

Rajalakshmi Engineering College

Name: Suria Prakash

Email: 241501225@rajalakshmi.edu.in

Roll no: 241501225

Phone: 8056422252

Branch: REC

Department: AI & ML - Section 4

Batch: 2028

Degree: B.E - AI & ML

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2024_28_III_OOPS Using Java Lab

REC_2028_OOPS using Java_Week 8_MCQ

Attempt : 1

Total Mark : 15

Marks Obtained : 15

Section 1 : MCQ

1. Which of the following is true about custom exceptions?

Answer

Custom exceptions must extend either Exception or RuntimeException

Status : Correct

Marks : 1/1

2. What will be the output for the following code?

```
import java.io.*;
```

```
class UnderageException extends Exception {  
    public UnderageException(String message) {  
        super(message);  
    }  
}
```

```
}

class Test {
    public static void main(String[] args) {
        try {
            int age = 17;
            if (age < 18) {
                throw new UnderageException("Underage, cannot proceed");
            }
        } catch (UnderageException e) {
            System.out.println(e.getMessage());
        }
    }
}
```

Answer

Underage, cannot proceed

Status : Correct

Marks : 1/1

3. What is the purpose of a custom exception in Java?

Answer

To create user-defined exceptions for specific scenarios

Status : Correct

Marks : 1/1

4. What will happen if a checked custom exception is thrown inside a method without being caught or declared?

Answer

Compilation Error

Status : Correct

Marks : 1/1

5. What will be the output for the following code?

```
import java.io.*;
```

```
class TemperatureTooHighException extends Exception {  
    public TemperatureTooHighException(String message) {  
        super(message);  
    }  
}  
  
class Test {  
    public static void main(String[] args) {  
        try {  
            int temperature = 110;  
            if (temperature > 100) {  
                throw new TemperatureTooHighException("Temperature too  
high");  
            }  
        } catch (TemperatureTooHighException e) {  
            System.out.println(e.getMessage());  
        }  
    }  
}
```

Answer

Temperature too high

Status : Correct

Marks : 1/1

6. what is the output of the following code?

```
class MyException extends Exception {  
    public MyException(String message) {  
        super(message);  
    }  
}
```

```
class Test {  
    public static void main(String[] args) {  
        try {  
            throw new MyException("Error occurred");  
        } catch (MyException e) {  
            System.out.println(e.getMessage());  
        }  
    }  
}
```

```
        System.out.println(e);
    }
}
}
```

Answer

MyException: Error occurred

Status : Correct

Marks : 1/1

7. What will be the output for the following code?

```
class NegativeBalanceException extends Exception {
    public NegativeBalanceException(String message) {
        super(message);
    }
}

class Test {
    public static void main(String[] args) {
        try {
            double balance = -500;
            if (balance < 0) {
                throw new NegativeBalanceException("Balance cannot be
negative");
            }
        } catch (NegativeBalanceException e) {
            System.out.println("Error: " + e.getMessage());
        }
    }
}
```

Answer

Error: Balance cannot be negative

Status : Correct

Marks : 1/1

8. what is the output of the following code?

```
241501225 class MyException extends Exception {  
241501225     public MyException(String message) {  
241501225         super(message);  
241501225     }  
241501225 }  
241501225  
241501225 class Test {  
241501225     static void check() throws MyException {  
241501225         throw new MyException("Custom Exception Occurred");  
241501225     }  
241501225  
241501225     public static void main(String[] args) {  
241501225         try {  
241501225             check();  
241501225         } catch (Exception e) {  
241501225             System.out.println(e.getMessage());  
241501225         }  
241501225     }  
241501225 }
```

Answer

Custom Exception Occurred

Status : Correct

Marks : 1/1

9. What will be the output of the following code?

```
241501225 class MyException extends Exception {  
241501225     public MyException() {  
241501225         super("Default Exception Message");  
241501225     }  
241501225 }
```

```
241501225 class Test {  
241501225     public static void main(String[] args) {  
241501225         try {  
241501225             throw new MyException();  
241501225         } catch (MyException e) {
```

```
        System.out.println(e.getMessage());  
    }  
}  
}
```

Answer

Default Exception Message

Status : Correct

Marks : 1/1

10. What will be the output for the following code?

```
class InvalidUsernameException extends Exception {  
    public InvalidUsernameException(String message) {  
        super(message);  
    }  
}  
  
class Test {  
    public static void main(String[] args) {  
        try {  
            String username = "abc";  
            if (username.length() < 5) {  
                throw new InvalidUsernameException("Username must be at  
least 5 characters long");  
            }  
        } catch (InvalidUsernameException e) {  
            System.out.println(e.getMessage());  
        }  
    }  
}
```

Answer

Username must be at least 5 characters long

Status : Correct

Marks : 1/1

11. How do you create an unchecked custom exception?

Answer

By extending RuntimeException

Status : Correct

Marks : 1/1

12. Which keyword is used to explicitly throw a custom exception?

Answer

throw

Status : Correct

Marks : 1/1

13. What will be the output for the following code?

```
import java.io.*;

class NegativeAgeException extends Exception {
    public NegativeAgeException(String message) {
        super(message);
    }
}

class Test {
    public static void main(String[] args) {
        try {
            int age = -5;
            if (age < 0) {
                throw new NegativeAgeException("Age cannot be negative");
            }
        } catch (NegativeAgeException e) {
            System.out.println(e.getMessage());
        }
    }
}
```

Answer

Age cannot be negative

Status : Correct

Marks : 1/1

14. What will be the output for the following code?

```
import java.io.*;

class OutOfStockException extends Exception {
    public OutOfStockException(String message) {
        super(message);
    }
}

class Test {
    public static void main(String[] args) {
        try {
            int stock = 0;
            if (stock == 0) {
                throw new OutOfStockException("Item is out of stock");
            }
        } catch (OutOfStockException e) {
            System.out.println(e.getMessage());
        }
    }
}
```

Answer

Item is out of stock

Status : Correct

Marks : 1/1

15. What will be the output for the following code?

```
class InvalidVotingAgeException extends Exception {
    public InvalidVotingAgeException(String message) {
        super(message);
    }
}
```

```
class Test {  
    public static void main(String[] args) {  
        try {  
            int age = 15;  
            if (age < 18) {  
                throw new InvalidVotingAgeException("You are not eligible to  
vote");  
            }  
            System.out.println("Eligible to vote");  
        } catch (InvalidVotingAgeException e) {  
            System.out.println(e.getMessage());  
        }  
    }  
}
```

Answer

You are not eligible to vote

Status : Correct

Marks : 1/1

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 8_Q1

Attempt : 1

Total Mark : 10

Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Write a program to validate the email address and display suitable exceptions if there is any mistake.

Create 3 custom exception classes as below

DotExceptionAtTheRateExceptionDomainException

A typical email address should have a ". " character, and a "@" character, and also the domain name should be valid. Valid domain names for practice be 'in', 'com', 'net', or 'biz'.

Display Invalid Dot usage, Invalid @ usage, or Invalid Domain message based on email id.

Get the email address from the user, validate the email by checking the

above-mentioned criteria, and print the validity status of the input email address.

Input Format

The first line of input contains the email to be validated.

Output Format

The output prints a Valid email address or an Invalid email address along with the suitable exception

If email ends with . or contains not exactly one . after @, it throws:

DotException: Invalid Dot usage

Invalid email address

If @ appears not exactly once, it throws:

AtTheRateException: Invalid @ usage

Invalid email address

If the part after the last dot is not among accepted domains:

DomainException: Invalid Domain

Invalid email address

If all conditions satisfied then print:

Valid email address

Refer to the sample input and output for format specifications.

Sample Test Case

Input: sample@gmail.com

Output: Valid email address

Answer

```
// You are using Java
class DotException extends Exception {
    public DotException(String msg) {
        super(msg);
    }
}

class AtTheRateException extends Exception {
    public AtTheRateException(String msg) {
        super(msg);
    }
}

class DomainException extends Exception {
    public DomainException(String msg) {
        super(msg);
    }
}

public class Main {
    public static void main(String[] args) {
        java.util.Scanner sc = new java.util.Scanner(System.in);
        String email = sc.nextLine().trim();
        try {
            // Check @ usage
            int atCount = email.length() - email.replace("@", "").length();
            if (atCount != 1 || email.startsWith "@" || email.endsWith "@" || email.contains "@@") {
                throw new AtTheRateException("AtTheRateException: Invalid @ usage");
            }
        }
    }
}
```

```
// Check dot usage
int atIdx = email.indexOf('@');
int lastDotIdx = email.lastIndexOf('.');
// Email must not start/end with dot, must contain dot after @, and only
one dot after @
if (email.startsWith(".") || email.endsWith(".") || email.contains.."") ||
    lastDotIdx < atIdx + 2 || lastDotIdx == email.length() - 1) {
    throw new DotException("DotException: Invalid Dot usage");
}

// Check valid domain
String domain = email.substring(lastDotIdx + 1);
if (!(domain.equals("in") || domain.equals("com") || domain.equals("net") || 
domain.equals("biz"))) {
    throw new DomainException("DomainException: Invalid Domain");
}

System.out.println("Valid email address");
} catch (DotException | AtTheRateException | DomainException ex) {
    System.out.print(ex.getMessage() + " ");
    System.out.println("Invalid email address");
}
}
```

Status : Correct

Marks : 10/10

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 8_Q2

Attempt : 1

Total Mark : 10

Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Elsa, a busy professional, is using a scheduling application to plan her meetings efficiently. The application requires users to input meeting durations in minutes, ensuring that the duration is a positive integer and does not exceed 240 minutes (4 hours). Elsa needs a program to assist her in scheduling meetings securely with proper exception handling.

Create a Java class named ElsaMeetingScheduler. Implement a custom exception: InvalidDurationException for invalid meeting duration entries. Implement the main method to interactively take user input for a meeting duration. Implement the validateMeetingDuration method to validate the meeting duration based on the specified rules and throw a custom exception if the validation fails. Print appropriate success or error messages based on the meeting duration.

Implement a custom exception, `InvalidDurationException`, to handle cases where the entered meeting duration does not meet the specified criteria.

Input Format

The input consists of an integer value '`n`', representing the meeting duration.

Output Format

The output is displayed in the following format:

If the entered meeting duration meets the specified criteria, the program outputs
"Meeting scheduled successfully!"

If the entered meeting duration is invalid, the program outputs an error message indicating the issue.

"Error: Invalid meeting duration. Please enter a positive integer not exceeding 240 minutes (4 hours)."

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 120

Output: Meeting scheduled successfully!

Answer

```
// You are using Java
class InvalidDurationException extends Exception {
    public InvalidDurationException(String msg) {
        super(msg);
    }
}

class ElsaMeetingScheduler {
    public static void validateMeetingDuration(int n) throws
    InvalidDurationException {
        if (n <= 0 || n > 240) {
            throw new InvalidDurationException("Error: Invalid meeting duration.");
    }
}
```

Please enter a positive integer not exceeding 240 minutes (4 hours).");

}

```
public static void main(String[] args) {  
    java.util.Scanner sc = new java.util.Scanner(System.in);  
    int n = sc.nextInt();  
    try {  
        validateMeetingDuration(n);  
        System.out.println("Meeting scheduled successfully!");  
    } catch (InvalidDurationException e) {  
        System.out.println(e.getMessage());  
    }  
}
```

Status : Correct

Marks : 10/10

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 8_Q3

Attempt : 1

Total Mark : 10

Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

In a user registration system, there is a requirement to implement a username validation module. Users attempting to register must adhere to specific criteria for their usernames to be considered valid.

Your task is to develop a program that takes user input for a desired username and validates it according to the following rules:

The username must not contain any spaces. The username must be at least 5 characters long.

Implement a custom exception, InvalidUsernameException, to handle cases where the entered username does not meet the specified criteria.

Input Format

The input consists of a string S, representing the desired username.

Output Format

If the username is valid, print "Username is valid: [S]" .

If the username is invalid:

1. If the username is short, print "Invalid Username: Username must be at least 5 characters long"
2. If the username contains spaces, print "Invalid Username: Username cannot contain spaces"

Refer to the sample output for formatting specifications.

Sample Test Case

Input: John

Output: Invalid Username: Username must be at least 5 characters long

Answer

```
// You are using Java
class InvalidUsernameException extends Exception {
    public InvalidUsernameException(String msg) {
        super(msg);
    }
}

public class Main {
    public static void main(String[] args) {
        java.util.Scanner sc = new java.util.Scanner(System.in);
        String username = sc.nextLine();

        try {
            if (username.length() < 5) {
                throw new InvalidUsernameException("Invalid Username: Username must be at least 5 characters long");
            }
            if (username.contains(" ")) {
                throw new InvalidUsernameException("Invalid Username: Username cannot contain spaces");
            }
        }
    }
}
```

```
        }
        System.out.println("Username is valid: " + username);
    } catch (InvalidUsernameException e) {
        System.out.println(e.getMessage());
    }
}
```

Status : Correct

Marks : 10/10