**JAVA PROGRAMMING QUESTION**

1. Write a program to check whether a given string is a palindrome or not using for loop and

if-else statement.

| **package** trainingtaskcompletion;  **import** java.util.Scanner;  **public** **class** Palindrome{  **public** **static** **void** main(String[] args) {  // Create a Scanner object to read user input  Scanner scanner = **new** Scanner(System.***in***);    // Prompt the user to enter a string and convert to lower case  System.***out***.print("Enter a string: ");  String str = scanner.nextLine().toLowerCase();    // Close the scanner to release resources  scanner.close();    // Reverse the string with lowercase  String reversedStr = **new** StringBuilder(str).reverse().toString().toLowerCase();    // Check if the original string is equal to the reversed string  **boolean** isPalindrome = str.equals(reversedStr);    // Output the result  System.***out***.println(str + " is " + (isPalindrome ? "" : "not ") + "a palindrome.");  }  } |
| --- |

***Output:-***

Enter a string: Deified

deified is a palindrome.

Enter a string: RajaRaja

rajaraja is not a palindrome.

2. Write a program to get and reverse the string from an user and print the results

| **package** trainingtaskcompletion;  **import** java.util.Scanner;  **public** **class** ReverseString {  **public** **static** **void** main(String[] args) {  // Create a Scanner object to read user input  Scanner scanner = **new** Scanner(System.***in***);  // Prompt the user to enter a string and convert to uppercase  System.***out***.print("Enter a string: ");  String str = scanner.nextLine().toUpperCase();  // Close the scanner to release resources  scanner.close();  // Initialize an empty string to store the reversed string  String reversedStr = "";  **for** (**int** i = str.length() - 1; i >= 0; i--) {  // Append each character to the reversed string in for loop  reversedStr += str.charAt(i);  }  // Output the reversed string  System.***out***.println("Reversed string: " + reversedStr);  // Check if the original string is equal to the reversed string  **boolean** isPalindrome = str.equals(reversedStr);  **if** (isPalindrome) {  // Output the result  System.***out***.println(str + " is " + "a palindrome.");  } **else** {  // Output the result  System.***out***.println(str + " is not" + " a palindrome.");  }  }  } |
| --- |

**Output:-**

Enter a string: Malayalam

Reversed string: MALAYALAM

MALAYALAM is a palindrome.

Enter a string: Mcenroe

Reversed string: EORNECM

MCENROE is not a palindrome.

3. Write a program to print the given below pattern.

**Sample Input:**

4

**Sample Output:**

1

23

456

78910

| **package** trainingtaskcompletion;  **import** java.util.Scanner;  **public** **class** Pattern {  **public** **static** **void** main(String[] args) {  // Create a Scanner object to read user input  Scanner scanner = **new** Scanner(System.***in***);  // Prompt the user to enter the number of rows  System.***out***.print("Enter the number of rows: ");  **int** rows = scanner.nextInt();  // Close the scanner to release resources  scanner.close();  // Initialize a counter to keep track of numbers to be printed  **int** counter = 1;  // Iterate over the rows of the pattern using a loop (1<=5;2<=5;3<=5;4<=5;5<=5)  **for** (**int** i = 1; i <= rows; i++) {  // Iterate over the columns of each row using a nested loop  // (1<=1;2<=2;3<=3;4<=4;5<=5)  **for** (**int** j = 1; j <= i; j++) {  // Print the current value of the counter followed by a space  System.***out***.print(counter++ + " ");  }  // Moving to the Next Line:  System.***out***.println();  }  }  } |
| --- |

**Output:-**

Enter the number of rows: 7

1

2 3

4 5 6

7 8 9 10

11 12 13 14 15

16 17 18 19 20 21

22 23 24 25 26 27 28

4. Write a program to print the given below pattern.

**Sample Input:**

5

**Sample Output:**

\* \*

\* \*

\*

\* \*

\* \*

| **package** trainingtaskcompletion;  **import** java.util.Scanner;  **public** **class** PatternReverse2 {  **public** **static** **void** main(String[] args) {  // Create a Scanner object to read user input  Scanner scanner = **new** Scanner(System.***in***);  // Prompt the user to enter the number of rows  System.***out***.print("Enter the number of rows: ");  **int** rows = scanner.nextInt();  // Close the scanner to release resources  scanner.close();  // Iterate over the rows of the pattern using a loop  **for** (**int** i = 1; i <= rows; i++) {  // Iterate over the columns of each row using a nested loop  **for** (**int** j = 1; j <= rows; j++) {  // Print upper part of the pattern  **if** (j == i || j == (rows - i + 1)) {  System.***out***.print("\*");  } **else** {  System.***out***.print(" ");  }  }  System.***out***.println();  }  }  } |
| --- |

**Output:-**

Enter the number of rows: 8

\* \*

\* \*

\* \*

\*\*

\*\*

\* \*

\* \*

\* \*

5.Anna University Grading System. The newly appointed Vice-Chancellor of Anna University wanted to create an automated grading system for the students to check their grade. When a student enters a mark, the grading system displays the corresponding grade. Write a program to solve the given problem. The grades for marks 100 - S, 90-99 is A, 80-89 is B, 70-79 is C, 60-69 is D, 50-59 is E and less than 50 is F.

**Input format:**

The input consists of one integer which corresponds to the marks scored by the student

**Output format:**

Ifa student marks greater than 100, print "Invalid Input". Otherwise, print the grade.

**Sample Input:**

78

**Sample Output:**

C

| **package** trainingtaskcompletion;  **import** java.util.Scanner;  **public** **class** GradingSystem {  **public** **static** **void** main(String[] args) {  // Create a Scanner object to read user input  Scanner scanner = **new** Scanner(System.***in***);  // Prompt the user to enter the marks scored by the student  System.***out***.println("Enter the marks scored by the student:");  **int** marks = scanner.nextInt();    // Close the scanner to release resources  scanner.close();    // Check if the marks are valid (0 to 100)  **if** (marks < 0 || marks > 100) {  System.***out***.println("Invalid Input");  } **else** {  // Determine the grade based on the marks  **char** grade;  **if** (marks >= 90) {  grade = 'A';  } **else** **if** (marks >= 80) {  grade = 'B';  } **else** **if** (marks >= 70) {  grade = 'C';  } **else** **if** (marks >= 60) {  grade = 'D';  } **else** **if** (marks >= 50) {  grade = 'E';  } **else** {  grade = 'F';  }  // Output the grade  System.***out***.println("Grade: " + grade);  }  }  } |
| --- |

**Output:-**

Enter the marks scored by the student:

60

Grade: D

Enter the marks scored by the student:

89

Grade: B

6.Write a program to calculate the hotel tariff. The room rent is 20% high during peak

seasons [April-June, November-December]. Note: Use the switch construct.

**Input format:**

The first input containing an integer which denotes the number of the month

The second input containing the floating point number which denotes the room

rent per day

The third input containing an integer which denotes the number of days stayed in

the hotel

**Output format:**

Print the hotel tariff to be paid in floating point with 2 decimal places

Refer the sample output for formatting

Sample Input:

3

1500

2

Sample Output:

3000.00

| **package** trainingtaskcompletion;  **import** java.util.Scanner;  **public** **class** HotelTariffCalculator {  **public** **static** **void** main(String[] args) {  // Create a Scanner object to read user input  Scanner scanner = **new** Scanner(System.***in***);    // Prompt the user to enter the month number, room rent per day, and number of days stayed  System.***out***.println("Enter the month number (1-12):");  **int** month = scanner.nextInt();  System.***out***.println("Enter the room rent per day:");  **double** roomRent = scanner.nextDouble();  System.***out***.println("Enter the number of days stayed:");  **int** daysStayed = scanner.nextInt();    // Close the scanner to release resources  scanner.close();  // Calculate the hotel tariff  **double** totalTariff;  **switch** (month) {  **case** 4:  **case** 5:  **case** 6:  **case** 11:  **case** 12:  // Room rent is 20% higher during peak seasons  totalTariff = roomRent \* daysStayed \* 1.20;  **break**;  **default**:  totalTariff = roomRent \* daysStayed;  **break**;  }    // Output the hotel tariff with 2 decimal places  System.***out***.printf("Hotel tariff to be paid: %.2f%n", totalTariff);  }  } |
| --- |

**Output:-**

Enter the month number (1-12):

12

Enter the room rent per day:

1500

Enter the number of days stayed:

5

Hotel tariff to be paid: 9000.00

Enter the month number (1-12):

3

Enter the room rent per day:

1500

Enter the number of days stayed:

5

Hotel tariff to be paid: 7500.00

7. write a program to calculate the largest numbers among three numbers

| **package** trainingtaskcompletion;  **import** java.util.Scanner;  **public** **class** Biggestof3Num {  **public** **static** **void** main(String[] args) {  // Create a Scanner object to read user input  Scanner scanner = **new** Scanner(System.***in***);  // Prompt the user to enter three numbers  System.***out***.println("Enter three numbers:");  **double** num1 = scanner.nextDouble();  **double** num2 = scanner.nextDouble();  **double** num3 = scanner.nextDouble();  // Close the scanner to release resources  scanner.close();  // Calculate the largest number among the three numbers  **double** largestNumber = Math.*max*(num1, Math.*max*(num2, num3));  // Output the result  System.***out***.println("The largest number is: " + largestNumber);  }  } |
| --- |

**Output:-**

Enter three numbers:

8

17

7000

The largest number is: 7000.0