

**FACULTY OF INFORMATICS**

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| **SUBJECT’S INFORMATION:** | | | |
| Subject: | CSCI204 Object and Generic Programming | | |
| Session: | July 2014 | | |
| Programme / Section: | J766SENG (SE) / J766CS53 (MGD) / J766CS42 (DSS) | | |
| Lecturer: | Ms. Siti Hawa | | |
| Coursework Type  *(tick appropriate box)* | ❑ Individual Assignment ❑ Group Assignment ❑ Project  ✓Lab Task ❑ Seminar / Tutorial Paper ❑ Others | | |
| Coursework Title: | **Lab Task 1** | Coursework Percentage: | 1% |
| **ASSESSMENT CRITERIA:** | | | |
| Correctness | All programs should produce the correct result as stated in the specification. | | |
| Coding | Programs should use appropriate control structures and data structures correctly based on what have been covered in the class and stated in the specification. Necessary input validations should be done. | | |
| Readability | Appropriate comments are included. Meaningful identifiers used. Proper indentation and line spacing used. | | |
| Well formatted output | Output should be well formatted with appropriate messages displayed. Numbers are shown with appropriate precision. | | |
| **SUBMISSION:** | | | |
| All completed work should be submitted online through Moodle before or on the due date provided.  **SUBMIT AS EARLY AS POSSIBLE. YOU CAN RE-SUBMIT LATER IF NECESSARY. ONLY THE LATEST SUBMISSION WILL BE MARKED.**  **IF YOU SUBMIT YOUR ASSIGNMENT TWICE, ONE SUBMMISSION BEFORE THE DUE DATE AND ANOTHER AFTER THE DUE DATE, THEN YOU WILL BE PENALIZED FOR LATE SUBMISSON.** | | | |
| DUE DATE: | **WEEK 3** | | |
| **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:**

This lab task serves as a revision to the important fundamental topics in C++ that will be useful to the students to proceed with the topics covered in this subject.

**TASK 1: Arrays and pointers**

Write two C++ programs to do the following:

1. Declare an array of three integers.

2. Write a loop that accepts three values from standard in.

3. Write a diﬀerent loop that displays the three values on standard out.

4. In the ﬁrst version, LT1a.cpp, you are to use subscripts.

5. In the second version, LT1b.cpp, you are to use pointers only.

**TASK 2: Functions**

Write a C++ program to determine the cost of building a square table.

The main() function should call three functions. The three functions are:

1. A function which accepts from standard input:
   1. the number of chairs to go with the table,
   2. the surface area of the table,
   3. any color for the cushions on the chair seats
   4. the type of wood used to build the table and chairs (’m’ for mahogany, ’o’ for oak or ’p’ for pine. Any other type entry should be rejected).

The function should return all the data to the main() function.

1. A function that takes the number of chairs, the surface area of the table and the type of wood and calculates the price. The price for a table with surface area S and N chairs is x(S +1/2N) where x is $200, $150 and $95 respectively for mahogony, oak and pine.
2. A function to display the details of the purchase including the price.

An example of the expected output is as follows:

Enter the number of chairs for the table 5

Enter the colour of the cushions red

Enter the surface area of the table 16

Enter the type of wood -m for mahogany, o for oak, or p for pine f

Enter the type of wood -m for mahogany, o for oak, or p for pine o

You have chosen a oak table with:

Dimensions 4 by 4 and 5 chairs with red cushions!

Price is $2775.

**TASK 3: Strings**

Write a C++ program to verify user’s password. The user’s password must meet the following criteria:

1. The password should be at least six characters long.
2. The password should contain at least one uppercase letter.
3. The password should contain at least one lowercase letter.
4. The password should have at least one digit.

Prompt the user to enter a password and store the password in a string type variable. Then verify whether it meets the stated criteria above. If the password meets the criteria, display a message saying “Password accepted”. Otherwise, display a message telling the user why.