**Lesson Summary and Revision Notes: Week 15**

**Three common ADTs (Abstract Data Types) are:**

* Stack
* Queue
* Linked List

**Explain What is Meant By a Stack**



* Stack is a list of several items operating on the **last in, first out (LIFO)** principle.
* The first item added to a stack is the last item to be removed from the stack.
* Items can be added to the stack (push) and removed from the stack (pop).
* Items can be added (push) or removed (pop) from the top of the stack only

**Stack Operations**



* A stack can be implemented using an array and a set of pointers (basePointer & topPointer).
* The value of the basePointer always remains the same during stack operations.

**Explain What Is Meant By a Queue**



* Queue is a list containing several items operating on the **first in, first out (FIFO)** principle.
* The first item added to a queue is the first item to be removed from the queue.
* Items can be added to the queue (enqueue) and removed from the queue (dequeue).
* In a queue, both the ends can be accessed.

**Queue Operations**



* A queue can be implemented using an array and a set of pointers.
* The value of the frontPointer changes after dequeue but the value of the rearPointer changes after enqueue.

**Explain What is Meant By a Linked List**



* Linked List is a sequence of links which contains items.
* Each link of a linked list can store a data called an element.
* Each link of a linked list contains a link to the next link called Next.
* Linked List has 3 pointers:
  + Head Pointer that points to the first data element
  + Next Pointer that points to the next data point
  + Null Pointer that points to an “empty” linked list

**Linked List Operations**



* The linked list represents the group of nodes in which each node has two parts.
* The first part represents the data, and the second part represents the pointer.
* The pointer part of the linked list holds the address of the next node.