Department of Computer Science
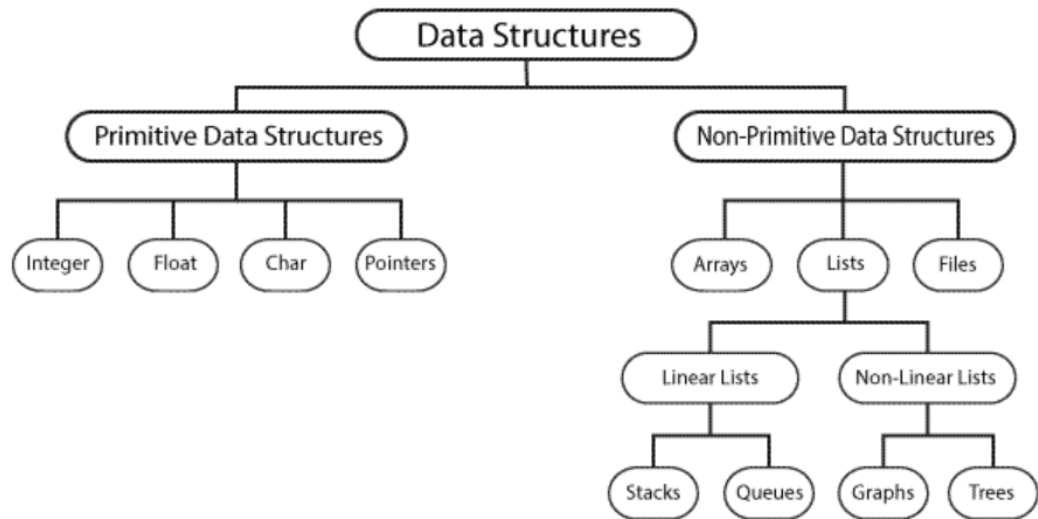
Lecture Outline

Data Structures – 4th CSE

Lecture 1 and Lecture 2

1. Structures	a. Definition b. Declaration c. Declaring a structure variable d. Declaring a structure pointer e. Using typedef f. Difference between Structure and Union g. Accessing structure members using a structure variable h. Accessing structure members using a pointer to the structure i. Self Referential Structures
2. Dynamic Memory Allocation	a. Calloc () b. Malloc() c. Realloc() d. Free() e. Syntax and usage of a-d to allocate memory f. Using sizeof()function
3. Recap of Pointers	a. Pointer declaration b. Pointer Assignment c. Pointer Size for various data types d. Pointer arithmetic e. Passing Pointer to a function f. Passing pointer by value and by reference g. Returning Pointer from a function
4. Pointer to a Pointer	a. Use of double pointers b. Extracting value using a double pointer
5. Data Structures	a. Definition b. Types of Data Structures c. Abstract Data Structure, ADT

6. Strings	a. Recap of Strings b. Implementing String Library Functions
7. Arrays	a. Recap of Arrays b. Arrays and Pointer Arithmetic c. Row Major and Column Major Representation of Arrays d. Operations on Arrays (Insert, Delete, Sort etc) e. Implementing Arrays using Dynamic Memory Allocation (Using a pointer and assigning desired size memory block to the pointer and using pointer arithmetic to emulate all functions of arrays) f. Advantages and Limitations

Types Of Data Structure