

JUBAIL UNIVERSITY COLLEGE
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
CS 205 DATA STRUCTURES
SEMESTER 302
Assignment

1. Write a program that implements the algorithm `delimiterMatching()` from page 142
2. Write a program that implements the algorithm `addingLargeNumbers()` from page 144.

INSTRUCTIONS:

- Submit the *hardcopy and Softcopy* of the Assignment.
- Make sure you have filled up the entire particular on the *cover page* and attach it to your documentation. State clearly about your name, ID. Number, major, subject's code and subject's name, number of homework.
- The hardcopy of the assignment should contain the program. Make sure you have attached it after the cover page.
- Duration: 2 Weeks
- Date assignment given: Second Class (Week 10)
- Due date for submission: End of Week 11 (Wednesday)

**** Students are advice to follow the instructions from lecturer and submit the assignment or tutorial according to the due date given. Actions will be taken for late submission without valid reasons.**

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OBJECTIVE

- To become acquainted with the Concepts of Data Structures.
- Design and implement programs which involve Linked lists, Stacks, Queues, Recursion, Searching and Sorting techniques, Trees or Graphs.

GROUP PROJECT DESCRIPTION

The students need to form groups, each consisting of maximum 4 members. Each group has to design and implement a linked list class. The linked list class may be for student list, shopping list, seminar reservation, book list or any other. For example, refer the following describes StudentList class to represent and manipulate the records of students enrolled in a course. The data field for each record in StudentList must contain:

1. Student ID
2. Student Name
3. Major

The program should do the following operations:

1. Add a new student record to StudentList. The records needs to be added in the ascending order of Student ID that is the student with less ID number should be placed first.
2. Delete a student record.
3. Display the enter StudentList as like given below:

STUDENT ID	STUDENT NAME	MAJOR
1234	John	Computer Science
2345	Jill	English
3456	Joe	Civil Engineering

4. Merge the records of two StudentsLists into one list. The records should be in ascending order of Student ID.
5. Search for a student record based on Student ID.

The program should display the following menu to the user:

1. Add a student record to StudentList1
2. Delete a student record from StudentList1
3. Search a student record in StudentList1

4. Print StudentList1
5. Add a student record to StudentList2
6. Delete a student record from StudentList2
7. Search a student record in StudentList2
8. Print StudentList2
9. Merge StudentList1 and StudentList2 into one list
10. Exit

The user will be prompted to enter an option. If the option is 9, the program execution will be terminated. If the user chooses an option from 1 to 8, appropriate action will be taken. If the user enters an option out of the range 1 to 9, user will be given a chance to choose an option again (until correct choice is made).

INSTRUCTIONS:

- This is a group project and each group should consist of max 4 members.
- The project report should include the following:
 - Cover page
 - Table of index
 - Introduction
 - Software resources
 - Hardware resources
 - Program listing
 - Sample output
 - References
- Hardcopy and software copy of the project needs to be submitted.
- Duration of the project is two weeks from the date of project description given.
- Deadline for submission is Saturday of Week 13.

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