * 0.06;  
    }  
}
```

```
    }  
}  
  
public class Main {  
    public static void main(String[] args) {  
        FixedDeposit fd = new FixedDeposit(100000, 0.08, 2, true);  
        RecurringDeposit rd = new RecurringDeposit(5000, 0.07, 3);  
  
        double fdInterest = fd.calculateInterest();  
        double rdInterest = rd.calculateInterest();  
  
        System.out.println("Fixed Deposit Interest: " + fdInterest);  
        System.out.println("Recurring Deposit Interest: " + rdInterest);  
    }  
}
```

4. Output:

A screenshot of a terminal window showing the output of the Java program. The output consists of two lines: 'Fixed Deposit Interest: 1280.0' and 'Recurring Deposit Interest: 189.0'. Below these, it says '...Program finished with exit code 0' and 'Press ENTER to exit console.' in green text.

```
Fixed Deposit Interest: 1280.0  
Recurring Deposit Interest: 189.0  
  
...Program finished with exit code 0  
Press ENTER to exit console.
```