Chaitanya Bharathi Institute of Technology
Department of Information Technology

Data Structures	**(16IT C02)**	**-**	**Theory**
Data Structures Lab	**(16IT C05)**	**-**	**Lab**

Following are the week wise viva questions which may be asked in lab sessions:

Week # 1 (13.07.2017 to 18.07.2017)

1. Is there any difference between 'a' and "a"? if yes what is the difference.
2. What is the amount of memory required for storing 'a' and "a"?
3. Define an ADT.
4. Define the array ADT.
5. Explain what is meant by {row major order, column major order}.
6. Give a generic formula for the space complexity of an N dimensional array.
7. What is the time complexity of accessing an element of an N dimensional array?
8. Given an array declaration, what is the memory address of [some element] if the base address is X and each element of the array takes E memory locations?
9. Give a generic formula for finding the memory location of an array element, given the base address and array element size.
10. What is an STL? Write about vector STL.
11. List the STL's supported in C++.

String ADT

12. Differentiate between exhaustive find and KMP algorithm for pattern matching
13. What is the prominence of '\0' while performing string operations
14. List maximum operations that can be performed on strings
15. List the predefined string functions supported in C & C++
16. What is the output of the following code segment?

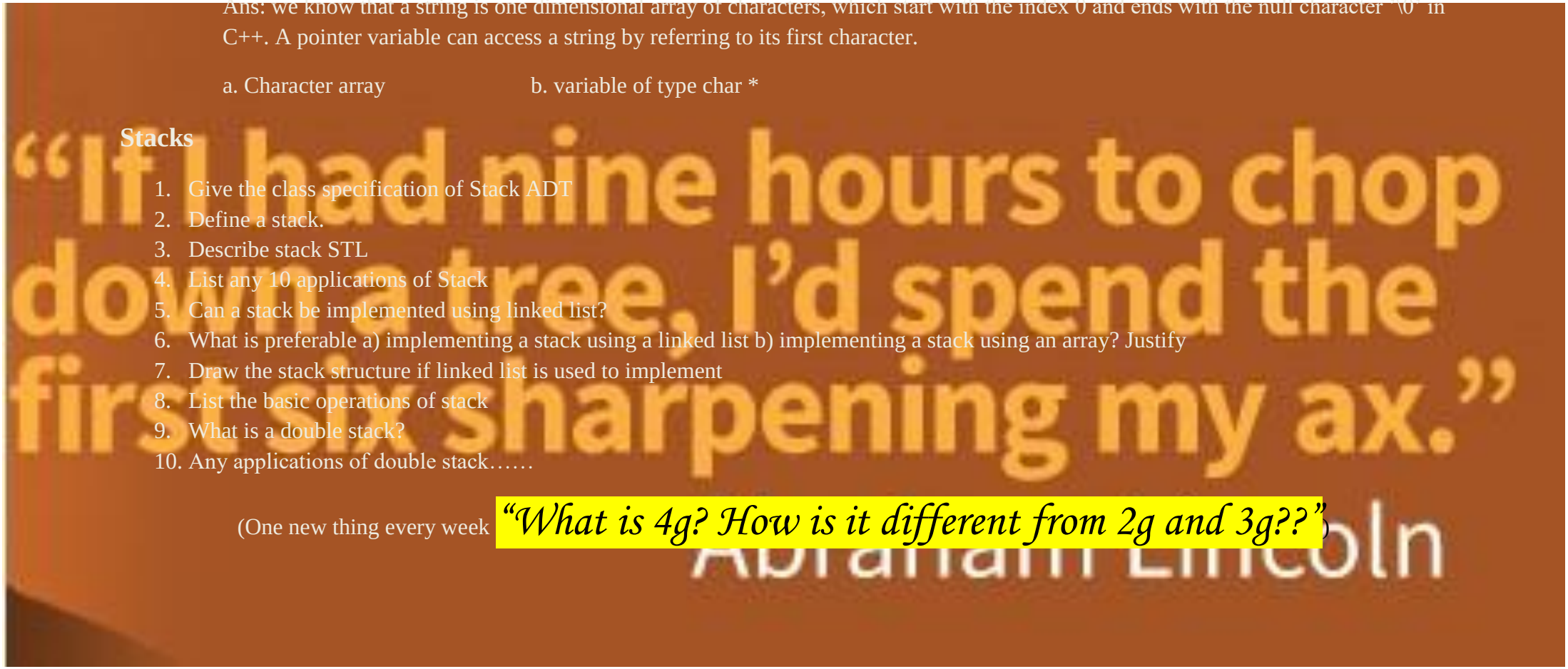
```
main()
{
        int a[10][10];
        cout<<a;
}
```

17. What is the difference between the following

a. Char num[]=”one”;
b. Const char *numptr=”one”;

Ans: we know that a string is one dimensional array of characters, which start with the index 0 and ends with the null character '\0' in C++. A pointer variable can access a string by referring to its first character.

a. Character array b. variable of type char *



Stacks

1. Give the class specification of Stack ADT
2. Define a stack.
3. Describe stack STL
4. List any 10 applications of Stack
5. Can a stack be implemented using linked list?
6. What is preferable a) implementing a stack using a linked list b) implementing a stack using an array? Justify
7. Draw the stack structure if linked list is used to implement
8. List the basic operations of stack
9. What is a double stack?
10. Any applications of double stack……

(One new thing every week *“What is 4g? How is it different from 2g and 3g??”*)

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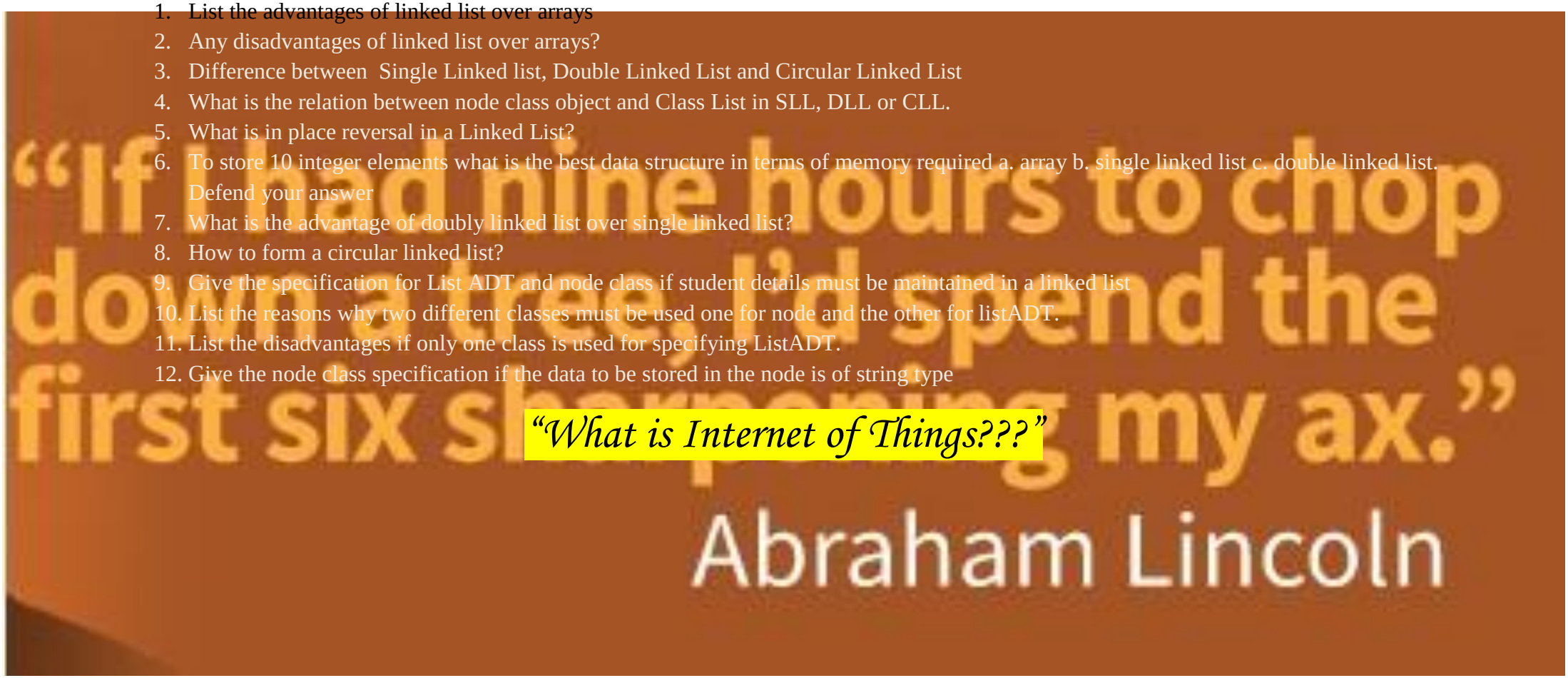
Week # 2 & 3 – (20.07.2017 – 25.07.2017) & (27.07.2017 to 01.08.2017)

Linked Lists

1. List the advantages of linked list over arrays
2. Any disadvantages of linked list over arrays?
3. Difference between Single Linked list, Double Linked List and Circular Linked List
4. What is the relation between node class object and Class List in SLL, DLL or CLL.
5. What is in place reversal in a Linked List?
6. To store 10 integer elements what is the best data structure in terms of memory required a. array b. single linked list c. double linked list. Defend your answer
7. What is the advantage of doubly linked list over single linked list?
8. How to form a circular linked list?
9. Give the specification for List ADT and node class if student details must be maintained in a linked list
10. List the reasons why two different classes must be used one for node and the other for listADT.
11. List the disadvantages if only one class is used for specifying ListADT.
12. Give the node class specification if the data to be stored in the node is of string type



"What is Internet of Things???"