

Ain Shams University  
Faculty of Computer and Information Sciences



Version 5 (10 am-10:45am)

Date: April 11, 2018

First Year -Remake- Midterm Exam

Time: 45 minutes

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Course: CSW150

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**Fundamental of Structured Programming Using C++**Please attempt ALL questions, and **think before you write.**

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QUESTION (1) Write down the C++ code corresponding the following Pseudocode snap and the expected output		(3 points)	10-mints
<b>PseudoCode:</b> <pre> begin     initialize counter to 0     initialize accumulator to 0     loop         read input from keyboard         accumulate input         increment counter     while counter &lt; 10         calculate average         print sum         print average end </pre>		<b>C++ Code: (2 points)</b> <pre> int counter=0, accumulator=0,x; float avg; do {     cin&gt;&gt;x;     accumulator+=x;     counter++; }while (counter&lt;10); avg=accumulator/10.0; cout&lt;&lt;"Sum="&lt;&lt;accumulator&lt;&lt;endl; cout&lt;&lt;"Average="&lt;&lt;avg&lt;&lt;endl; </pre>	<b>Input: (1 point)</b> 1,2,3,4,5,6,7 ,8,9,10 <b>Output:</b> Sum=55 Average=5.5
QUESTION (2) Choose the correct answer		(2 points)	5-mints
<b>1)</b> Which of the following array declaration and initializations is correct according to Visual Studio Compiler? <b>(a)</b> <code>int arr[3] = {8, 7, 5.5};</code> <b>(b)</b> <code>int arr[3] = {8, 7, 6, 5};</code> <b>(c)</b> <code>int SIZE = 3;</code> <code>int arr[SIZE]= {8, 7, 6};</code> <b>(d)</b> <code>const int SIZE = 3; int arr[SIZE-3];</code> <b>(e)</b> None of the above.		<b>2)</b> How many bits will be saved in the memory this character array: <code>char y[] = "Ahmed";</code> <b>(a)</b> Syntax Error. <b>(b)</b> 5 bits. <b>(c)</b> 6 bits. <b>(d)</b> None of the above. <b>→the correct answer is 6 bytes</b>	
QUESTION (3) Code Development		(5 points)	20-mints
<b>1.</b> Write a program that takes the size of an array from the user, reads its elements, then asks the user to enter two numbers (supposed to be found in the array) and finally calculates and displays the sum of the numbers between the two numbers (first occurrence for each) – excluding the two numbers themselves.			
<b>Sample Run:</b> Enter the size of the array: 8 Enter the numbers: 4,7,-3,7,1,-6,3,8 Enter two numbers from the array: 7, 3 <b>Sum of the numbers between 7,3 is: -1</b>			

**Answer:**

Main source file

```
#include <iostream>
using namespace std;
void main ()
{
    int size,myArr[100],n1,n2,sum=0;
    bool found2ndkey=false;
    cout<<"Enter the size of the array: ";
    cin>>size;
    cout<<"Enter the numbers: ";
    for(int i=0;i<size;i++)
        cin>>myArr[i];
    cout<<"Enter two numbers from the array:";
    cin>>n1>>n2;
    for(int i=0;i<size;i++)
    {
        if(myArr[i]==n1)
        {
            for(int j=i+1;j<size;j++)
            {
                if(myArr[j]==n2)
                {
                    found2ndkey=true;
                    break;
                }
                sum+=myArr[j];
            }
            if(found2ndkey)
                break;
        }
    }
    cout<<"Sum of the numbers between "<<n1<<" and "<<n2<<" is: "<<sum<<endl;
}
```

outline 0.5  
input:1  
loops and accumulation:3  
output:0.5

Best Wishes ☺

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