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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
import java.util.Scanner;

// Custom exception for invalid dot usage
class DotException extends Exception {
    public DotException(String message) {
        super(message);
    }
}

// Custom exception for invalid '@' usage
class AtTheRateException extends Exception {
    public AtTheRateException(String message) {
        super(message);
    }
}

// Custom exception for invalid domain
class DomainException extends Exception {
    public DomainException(String message) {
        super(message);
    }
}

public class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        String email = sc.nextLine().trim();
        sc.close();

        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");
        }
    }

    public static void validateEmail(String email)
            throws DotException, AtTheRateException, DomainException {

        // Check for exactly one '@'
        int atCount = email.length() - email.replace("@", "").length();
        if (atCount != 1) {
            throw new AtTheRateException("Invalid @ usage");
        }

        // Email should not start or end with '.' or '@'
        if (email.startsWith(".") || email.endsWith(".") ||
            email.startsWith("@") || email.endsWith("@")) {
            throw new DotException("Invalid Dot usage");
        }

        // Consecutive '.' or '@' are not allowed
        if (email.contains("..") || email.contains("@@")) {
            throw new DotException("Invalid Dot usage");
        }

        // There must be a '.' after the '@'
        int atIndex = email.indexOf('@');
        int dotAfterAt = email.indexOf('.', atIndex);
        if (dotAfterAt == -1) {
            throw new DotException("Invalid Dot usage");
        }
        // Email should not end with '.'
        if (email.endsWith(".")) {
            throw new DotException("Invalid Dot usage");
        }

        // Validate domain extension (part after last '.')
        int lastDot = email.lastIndexOf('.');
        if (lastDot == -1 || lastDot == email.length() - 1) {
            throw new DomainException("Invalid Domain");
        }
        String domain = email.substring(lastDot + 1);
        if (!(domain.equals("in") || domain.equals("com") ||
              domain.equals("net") || domain.equals("biz"))) {
            throw new DomainException("Invalid Domain");
        }
    }
}
```

Status : Correct

Marks : 10/10