Ex. 8   USER DEFINED EXCEPTION HANDLING

Date: 06-09-2024

PROGRAM 1

AIM:

To assign employees to different party halls based on their employee ID and age, following COVID-19 protocols, and raise custom exceptions for those not allowed in specific halls.

ALGORITHM:

1. Input employee ID and age.
2. If ID is even and age < 30, assign to Hall 1. Else, throw a custom exception.
3. If ID is odd and age > 30, assign to Hall 2. Else, throw a custom exception.
4. Assign others to Hall 3.
5. Calculate average age for each hall with exception handling.
6. Handle and display any exceptions.

PROGRAM:

```
package Lab8;

import java.util.Scanner;

class hallExceptions extends Exception {
    public hallExceptions(int condition) {
```

```java
        super(getMessageForCondition(condition));
    }

    public hallExceptions(String customMessage) {
        super(customMessage);
    }

    private static String getMessageForCondition(int condition) {
        switch (condition) {
            case 1:
                return "You are Not Allowed in Hall 2 and Hall 3.";
            case 2:
                return "You are Not Allowed in Hall 1 and Hall 3.";
            case 3:
                return "You are Not Allowed in Hall 1 and Hall 2.";
            default:
                return "Access denied to specified halls.";
        }
    }
}

public class ex1 {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        int employeeID;
```

```java
boolean condition = true;
int totalAge[] = new int[3];
int count[] = new int[3];
int age;
while (condition) {
    System.out.println("Hello!");
    System.out.println("1. Entering Details.");
    System.out.println("2. Exit.");
    int choice = input.nextInt();
    if (choice == 1) {
        System.out.print("Enter the Employee's ID: ");
        employeeID = input.nextInt();
        System.out.print("Enter the Employee's Age: ");
        age = input.nextInt();
        try {
            if (age < 30 && employeeID % 2 == 0) {
                totalAge[0] += age;
                count[0]++;
                throw new hallExceptions(1);
            } else if (age > 30 && employeeID % 2 != 0) {
                totalAge[1] += age;
                count[1]++;
                throw new hallExceptions(2);
            } else {
                totalAge[2] += age;
```

```java
                count[2]++;
                throw new hallExceptions(3);
            }
        } catch (hallExceptions e) {
            System.out.println(e);
        } finally {
            System.out.println("Welcome to the Party!");
        }
    } else {
        condition = false;
    }
}
System.out.println("Average Age of Employees in Hall 1: " +
totalAge[0] / count[0]);
System.out.println("Average Age of Employees in Hall 2: " +
totalAge[1] / count[1]);
System.out.println("Average Age of Employees in Hall 3: " +
totalAge[2] / count[2]);
System.out.println("Exiting...");
    }
}
```

OUTPUT:

```
ashwin_vp@Ubuntu:~$ cd Desktop
ashwin_vp@Ubuntu:~/Desktop$ javac Java/Lab8/*.java
ashwin_vp@Ubuntu:~/Desktop$ cd Java
ashwin_vp@Ubuntu:~/Desktop/Java$ java Lab8.ex1
Hello!
1. Entering Details.
2. Exit.
1
Enter the Employee's ID: 1
Enter the Employee's Age: 25
Lab8.hallExceptions: You are Not Allowed in Hall 1 and Hall 2.
Welcome to the Party!
Hello!
1. Entering Details.
2. Exit.
1
Enter the Employee's ID: 2
Enter the Employee's Age: 18
Lab8.hallExceptions: You are Not Allowed in Hall 2 and Hall 3.
Welcome to the Party!
Hello!
1. Entering Details.
2. Exit.
1
Enter the Employee's ID: 3
Enter the Employee's Age: 56
Lab8.hallExceptions: You are Not Allowed in Hall 1 and Hall 3.
Welcome to the Party!
Hello!
1. Entering Details.
2. Exit.
2
The Average Age of Employees in Hall 1 is 18
The Average Age of Employees in Hall 2 is 56
The Average Age of Employees in Hall 3 is 25
Exiting...
ashwin_vp@Ubuntu:~/Desktop/Java$
```

PROGRAM 2

AIM:

To check if a person is eligible to vote based on their age, raising an exception if they are under 18.

ALGORITHM:

1. Accept the user's date of birth (DOB) from the user.
2. Calculate the user's current age by subtracting the birth year from the current year.
3. Check if the age is less than 18:
   a. If true, throw a custom exception indicating that the user is not eligible to vote.
4. If the age is 18 or above, display a message indicating that the user is eligible to vote.
5. Catch the custom exception and display the appropriate message in the catch block.

PROGRAM:

```java
package Lab8;
import java.util.Scanner;
class ageException extends Exception {
   public ageException() {
      super("You are not Eligible to Vote!");
   }
}
```

```java
public class ex2 {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        System.out.print("Enter your Date of Birth (Use DD/MM/YYYY Format): ");
        String dob = input.nextLine();
        String dateOfBirth[] = dob.split("/");
        int day = Integer.parseInt(dateOfBirth[0]);
        int month = Integer.parseInt(dateOfBirth[1]);
        int year = Integer.parseInt(dateOfBirth[2]);
        if (dateOfBirth.length != 3) {
            System.out.println("Invalid Date of Birth Format!");
            return;
        } else if (day < 1 || day > 31 || month < 1 || month > 12) {
            System.out.println("Invalid Date of Birth Format!");
            return;
        }
        System.out.println("Current Date: 06/09/2024");
        try {
            if (year > 2006) {
                throw new ageException();
            } else if (year == 2006) {
                if (month >= 9) {
                    if (day >= 6) {
                        throw new ageException();
```

```java
                }
            }
        }
        System.out.println("You are Eligible to Vote!");
    } catch (ageException e) {
        System.out.println(e);
    } finally {
        System.out.println("Age Eligibility for Voting is Verified!");
    }
  }
}
```
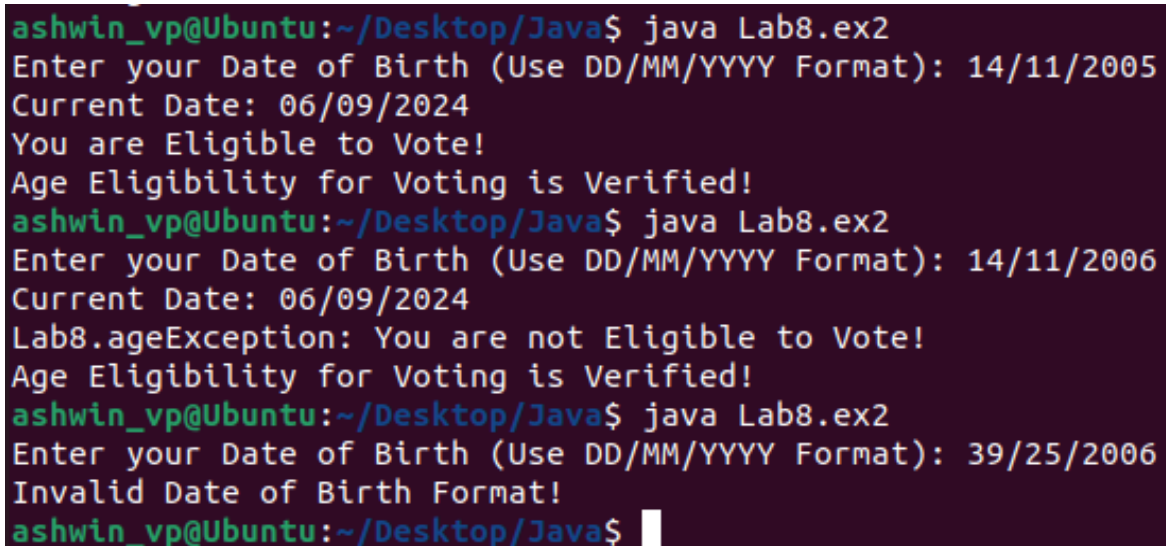
OUTPUT:

```
ashwin_vp@Ubuntu:~/Desktop/Java$ java Lab8.ex2
Enter your Date of Birth (Use DD/MM/YYYY Format): 14/11/2005
Current Date: 06/09/2024
You are Eligible to Vote!
Age Eligibility for Voting is Verified!
ashwin_vp@Ubuntu:~/Desktop/Java$ java Lab8.ex2
Enter your Date of Birth (Use DD/MM/YYYY Format): 14/11/2006
Current Date: 06/09/2024
Lab8.ageException: You are not Eligible to Vote!
Age Eligibility for Voting is Verified!
ashwin_vp@Ubuntu:~/Desktop/Java$ java Lab8.ex2
Enter your Date of Birth (Use DD/MM/YYYY Format): 39/25/2006
Invalid Date of Birth Format!
ashwin_vp@Ubuntu:~/Desktop/Java$
```

RESULT:

Thus, different Java Applications to execute User Defined Exception Handling have been compiled and executed successfully.