ICDT 1201Y

COMPUTER PROGRAMMING

LABSHEET 3

When attempting the questions below, in addition to the materials covered during the lecture, you might be expected to request the user to input data from the keyboard. Some relevant self-learning notes are provided below to support you:

Some notes on reading input from keyboard

In order to read data from keyboard in Python, we use the **input()** function - see example below:

```
x = input('Enter your name:')
print('Hello, ', x)
```

Sample Output:

```
>>> x = input('Enter your name:')
Enter your name: James
>>> print('Hello, ', x)
Hello, James
>>>
```

To read a **numeric** value from keyboard, we use the **eval()** function after calling **input()** - see example below:

```
x=eval(input("Enter value of x: "))
y=2*x
print("y=", y)
```

Sample Output:

```
>>> x=eval(input("Enter value of x: "))
Enter value of x: 5
>>> y=2*x
>>> print("y=", y)
y= 10
```

Questions

1. Write a program to display a 4 by 6 rectangle of “*”.
2. Write a program that requests the user to input the radius of a circle and it calculates and displays the area of the circle (Assume pi to be 3.142).
3. Write a program that asks the user his name, score in ICDT1016Y and ICDT1201Y and output the user’s name with his average score.

Sample inputs:

```
Please Enter your name: John Smith
Enter your score in ICDT1016Y: 65
.
.
.
```

Sample outputs:

```
Name: John Smith
Average score: 62
```

4. A car travels a distance d1 at a speed s1, followed by a distance d2 at a speed s2 and finally a distance d3 at a speed s3. Assuming all distances to be in km and all

speeds in km/h, write a program to input the values of s1, s2, s3 and d1, d2, d3 and display:

a) The total distance travelled;
b) The total time taken for the whole journey; and
c) The average speed over the journey.

5. Write a program that takes as input the number of hours worked by an employee and the pay rate and calculates and displays the salary of an employee who works by hourly basis.
   The formula to be used is:
   Salary = Hour works * Pay rate

6. Write a program that requests the user to input the radius and height of a covered cylinder and it calculates and displays the area of the cylinder (Assume pi to be 3.142).

7. Write a program that takes as input a depth and computes and displays the temperature inside the earth in Celsius and Fahrenheit. The relevant formulas are:
   Celsius = 10 x (depth) + 20
   Fahrenheit = 1.8 x (Celsius) + 32

8. Write a program that asks a user to enter the distance of a trip in miles, the miles per gallon estimate for the user's car, and the average cost of a gallon of gas. Your program must calculate and display the number of gallons of gas needed and the estimated cost of the trip.