

Data Structures (Assignment II)
SE (CIS) – 2002-03 batch
12-07-2004

Q1. Write down a program to read a text file containing a simple source program in C language and create a linked list of variables (names and data types). Print the names and types of variables in the list. Assume that the program does not contain any function and consists of simple statements, there is a single statement per line and the variable-defining-statements start with the data type name e.g. int or float.

HINT

Consider the program

```
int num1, num2;  
float ratio;  
double z;  
  
ratio = num1 / num2;  
z = sqrt(ratio);  
printf(“Ratio = %d\n”, ratio);
```

Q2. Program to input two unsigned long integers in a linked list (5 digits per node), find their sum and print on the screen.

Q3. Program to create a linked list to store the rollno, name and total marks of students (e.g. in **FE**) in the order of marks obtained. The program should perform following functions:-

- i. Insert a student record at appropriate location
- ii. Delete the student record given the rollno
- iii. Change the marks of a student to a new value given the rollno.
- iv. Determine the marks of students given the rollno
- v. Determine the rollno of student with highest marks
- vi. Determine average marks
- vii. Finding total number of passing candidates
- viii. Free the nodes of the list on exit

Q4. Suppose two sorted lists of integers are stored in memory. Write a function mergelist to merge the two lists into a new list. (**NOTE:** You can test the function by creating two sorted lists, merge them and print the result)

Instructions

- i. Develop following programs, well documented using remarks, in C/C++
- ii. This assignment can be submitted in groups of max 2 students
- iii. Last date of submission: 13th August
- iv. Hardcopy is also available at Photostat shop

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