INTI International University & Colleges

UNIVERSITY OF WOLLONGONG AUSTRALIA

FACULTY OF ENGINEERING AND INFORMATION SCIENCES

SUBJECT'S INFORMATION:			
Subject:	CSCI251 Advanced Programming		
Session:	July 2019		
Programme / Section:	Computer Science		
Lecturer:	Ms. Siti Hawa		
Coursework Type *(tick appropriate box)*	□ Individual Assignment ✓ Lab Task	□ Group Assignment □ Seminar / Tutorial Paper	□ Project □ Others
Coursework Title:	**Lab Task 4**	Coursework Percentage:	1%

ASSESSMENT CRITERIA:

All programs should produce the correct result as stated in the specification. Programs should be written only using the programming structures and concepts already covered during lectures. Meaningful identifiers used. Proper indentation and line spacing. Suitable comments are recommended. Output should be well formatted with appropriate messages displayed. Numbers are shown with appropriate precision. Programs with syntax error and are unable to execute will not be awarded any mark.

SUBMISSION:

All completed work should be submitted online through Moodle before the due date provided.

SUBMIT AS EARLY AS POSSIBLE. ONLY ONE SUBMISSION IS ALLOWED. IF RE-SUBMISSION IS NECESSARY, YOU ARE REQUIRED TO REMOVE THE EARLIER SUBMISSION AND THIS MUST BE DONE BEFORE THE DUE DATE. OTHERWISE YOU WILL BE PENALIZED FOR LATE SUBMISSON.

DUE DATE:	**WEEK 7**

PENALTIES FOR LATE SUBMISSION:

Penalties apply to all late work, except if student academic consideration has been granted. Late submissions will attract a penalty of 25% of the assessment mark per day including the weekend. Work more than (3) days late will be awarded a mark of zero.

PLAGIARISM:

When you submit an assessment task, you are declaring the following

1. It is your own work and you did not collaborate with or copy from others.
2. You have read and understand your responsibilities under the University of Wollongong's policy on plagiarism.
3. You have not plagiarised from published work (including the internet). Where you have used the work from others, you have referenced it in the text and provided a reference list at the end ot the assignment.

Plagiarism will not be tolerated. Students are responsible for submitting original work for assessment, without plagiarising or cheating, abiding by the University's policies on Plagiarism as set out in the University Handbook under University Policy Directory and in Faculty handbooks and subject guides.

COURSEWORK SPECIFICATION

OBJECTIVES:

Following completion of this task, students should be able to:

- Write C++ programs using pointer arithmetic and dynamic arrays.

Question 1 (Pointer Arithmetic)

Write a program that performs the following:

Declare and randomly populate an array of integers with 20 positive numbers not greater than 100. The program should determine the median of the array. When a set of values is sorted in ascending or descending order, its median is the middle value. If the set contains an even number of values, the median is the mean, or average, of the two middle values. You are required to use a temporary array for the sorting. The original array should not be changed. Display the original array, the sorted array, and the median.

For this task, you are required **to use only pointer notation and pointer arithmetic** instead of array notation.

Question 2 (Dynamic Arrays)

Write a C++ program that performs the following:

1. Request for the number of inputs the user will enter.
2. Dynamically create an array of integers using the input required above.
3. Let the user enter all the integers in the array (allow duplicates).
4. Pass the array to a function that will remove all duplicates form the array. Un-used elements should be removed and the new size should be returned back to main. Use only pointer notation to do this.
5. The `main()` function then display the content of the new array.

Example input/output is shown below:

```
How many numbers to enter? 7
Enter 7 numbers:
78  45  78  61  45  45  89

Array with no duplicates:
78 45  61  89
```

Remember to properly de-allocate dynamic memory used in your program.