**PROBLEM 4 (DATA STRUCTURES)**

**1.** What are the differences between an array and a list ?

**Ans-** The size of the array has to be initialized whereas the list is a dynamic data structure. The array if faster in writing data than list because the memory is already allocated for the array.

**2.** what is a set and how is it different than a list ?

**Ans-** Set is a collection that basically is to store a set data such as poker cards. The set allows no duplicates whereas list can hold duplicate values.

**3.** Have u heard of :

- pointers ? if yes , please explain why it is used ?

   - memory allocation  ? if yes , please explain

**Ans-** Pointers point to the address of a variable i.e. pointers are variables that store the memory address of the variable they are assigned to. Pointers concept is found in c and c++. This concept is discontinued in java and c# in order to secure the access to a variable. The object of a class can be called a pointer except for the fact that its values cannot be accessed to keep the data secure.

Memory Allocation is the process of allocation space to store the variables. Variables can be of different data types. Different data types have different memory sizes. For example, In Java the integer type data needs 4 bytes of memory. Memory is allocated whenever a variable is declared.

Talking about memory allocation remind me of garbage collector. It collects the garbage variables. A variable is considered garbage when it goes out of scope.