DEPARTMENT OF COMPUTER SYSTEM ENGINEERING

UNIVERSITY OF ENGINEERING & TECHNOLOGY PESHAWAR

3rd Semester FALL 2019

Assignment # 1
Max Marks: 100 Marks
Due Date: Within Class on Tuesday 05th November 2019

Plagiarism Policy:

Plagiarism is strictly not allowed. Any case of plagiarism will get zero marks.

Q. 1: (CLO3)
Write a program that prints what will be your age at the end of the year. The program should request you to enter both the current year and the year of your birth.

Q. 2: (CLO3)
Use the operator << only once to print the following three lines:

One double quote: “
Two double quotes: ““
Backslash: \

Q. 3: (CLO3)
Write a program that reads 20 integers and counts how often a larger integer is immediately followed by a smaller one.

Q. 4: (CLO3)
Input an integer containing only 0s and 1s (i.e. a “binary” integer) and prints its decimal equivalent. (Hint: use the modulus and division operators to pick off the “binary” number’s digits one at a time from right to left. Just as in the decimal number system where the rightmost digit has a positional value of 1 and the next digit left has a positional value of 10, then 100, then 1000 etc., in the binary number system, the rightmost digit has a positional value fo 1, the next digit left has a positional value of 2, then 4, then 8, etc. Thus the decimal number 234 can be interpreted as 4*1+3*10+2*100. The decimal equivalent of binary 1101 is 1*1 + 0*2+1*4+1*8 or 1+0+4+8 or 13.

Q. 5: (CLO3)

Write a program that computes and prints both the *mean* and the *standard deviation* of the input data. The standard deviation of the n numbers ao, . . ., an, is defined by the formula

$$\sigma = \frac{\sqrt{\sum_{i=0}^{n-1}(a_i - \mu)^2}}{n-1}$$

where μ is the mean of the data. This means: square each deviation a[i] - mean; sum those squares; take the square root of that sum; divide that square root by n-l.

Q. 6: (CLO3)

A palindrome is a number or a text phrase that reads the same backwards as forwards. For example, each of the following five-digit integers is a palindrome: 12321, 55555, 45554, and 11611. Write a program that reads in a five-digit integer and determines whether it is a palindrome. (Hint: use the division and modulus operators to separate the number into its individual digits).

Note: All your answers to the questions posed in the assignment should be organized as a handwritten document that you would submit. The document should also discuss your implementation strategy.