EXPERIMENT 1.3

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Aim:

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

Objective:

Develop a system that dynamically calculates interest based on these parameters, ensuring accuracy in financial computations

Algorithm:

Input Details

- Read account type (FD/RD).
- Read deposit amount in crores.
- If account type is FD or RD, ask if the user is a senior citizen.
- Read maturity period (in days for FD, in months for RD).

Determine Interest Rate

- If account type is FD:
  - Check deposit amount (above or below 1 crore).
  - Determine interest rate based on maturity period and senior citizen status.
- If account type is RD:

- Determine interest rate based on maturity period and senior citizen status.

Display Result

- Print the applicable interest rate.
- If input is invalid, show an error message.

Source Code:

```
import java.util.Scanner;

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


          System.out.println(
          "Enter account type
          (FD/RD): ");
      String accountType =
          scanner.next();


          System.out.println(
          "Enter deposit
          amount in crores
          (e.g., 0.5 for 50
          lakhs): ");
      double amount =
          scanner.nextDouble
          ();

      boolean isSenior =
          false;
      if
          (accountType.equal
          sIgnoreCase("FD")
          ||
```

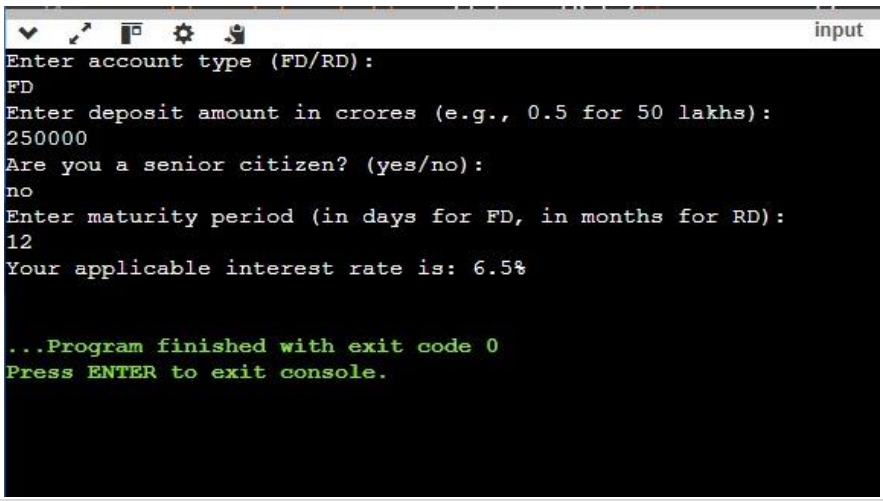
```
            accountType.equals
            IgnoreCase("RD"))
            {

            System.out.println(
            "Are you a senior
            citizen? (yes/no):
            ");
          String seniorInput =
            scanner.next();
          isSenior =
            seniorInput.equalsI
            gnoreCase("yes");
      }

System.out.println("Enter
            maturity period (in
            days for FD, in
            months for RD): ");
      int period =
            scanner.nextInt();

      double rate =
            getInterestRate(acc
            ountType, amount,
            period, isSenior);

      if (rate != -1) {

            System.out.println(
            "Your applicable
            interest rate is: " +
            rate + "%");
      } else {

            System.out.println(
            "Invalid input.
            Please check
            details and try
            again.");
```

```
    }

    scanner.close();
}

public static double
        getInterestRate(Stri
        ng accountType,
        double amount, int
        period, boolean
        isSenior) {
    if
        (accountType.equal
        sIgnoreCase("FD")
        ) {
      return
        getFDInterestRate(
        amount, period,
        isSenior);
    } else if
        (accountType.equal
        sIgnoreCase("RD")
        ) {
      return
        getRDInterestRate(
        period, isSenior);
    }
    return -1;
}

public static double
        getFDInterestRate(
        double amount, int
        period, boolean
        isSenior) {
    if (amount < 1) {
      if (period >= 7 &&
        period <= 14)
        return isSenior ?
        5.0 : 4.5;
```

```
        if (period >= 15 &&
          period <= 29)
          return isSenior ?
          5.25 : 4.75;
        if (period >= 30 &&
          period <= 45)
          return isSenior ?
          6.0 : 5.5;
        if (period >= 46 &&
          period <= 60)
          return isSenior ?
          7.5 : 7.0;
        if (period >= 61 &&
          period <= 184)
          return isSenior ?
          8.0 : 7.5;
        if (period >= 185
          && period <= 365)
          return isSenior ?
          8.5 : 8.0;
      } else {
        if (period >= 7 &&
          period <= 14)
          return 6.5;
        if (period >= 15 &&
          period <= 29)
          return 6.75;
        if (period >= 30 &&
          period <= 45)
          return 6.75;
        if (period >= 46 &&
          period <= 60)
          return 8.0;
        if (period >= 61 &&
          period <= 184)
          return 8.5;
        if (period >= 185
          && period <= 365)
          return 10.0;
      }
```

```
        return -1;
    }

    public static double
            getRDInterestRate(
            int period, boolean
            isSenior) {
        if (period == 6) return
            isSenior ? 8.0 : 7.5;
        if (period == 9) return
            isSenior ? 8.25 :
            7.75;
        if (period == 12) return
            isSenior ? 8.5 : 8.0;
        if (period == 15) return
            isSenior ? 8.75 :
            8.25;
        if (period == 18) return
            isSenior ? 9.0 : 8.5;
        if (period == 21) return
            isSenior ? 9.25 :
            8.75;
        return -1;
    }
}
```

- **Screenshot of Outputs:**



o Learning Outcome:

- Conditional Logic: Apply if-else to determine interest rates based on multiple factors.
- User Input Handling: Use Scanner to take and process user inputs efficiently.
- Modular Programming: Implement functions for better code organization and reusability.
- Decision Making in Finance: Understand how interest rates vary based on amount, tenure, and account type.
- Basic Java Syntax & Execution: Strengthen Java skills by working with loops, conditions, and methods.