

CSE 1001: Introduction to Computer Programming

Programming Assignment-II

(Elementary Programming)

Using Keyboard Input

Question-1:

Write a java program that reads a Fahrenheit degree in a double value from the console, then converts it to Celsius and displays the result. The formula for the conversion is as follows:

$$\text{Celsius} = (\text{Fahrenheit} - 32) * (5/9)$$

Hint: Hint: In Java, 5 / 9 is 0, but 5.0 / 9 is 0.556

Here is a sample run:

```
Enter a degree in Fahrenheit: 54
```

```
54 Fahrenheit is 12.22 Celsius
```

Question-2:

The distance between two cities (in km.) is input through the keyboard. Write a java program to convert and print this distance in meters, feet, inches and centimetres.

Hint:

```
1km=1000meter, 1km=3280.8399feet, 1km= 39370.0787 inch,  
1km= 100000 centimetre
```

Here is the sample run:

```
Enter the distance in km=165
```

```
165 km is 165000 meters  
165 km is 541338.5835 feet  
165 km is 6496062.9854999995 inch  
165 km is 16500000 centimetres
```

Question-3:

Enter the basic salary of an employee of an organization through the keyboard. His dearness allowance (DA) is 40% of basic salary, and house rent allowance (HRA) is 20% of basic salary. Write a java program to calculate his gross salary. Print the DA, HRA and Gross salary.

```
Here is the sample run:
Enter basic salary: 15600
DA is 6240.0
HRA is 3120.0
Gross salary is 24960
```

Question-4:

Write a java program that reads an integer between 0 and 1000 and adds all the digits in the integer. For example, if an integer is 749, the sum of all its digits is 20.

Hint: Use the % operator to extract digits, and use the / operator to remove the extracted digit.

For instance, $749 \% 10 = 9$ and $749 / 10 = 74$.

Here is a sample run:

```
Enter a number between 0 and 1000: 999 The sum of the
digits is 27
```

Question-5:

Write a java program that reads the radius of a hemisphere and computes the surface area and volume using the following formulas:

Surface Area of Hemisphere = $3 \pi r^2$. Volume of a hemisphere = $(2/3)\pi r^3$

Where π is a constant whose value is equal to 3.14 approximately. "r" is the radius of the hemisphere. *Hint: Use Math.PI.*

```
Here is a sample run:
Enter the radius of the hemisphere: 7.0
The surface area of the hemisphere is 461.814
The volume area of the hemisphere is 718.377
```

Question-6:

When a brick is dropped from a tower, it falls faster and faster until it hits the earth. The distance it travels is given by $d = (1/2)gt^2$

Here d is in feet, t is the time in seconds, and g is 32.174.

Write a program that asks the user for the number of seconds and then prints out the distance travelled.

```
Here is the sample run:
Enter the number of seconds: 5.4
Distance travelled: 469.096
```

Question-7:

Write a java program that displays the following table. Cast floating-point numbers into integers.

a	b	pow(a, b)
1	2	1
2	3	8
3	4	81
4	5	1024
5	6	15625

Home Assignment (Using Keyboard Input)

Question-1:

Write a java program that prompts the user to enter the minutes (e.g., 1 billion), and displays the number of years and days for the minutes.

For simplicity, assume a year has 365 days.

Here is a sample run:

```
Enter the number of minutes: 1000000000
```

```
1000000000 minutes is approximately 1902 years and 214 days.
```

Question -2:

If you have N eggs, then you have N/12 dozen eggs, with N%12 eggs left over. (This is essentially the definition of the / and % operators for integers.) Write a java program that asks the user how many eggs she has and then tells the user how many dozen eggs she has and how many extra eggs are left over. A gross of eggs is equal to 144 eggs. Extend your program so that it will tell the user how many gross, how many dozen, and how many left over eggs she has. For example, if the user says that she has 1342 eggs, and then your program would respond with Your number of eggs is 9 gross, 3 dozen, and 10.

Question-3:

Write a java program that prompts the user to enter three points (x1, y1), (x2, y2), (x3, y3) of a triangle and displays its area. The formula for computing the area of a triangle is

$$s = (\text{side1} + \text{side2} + \text{side3}) / 2;$$

$$\text{area} = \sqrt{s * (s - a) * (s - b) * (s - c)}$$

Here is a sample run:

```
Enter three points for a triangle: 1.5 -3.4 4.6 5 9.5
```

```
-3.4
```

```
The area of the triangle is 33.6
```

Using Command-Line Argument

Question-1:

Write a java program that takes two int values from the command line as dividend and divisor and print the quotient and remainder.

Question-2:

Write a java program that takes two positive integers from command-line arguments and prints the result of first number raise to the power of second number.

Question-3:

Write a java program that prints the sum of two random integers between 1 and 6 (such as you might get when rolling dice)

Question-4:

Write a java program that takes a double value t from the command line and prints the value of $\cos(5t) + \sin(7t)$. Use *Math.cos()* and *math.sin()*

Question-5:

Write a java program that takes three int values from the command line and prints them in ascending order. Use *Math.min()* and *Math.max()*.

Question-6:

Write a java program to input a character from command line and display the ASCII value of the entered character.

Question-7:

Write a java program that takes three positive integers from command-line arguments and prints true if any one of them is less than or equal to the product of the other two and false otherwise.

Home Assignment (Using Command-Line Argument)

Question-1:

Write a java program to take three inputs from command line argument as principle, rate and time. Find Simple interest.

Question-2:

The surface area of a cylinder can be defined as $A = \pi r^2 + 2\pi rh$, where r and h are the radius height of the cylinder respectively. Write a java program to find the area where r and h are inputted from command line argument. *Hint: Use Math.PI.*

Question-3:

Write a java program to input a four-digit number from command line argument and find sum of the first and last digit of the number.