

# Rajalakshmi Engineering College

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Batch: 2028  
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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

DotException  
AtTheRateException  
DomainException

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
import java.util.Scanner;

// Custom Exception for Dot validation
class DotException extends Exception {
    public DotException(String message) {
        super(message);
    }
}

// Custom Exception for @ validation
class AtTheRateException extends Exception {
    public AtTheRateException(String message) {
        super(message);
    }
}

// Custom Exception for Domain validation
class DomainException extends Exception {
    public DomainException(String message) {
        super(message);
    }
}

public class Main {

    public static void validateEmail(String email) throws DotException,
    AtTheRateException, DomainException {
        // Check for exactly one @ character
        int atCount = 0;
        int atPosition = -1;
        for (int i = 0; i < email.length(); i++) {
```

```

        if (email.charAt(i) == '@') {
            atCount++;
            atPosition = i;
        }
    }

    if (atCount != 1) {
        throw new AtTheRateException("Invalid @ usage");
    }

    // Check if email ends with dot
    if (email.endsWith(".")) {
        throw new DotException("Invalid Dot usage");
    }

    // Check if email starts with dot or @
    if (email.startsWith(".") || email.startsWith("@")) {
        throw new DotException("Invalid Dot usage");
    }

    // Get the part after @
    String afterAt = email.substring(atPosition + 1);

    // Check if there's at least one dot after @
    if (!afterAt.contains(".")) {
        throw new DotException("Invalid Dot usage");
    }

    // Check for consecutive dots
    if (email.contains("..")) {
        throw new DotException("Invalid Dot usage");
    }

    // Check for consecutive @ symbols
    if (email.contains("@@")) {
        throw new AtTheRateException("Invalid @ usage");
    }

    // Check if dot appears immediately after @
    if (afterAt.startsWith(".")) {
        throw new DotException("Invalid Dot usage");
    }

```

```

// Extract domain (part after last dot)
int lastDotPosition = email.lastIndexOf('.');
String domain = email.substring(lastDotPosition + 1);

// Validate domain
if (!domain.equals("in") && !domain.equals("com") && !domain.equals("net")
&& !domain.equals("biz")) {
    throw new DomainException("Invalid Domain");
}

// Check if there's content between @ and the first dot after @
int firstDotAfterAt = afterAt.indexOf('.');
if (firstDotAfterAt == 0) {
    throw new DotException("Invalid Dot usage");
}

// Check if there's content between last dot and end (domain should not be
empty)
if (domain.isEmpty()) {
    throw new DomainException("Invalid Domain");
}
}

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

    try {
        validateEmail(email);
        System.out.println("Valid email address");
    } catch (DotException e) {
        System.out.println("DotException: " + e.getMessage());
        System.out.println("Invalid email address");
    } catch (AtTheRateException e) {
        System.out.println("AtTheRateException: " + e.getMessage());
        System.out.println("Invalid email address");
    } catch (DomainException e) {
        System.out.println("DomainException: " + e.getMessage());
        System.out.println("Invalid email address");
    } finally {
        scanner.close();
    }
}

```

```
}  
  }  
}
```

**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
import java.util.Scanner;
```

```
// Custom Exception for Invalid Username
class InvalidUsernameException extends Exception {
    public InvalidUsernameException(String message) {
        super(message);
    }
}
```

```
public class Main {

    // Method to validate username
    public static void validateUsername(String username) throws
InvalidUsernameException {
        // Check if username contains spaces
        if (username.contains(" ")) {
            throw new InvalidUsernameException("Username cannot contain
spaces");
        }
    }
}
```



```

        // Check if username is at least 5 characters long
        if (username.length() < 5) {
            throw new InvalidUsernameException("Username must be at least 5
characters long");
        }
    }

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

        // Read username from user
        String username = scanner.nextLine();

        try {
            // Validate the username
            validateUsername(username);

            // If validation passes, print success message
            System.out.println("Username is valid: " + username);

        } catch (InvalidUsernameException e) {
            // If validation fails, print error message
            System.out.println("Invalid Username: " + e.getMessage());
        } finally {
            scanner.close();
        }
    }
}

```

**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
import java.util.Scanner;
```

```
// Custom Exception for Invalid Duration
class InvalidDurationException extends Exception {
    public InvalidDurationException(String message) {
        super(message);
    }
}
```

```
public class Main {
```

```

// Method to validate meeting duration
public static void validateMeetingDuration(int duration) throws
InvalidDurationException {
    // Check if duration is positive and does not exceed 240 minutes
    if (duration <= 0 || duration > 240) {
        throw new InvalidDurationException("Invalid meeting duration. Please
enter a positive integer not exceeding 240 minutes (4 hours).");
    }
}

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

    // Read meeting duration from user
    int meetingDuration = scanner.nextInt();

    try {
        // Validate the meeting duration
        validateMeetingDuration(meetingDuration);

        // If validation passes, print success message
        System.out.println("Meeting scheduled successfully!");

    } catch (InvalidDurationException e) {
        // If validation fails, print error message
        System.out.println("Error: " + e.getMessage());
    } finally {
        scanner.close();
    }
}
}

```

**Status :** Correct

**Marks :** 10/10