Introduction to Programming I

Lab-2 Datatypes, Variables, Constants, Input/output

Questions

1) Write a statement to print the following line. Assume the total value is contained in a variable named cost.

```
The sales total is: $    172.53
^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
```

2) Write a program that uses four print statements to print the pattern of asterisks shown below.

```
******
******
******
******
```

3) Write a program that uses four print statements to print the pattern of asterisks shown below.

```
*
**
***
****
```

4) Write a program that defines five integer variables and initializes them to 1, 10, 100, 1000, and 10000. It then prints them on a single line separated by space characters using the decimal conversion code (%d), and on the next line with the float conversion code (%f). Note the differences between the results. How do you explain them? Mention your answer after the end of the program using multiline comments.

5) Write a program that prompts the user to enter a quantity and a cost. The values are to be read into an integer named *quantity* and a float named *unitPrice*. Define the variables, and use only one statement to read the values. After reading the values, skip one line and print each value, with an appropriate name, on a separate line.

6) Write a program that prompts the user to enter an integer and then prints the integer first as a character, then as a decimal, and finally as a float. Use separate print statements. A sample run is shown below.

```
The number as a character: K
The number as a decimal  : 75
The number as a float    : 0.000000
```

7) Write a C program using printf statements to print the three first letters of your first name in big blocks. This program does not read anything from the keyboard. Each letter is formed using seven rows and five columns using the letter itself. For example, the letter B is formed using 17 B's, as shown below as part of the initials BEF.

```
BBB    EEEEE   FFFFF
B   B  E       F
B   B  E       F
BBB    EEE     FFF
B   B  E       F
B   B  E       F
BBB    EEEEE   F
```

This is just an example. Your program must print the first three letters of your first name. Design your *printf* statements carefully to create enough blank lines at the beginning and end to make your initials readable. Use comments in your program to enhance readability as shown in this chapter.

8) Write a program that prompts the user to enter three numbers and then prints them vertically (each on one line), first forward and then reversed (the last one first), as shown in the following design.

```
Please enter three numbers: 15 35 72
Your numbers forward:
   15
   35
   72

Your numbers reversed:
   72
   35
   15
```

9) Write a program that reads 10 integers and prints the first and the last on one line, the second and the ninth on the next line, the third and the seventh on the next line, and so forth. Sample input and the results are shown below.

```
Please enter 10 numbers:
10 31 2 73 24 65 6 87 18 9

Your numbers are:
   10   9
   31  18
    2  87
   73   6
   24  65
```

10) Write a program that reads nine integers and prints them three in a line separated by commas as shown below.

```
Input:
   10 31 2 73 24 65 6 87 18
Output
   10, 31,  2
   73, 24, 65
    6, 87, 18
```