

**FACULTY OF INFORMATICS**

|  |  |  |  |
| --- | --- | --- | --- |
| **SUBJECT’S INFORMATION:** | | | |
| Subject: | CSCI124 Applied 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 7** | Coursework Percentage: | 2% |
| **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 11** | | |
| **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:**

The objective of this lab task is to provide you with the experience in writing codes using searching and sorting algorithms.

**TASKS:**

Suppose you have a list of customers for a local supplier company. Each customer is known with their customer id (an integer value in the range between 1 and 999), first name (a cstring with a maximum of 50 characters), last name (same as first name), and contact number (a cstring with a maximum of 20 characters). You are required to write a program that will allow you to read this list from a binary file and perform a search on this list to locate a particular customer’s information by asking the user to enter the customer’s id.

Your program should prompt the user for a filename. The file cust.dat is provided to you containing a list of unsorted customers to be used in this lab task. Read all the records into an array of suitable data structure. You need to determine the number of records available and use this information to dynamically allocate the array.

The records are not sorted. Therefore, you are required to first sort the records in the array according to the customer id in ascending order. You are required to use an **insertion sort** algorithm to perform this. Once the records have been sorted, allow the user to perform a search on the sorted list to locate a customer by prompting the customer id. For this task, you are required to perform a **binary search** on the list of records you have. If the record is found, display the details on standard output. Otherwise, display a message indicating that the record is not found. In either case, allow the user to continue searching for another record until a quit option is entered.