Experiment No 3

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Semester: 5TH	**Date of Performance: 05/09/2022**
Subject Name: PBLJ Lab	**Subject Code: 20CSP-321**

AIM:

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

TASK:

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.

CODE/INPUT:

```
package javalab;
import java.util.Scanner;
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: ");
        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;
            } 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;
}

static 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();
        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 static class InterestCalculator {
    public static void main(String[] args) {
        try
                (Scanner input = new Scanner(System.in)) {
            System.out.println("Select the option: ");
            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();
                    System.out.println(rd.calculateintrest());
                    break;
                case 4:
                    System.exit(0);
                    break;
            }
        }
    }
}
```

InterestCalulator.java

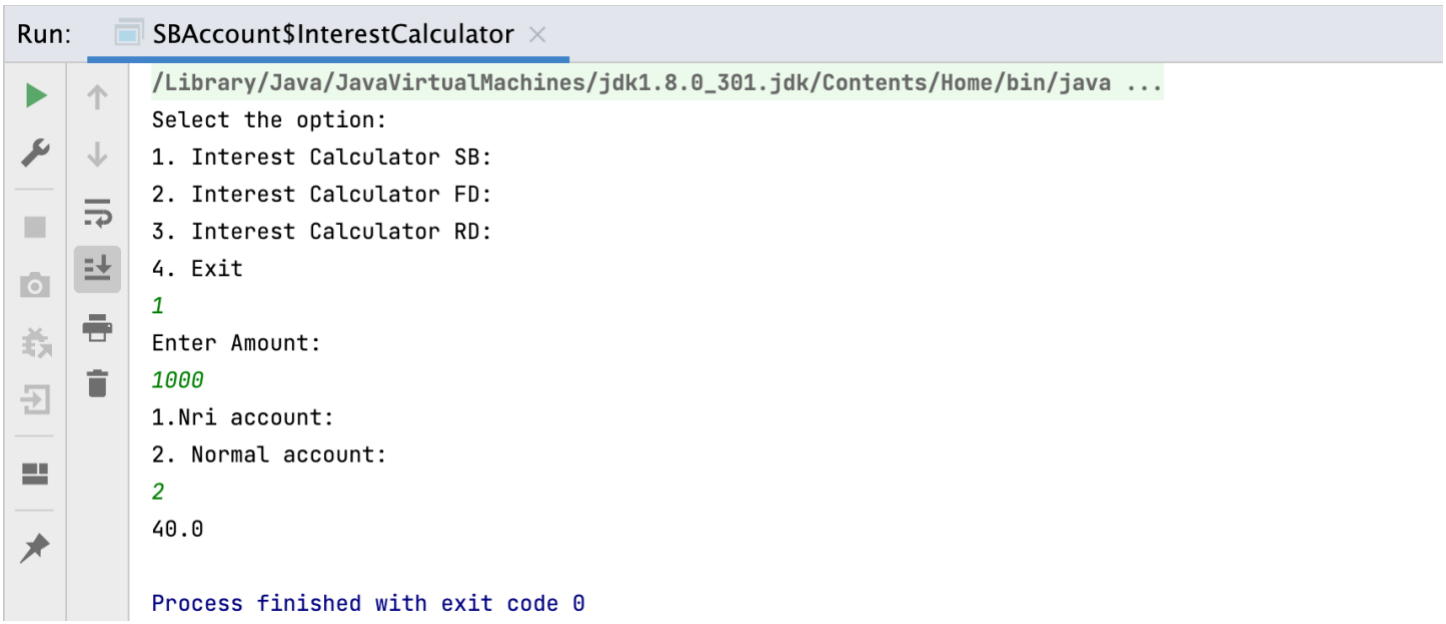
```java
package javalab;
import java.util.Scanner;
abstract class Account {
Scanner input = new Scanner(System.in); }
class FDAccount extends Account {
    double amount, Genral, Senoir, interestRate, total;
    int noOfDays;
    int ageOfHolder;
    double calculateintrest() {
        System.out.println("Enter FD Amount: ");
        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( status: 0); }
        if (ageOfHolder < 0) {
            System.out.println("Invalid age");
            System.exit( status: 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;
```

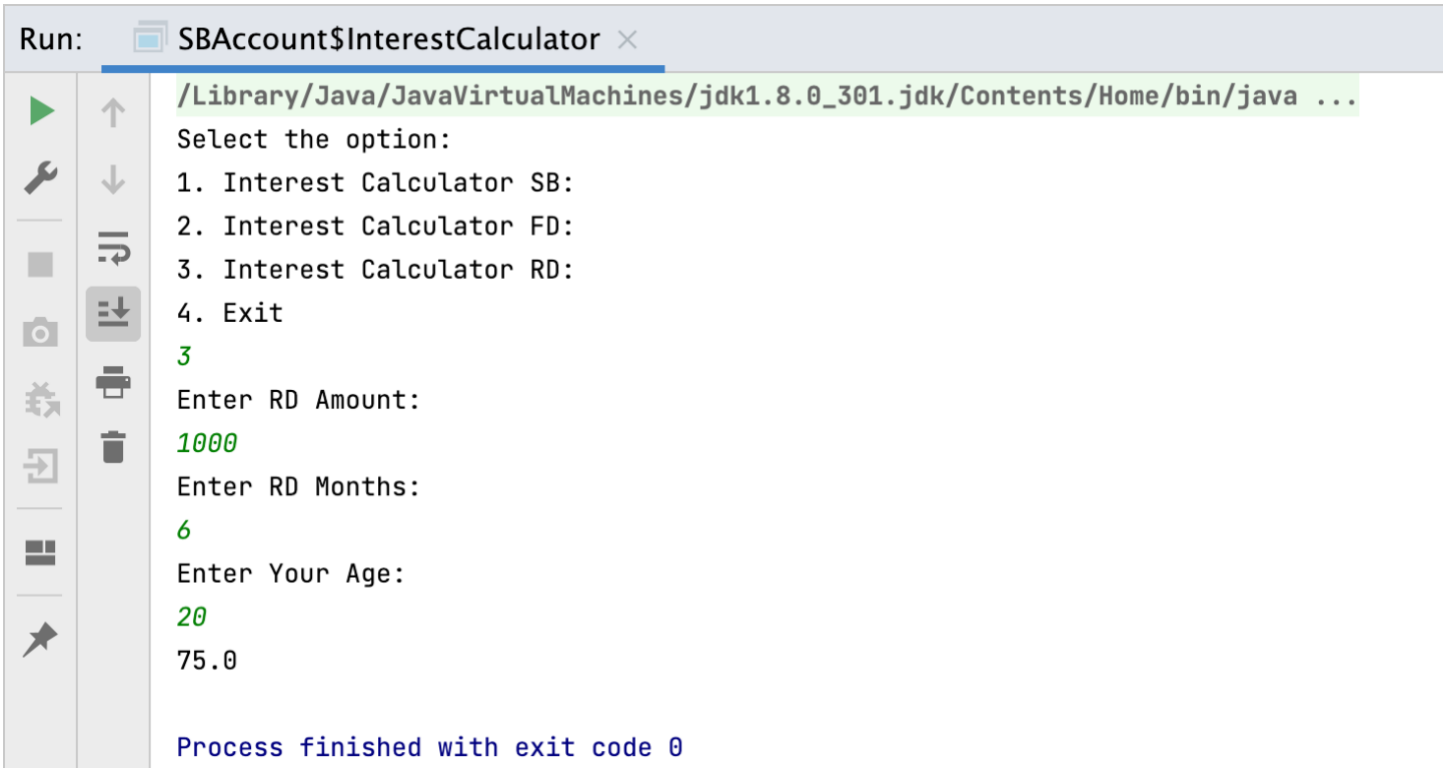
```
36              }
37              interestRate = ((ageOfHolder < 50) ? Genral : Senoir); } else {
38              if ((noOfDays >= 7) && (noOfDays <= 14)) { interestRate = 6.50;
39              } else if ((noOfDays >= 15) && (noOfDays <= 29)) { interestRate = 6.75;
40              } else if ((noOfDays >= 30) && (noOfDays <= 45)) { interestRate = 6.75;
41              } else if ((noOfDays >= 46) && (noOfDays <= 60)) { interestRate = 8;
42              } else if ((noOfDays >= 61) && (noOfDays <= 184)) { interestRate = 8.50;
43              } else if ((noOfDays >= 185) && (noOfDays <= 365)) { interestRate = 10.00;
44              }
45          }
46          total = ((amount * (interestRate) / 100)); return total;
47      } }
48  class SBAccount extends Account {
49      double interestRate;
50      double amount;
51      int choice;
52
53      double calculateintrest() {
54          System.out.println("Enter Amount: ");
55          this.amount = input.nextDouble();
56          System.out.println("1.Nri account: ");
57          System.out.println("2. Normal account: ");
58          choice = input.nextInt();
59          if (choice == 1) {
60              interestRate = 0.06;
61          } else if (choice == 2) {
62              interestRate = 0.04;
63          } else if (choice < 0 || choice > 2) {
64              System.out.println("Worng Input ! ");
65              System.exit( status: 0);
66          }
67          return amount * interestRate;
68      }
69
70      static class RDAccount extends Account {
```

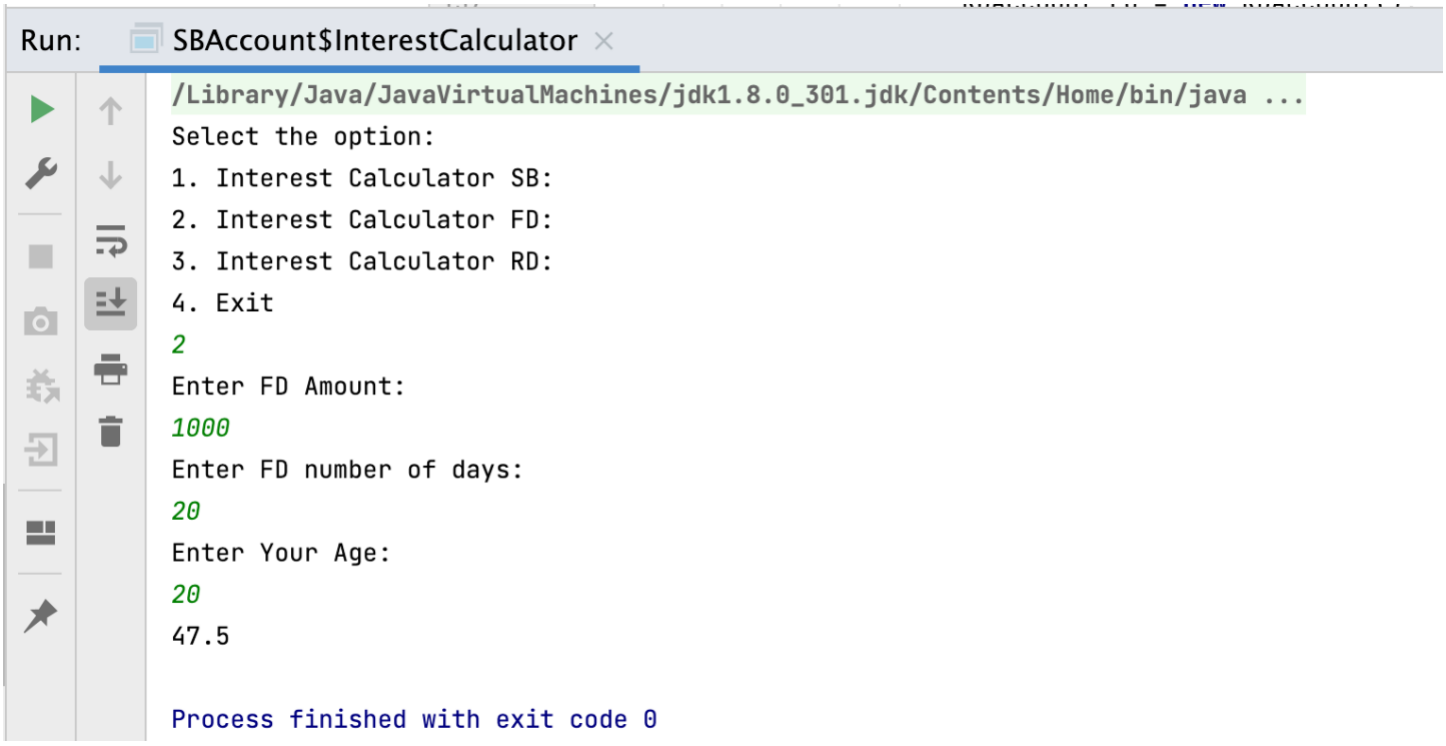
```
71      double interestRate, amount, Genral, Senoir, total;
72      int noofMonths;
73      int ageOfHolder;
74
75      double calculateintrest() {
76
77          System.out.println("Enter RD Amount: ");
78          this.amount = input.nextDouble();
79          System.out.println("Enter RD Months: ");
80          this.noofMonths = input.nextInt();
81          System.out.println("Enter Your Age: ");
82          this.ageOfHolder = input.nextInt();
83          if (noofMonths < 0) {
84              System.out.println("Invalid Months");
85              return 0;
86          }
87          if (ageOfHolder < 0) {
88              System.out.println("Invalid age");
89              return 0;
90          }
91          if (noofMonths <= 6) {
92              Genral = 7.50;
93              Senoir = 8.00;
94          } else if (noofMonths <= 9) {
95              Genral = 7.55;
96              Senoir = 8.25;
97          } else if (noofMonths <= 12) {
98              Genral = 8.00;
99              Senoir = 8.50;
100         } else if (noofMonths <= 15) {
101             Genral = 8.25;
102             Senoir = 8.75;
103         } else if (noofMonths < 18) {
104             Genral = 8.50;
105             Senoir = 9.00;
```

```
106             } else if (noofMonths < 21) {
107                 Genral = 8.75;
108                 Senoir = 9.25;
109             }
110             interestRate = ((ageOfHolder < 50) ? Genral : Senoir);
111             total = ((amount * (interestRate) / 100));
112             return total;
113         }
114     }
115
116     public static class InterestCalculator {
117         public static void main(String[] args) {
118             try
119                     (Scanner input = new Scanner(System.in)) {
120                 System.out.println("Select the option: ");
121                 System.out.println("1. Interest Calculator SB: ");
122                 System.out.println("2. Interest Calculator FD: ");
123                 System.out.println("3. Interest Calculator RD: ");
124                 System.out.println("4. Exit");
125                 int choice;
126                 choice = input.nextInt();
127                 switch (choice) {
128                     case 1:
129                         SBAccount sb = new SBAccount();
130                         System.out.println(sb.calculateintrest());
131                         break;
132                     case 2:
133                         FDAccount fb = new FDAccount();
134                         System.out.println(fb.calculateintrest());
135                         break;
136                     case 3:
137                         RDAccount rd = new RDAccount();
138                         System.out.println(rd.calculateintrest());
139                         break;
140                     case 4:
141                         System.exit( status: 0);
142                         break;
143                 }
144             }
145         }
146     }
147 }
```

OUTPUT:


Run: SBAccount$InterestCalculator
/Library/Java/JavaVirtualMachines/jdk1.8.0_301.jdk/Contents/Home/bin/java ...
Select the option:
1. Interest Calculator SB:
2. Interest Calculator FD:
3. Interest Calculator RD:
4. Exit
1
Enter Amount:
1000
1.Nri account:
2. Normal account:
2
40.0
Process finished with exit code 0


Run: SBAccount$InterestCalculator
/Library/Java/JavaVirtualMachines/jdk1.8.0_301.jdk/Contents/Home/bin/java ...
Select the option:
1. Interest Calculator SB:
2. Interest Calculator FD:
3. Interest Calculator RD:
4. Exit
3
Enter RD Amount:
1000
Enter RD Months:
6
Enter Your Age:
20
75.0
Process finished with exit code 0


Run:
SBAccount$InterestCalculator
/Library/Java/JavaVirtualMachines/jdk1.8.0_301.jdk/Contents/Home/bin/java ...
Select the option:
1. Interest Calculator SB:
2. Interest Calculator FD:
3. Interest Calculator RD:
4. Exit
2
Enter FD Amount:
1000
Enter FD number of days:
20
Enter Your Age:
20
47.5
Process finished with exit code 0