Rajalakshmi Engineering College

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2024_28_III_OOPS Using Java Lab

REC_Week 12_Java_Lamba Expressions_MCQ

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : MCQ

1. Can a lambda expression have more than one parameter?

Answer

Yes, it can have multiple parameters

Status : Correct ***Marks : 1/1***

2. Which functional interface is commonly used with lambda expressions in Java?

Answer

Runnable

Status : Correct ***Marks : 1/1***

3. What is the syntax for a basic lambda expression in Java?

Answer

(parameters) -> expression

Status : Correct ***Marks : 1/1***

4. Can a lambda expression in Java have a body with multiple statements?

Answer

Yes, if the statements are enclosed in curly braces

Status : Correct ***Marks : 1/1***

5. What is a lambda expression in Java?

Answer

A way to define anonymous methods

Status : Correct ***Marks : 1/1***

6. Can a lambda expression in Java have a body with multiple statements?

Answer

Yes, if the statements are enclosed in curly braces

Status : Correct ***Marks : 1/1***

7. What is the return type of a lambda expression in Java?

Answer

The return type is inferred from the context

Status : Correct ***Marks : 1/1***

8. Which of the following interfaces is NOT a functional interface in Java?

Answer

Iterable

Status : Correct ***Marks : 1/1***

9. Which of the following is a valid lambda expression in Java?

Answer

All of the mentioned options

Status : Correct ***Marks : 1/1***

10. Which functional interface in Java takes two arguments and returns a result?

Answer

BiFunction

Status : Correct ***Marks : 1/1***

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2028_REC_OOPS using Java_Week 12_Q1

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Sabrina is working on a project that involves analyzing a set of numbers. In her exploration, she encounters scenarios where extracting even numbers and finding their sum is essential.

Create a program that calculates the sum of even numbers from a given array of integers using a lambda expression.

Input Format

The first line of input consists of an integer N, representing the size of the array.

The second line consists of N space-separated integers, representing the elements of the array.

Output Format

The output prints the sum of the even integers from the array.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 3
29 37 45

Output: 0

Answer

```
// You are using Java
import java.util.Arrays;
import java.util.Scanner;

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

        // Read the size of the array
        int N = scanner.nextInt();
        int[] numbers = new int[N];

        // Read the elements of the array
        for (int i = 0; i < N; i++) {
            numbers[i] = scanner.nextInt();
        }

        // Calculate the sum of even numbers using a lambda expression
        int sumOfEvens = Arrays.stream(numbers)
                .filter(num -> num % 2 == 0) // Filtering even numbers
                .sum(); // Summing the filtered even numbers

        // Output the result
        System.out.println(sumOfEvens);

        scanner.close();
    }
}
```

Status : Correct *Marks : 10/10*

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 12_Q2

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Alex is learning about Java's functional interfaces and lambda expressions.

He wants to write a simple program that prints the square of each number in an array using a predefined functional interface.

Help Alex complete this task using the Consumer functional interface.

Input Format

- The first line contains an integer N, the number of elements in the array.
- The second line contains N space-separated integers.

Output Format

- Print the squares of all elements in the array, separated by a space.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 4
1 2 3 4
Output: 1 4 9 16

Answer

```
// You are using Java
import java.util.Scanner;
import java.util.function.Consumer;

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

        // Read the number of elements in the array
        int N = scanner.nextInt();
        int[] numbers = new int[N];

        // Read the elements of the array
        for (int i = 0; i < N; i++) {
            numbers[i] = scanner.nextInt();
        }

        // Define a Consumer to print the square of a number
        Consumer<Integer> printSquare = num -> System.out.print((num * num) + "
");

        // Iterate over the array and apply the Consumer
        for (int number : numbers) {
            printSquare.accept(number);
        }

        // Close the scanner
        scanner.close();
    }
}
```

Status : Correct *Marks : 10/10*

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 12_Q3

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

In the mystical realm of programming, there exists a magical incantation to reveal hidden words.

Elara, the skilled enchantress, wishes to summon a word using her spell and then reverse its characters to uncover its enchanted reflection.

Write a program that uses the predefined functional interface Supplier<String> and a lambda expression to:

Supply (generate) a string, and

Display its reversed form.

Input Format

No input is required from the user.

The string must be supplied internally using a Supplier<String>.

Output Format

Print the reversed version of the supplied string.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: Wizard!!
Output: !!draziW

Answer

```
// You are using Java
import java.util.function.Supplier;
import java.util.Scanner;
 class Main {
    public static void main(String[] args) {
        // Using Supplier to generate a string
        Scanner sc = new Scanner(System.in);
        String str = sc.next();
        Supplier<String> stringSupplier = () -> str; // You can change this string for
different outputs

        // Get the supplied string
        String originalString = stringSupplier.get();

        // Reverse the string
        String reversedString = new StringBuilder(originalString).reverse().toString();

        // Print the reversed string
        System.out.println(reversedString);
    }
}
```

Status : Correct ***Marks : 10/10***

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 12_Q4

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Abi is working on a text analysis project where she needs to categorize words based on their length.

Words that have three or fewer characters are considered “Short”, while

words with more than three characters are classified as “Long.”

Write a Java program that takes a sentence as input, analyzes each word, and prints a list showing whether each word is “Short” or “Long.”

Use the predefined functional interface Function<String, String> along with a lambda expression for categorization.

Input Format

A single line containing a sentence (words separated by spaces).

Output Format

- A single line with each word categorized as "Short" or "Long", separated by spaces.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: I love my cat
Output: Short Long Short Short

Answer

```
// You are using Java
import java.util.Arrays;
import java.util.Scanner;
import java.util.function.Function;

public class Main {
    public static void main(String[] args) {
        // Create a Scanner object to read input
        Scanner scanner = new Scanner(System.in);

        // Prompt the user for a sentence
        String sentence = scanner.nextLine();

        // Check if the input exceeds the maximum length
        if (sentence.length() > 50) {
            System.out.println("Error: Sentence exceeds maximum length of 50
characters.");
            return;
        }

        // Function to categorize words as "Short" or "Long"
        Function<String, String> categorizeWord = word -> {
            return word.length() <= 3 ? "Short" : "Long";
        };

        // Split the sentence into words and categorize each word
```

```
        String result = Arrays.stream(sentence.split(" ")) // Split the sentence into
words
                .map(categorizeWord) // Apply the categorization function
                .reduce((a, b) -> a + " " + b) // Combine the results into a single string
                .orElse(""); // Handle case of empty input

        // Print the result
        System.out.println(result);

        // Close the scanner
        scanner.close();
    }
}
```

Status : Correct **Marks : 10/10**