

# **CSE 1001: Introduction to Computer Programming**

## **Programming Assignment-III**

### **(Conditional Statements)**

#### **Question-1:**

Write a program to input the age of a person and check if the age of the person is greater than or equal to 18 then print the message:

```
"You are eligible to cast your vote".
```

#### **Question-2:**

Alice visited SUM hospital to get treatment for her fever and illness. Doctor advised her to drink at least 5000 ml of water each day. Alice drank x ml of water today. Write a program that print the following message depending on the value of x.

```
"Yes, Alice is following doctor's advice"
```

OR

```
"No, Alice is not following doctor's advice"
```

#### **Question-3:**

Write a program that reads three integers from the user and prints "Increasing" if the numbers are in increasing order, "Decreasing" if the numbers are in decreasing order, and "Neither increasing nor decreasing order" otherwise.

Here is sample run:

```
Input first number: 241
Input second number:345
Input third number: 4563
"Increasing"
```

```
Input first number: 345
Input second number:145
Input third number: 563
"Neither Increasing nor decreasing"
```

```
Input first number: 45
Input second number:14
Input third number: 3
"Decreasing"
```

#### Question-4:

Make a simple game involving a computer and a user. The computer first guesses a number between 1 and 9 inclusive, then ask the user to enter a number between 1 and 9 inclusive. If the user guess is correct then display "You got it right", if the guess is close (+1, -1) "Almost got it ", Otherwise "You got it wrong".

Here are some sample runs.

```
Enter user number: 2
Computer guesses: 3
"Almost got it"
```

```
Enter user number: 4
Computer guesses: 4
"You got it right"
```

```
Enter user number: 1
Computer guesses: 5
"You got it wrong"
```

#### Question-5:

Write a Java program that takes a year from user and print true if that year is a leap year otherwise print false.

Here is a sample run:

```
Input the year: 2016
2016 is a leap year: true
```

```
Input the year: 2008
2008 is a leap0 year: false
```

```
Input the year: 1900
1900 is a leap year: false
```

#### Question-6:

Write a java program to calculate the monthly electricity bill. The tariff is given as follows:

Price per unit	Unit range
Rs. 3/-	First 50 units
Rs. 4.80/-	50-200 units
Rs. 5.80/-	200-400 units
Rs. 6.20/-	Above 400 units

### Question-7:

From the above *question no. (6)* write a java program with a choice if the consumer wants to pay bill online. Consumer who pays their electricity bill online will get a discount of 3%.

Here is the sample output:

```
No. of units consumed: 867
Do you want to pay online(y/n): y
Total amount: 4925.4
Discount: 147.762
Amount payable: 4777.638
```

### Question-8:

Write a java program that takes the x – y coordinates of a point in the Cartesian plane and prints a message telling either an axis on which the point lies or the quadrant in which it is found.

Here is the sample output:

```
(-1.0, -2.5) is in quadrant III
(0.0, 4.8) is on the y-axis
```

### Question-9:

Write a program to input 3 integer number a, b, c. Find the largest number among 3. Also find the 2<sup>nd</sup> largest number among 3. Here is the sample output:

```
Enter the value of a, b, c:10 30 50
Largest number: 50
2nd largest number: 30
```

### Question-10:

A University conducts a 100-mark exam for its student and grades them as follows. Assigns a grade based on the value of the marks. Write a java program to print the grade according to the mark secured by the student. [Use switch-case].

Mark Range	Letter Grade
$\geq 90$	O
$\geq 80$ AND $< 90$	A
$\geq 70$ AND $< 80$	B
$\geq 60$ AND $< 70$	C
$\geq 50$ AND $< 60$	D
$\geq 40$ AND $< 50$	E
$< 40$	F

## **HOME ASSIGNMENT**

### **Question-1:**

Write a java program that plays the popular scissor-rock-paper game. (A scissor can cut a paper, a rock can knock a scissor, and a paper can wrap a rock.) The program randomly generates a number 0, 1, or 2 representing scissor, rock, and paper. The program prompts the user to enter a number 0, 1, or 2 and displays a message indicating whether the user or the computer wins, loses, or draws.

Here are sample runs:

```
scissor (0), rock (1), paper (2): 1
```

```
The computer is scissor. You are rock. You won
```

```
scissor (0), rock (1), paper (2): 2
```

```
The computer is paper. You are paper too. It is a draw
```

### **Question-2:**

Write a java program that prompts the user to enter an integer for today's day of the week (Sunday is 0, Monday is 1... and Saturday is 6). Also prompt the user to enter the number of days after today for a future day and display the future day of the week.

Here is a sample run:

```
Enter today's day: 1
```

```
Enter the number of days elapsed since today: 3
```

```
Today is Monday and the future day is Thursday
```

```
Enter today's day: 0 Enter the number of days elapsed  
since today: 31
```

```
Today is Sunday and the future day is Wednesday
```

### **Question-3:**

Write a java program that randomly generates an integer between 1 and 12 and displays the English month name January, February... December for the number 1, 2... 12, accordingly.

#### Question-4:

Write a java program that prompts the user to enter an integer and determines whether it is divisible by 5 and 6, whether it is divisible by 5 or 6, and whether it is divisible by 5 or 6, but not both.

Here is a sample run of this program:

```
Enter an integer: 10
Is 10 divisible by 5 and 6? false
Is 10 divisible by 5 or 6? true
Is 10 divisible by 5 or 6, but not both? True
```

#### Question-5:

Write a java program which displays an appropriate name for a person, using a combination of nested ifs and compound conditions. Ask the user for a gender, first name, last name and age. If the person is female and 20 or over, ask if she is married. If so, display "Mrs." in front of her name. If not, display "Ms." in front of her name. If the female is under 20, display her first and last name. If the person is male and 20 or over, display "Mr." in front of his name. Otherwise, display his first and last name. Note that asking a person if they are married should only be done if they are female and 20 or older, which means you will have a single if and else nested inside one of your if statements. Also, did you know that with an if statements (or else), the curly braces are optional when there is only one statement inside?

```
What is your gender (M or F): F
First name: Gita
Last name: Pattanayak
Age: 32
Are you married, Gita (y or n)? y
Then I shall call you Mrs. Gita Pattanayak.

What is your gender (M or F): F
First name: Anjali
Last name: Mishra
Age: 48
Are you married, Anjali (y or n)? n
Then I shall call you Ms. Anjali.

What is your gender (M or F): M
First name: Ashok
Last name: Mohanty
```

Age: 23

Then I shall call you Mr. Ashok.

What is your gender (M or F): M

First name: Rahul

Last name: Pati

Age: 15

Then I shall call you Rahul Pati

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