

DEPARTMENT OF  
COMPUTER SCIENCE AND ENGINEERING

# MINI PROJECT

SHOPPING  
"Buymee"

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## OBJECTIVES OF THE COURSE

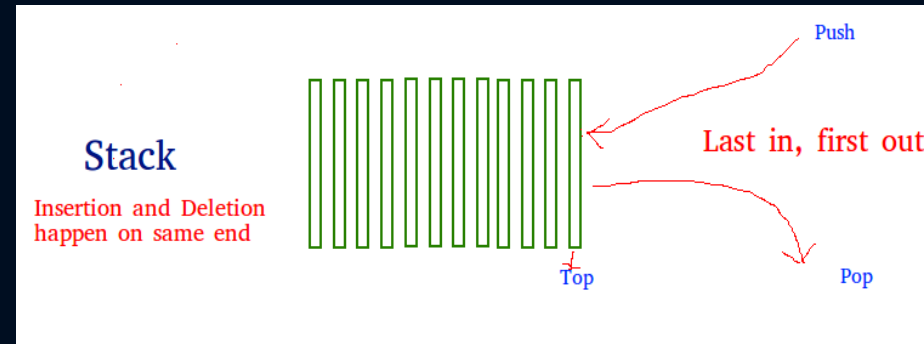
- >To understand concepts about searching and sorting techniques.
- >To understand about writing algorithms and step by step approach in solving problems with the help of fundamental data structure.
- >The objective of this mini project is to let the students apply the programming knowledge into a real- world situation/problem and exposed the students how programming skills helps in developing a good engineer .

# DATA STRUCTURES

## Stack Data Structure

Stack is a linear data structure which follows a particular order in which the operations are performed. The order may be LIFO (Last In First Out) or FILO (First In Last Out). Mainly the following three basic operations are performed in the stack:

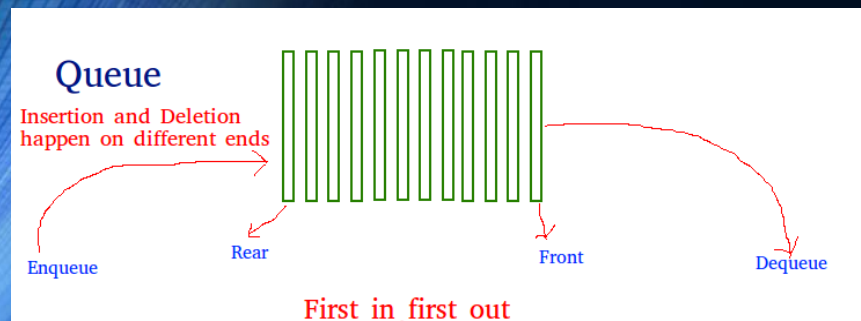
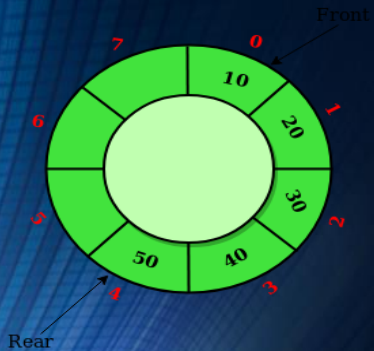
- **Push:** Adds an item in the stack. If the stack is full, then it is said to be an Overflow condition.
- **Pop:** Removes an item from the stack. The items are popped in the reversed order in which they are pushed. If the stack is empty, then it is said to be an Underflow condition.
- **Peek or Top:** Returns top element of stack.
- **Is Empty:** Returns true if stack is empty, else false.



## Queue

Like Stack, Queue is a linear structure which follows a particular order in which the operations are performed. The order is First In First Out (FIFO). A good example of queue is any queue of consumers for a resource where the consumer that came first is served first.

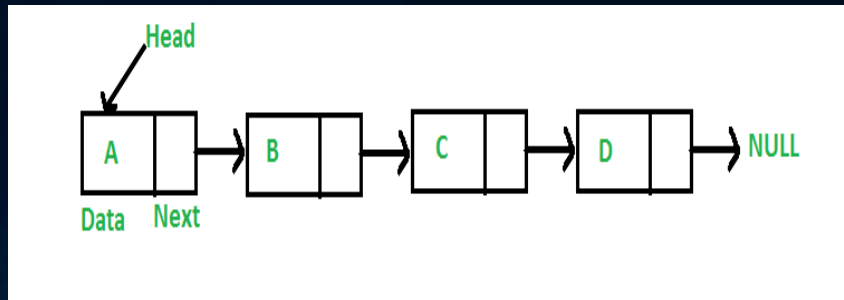
The difference between stacks and queues is in removing. In a stack we remove the item the most recently added; in a queue, we remove the item the least recently added.



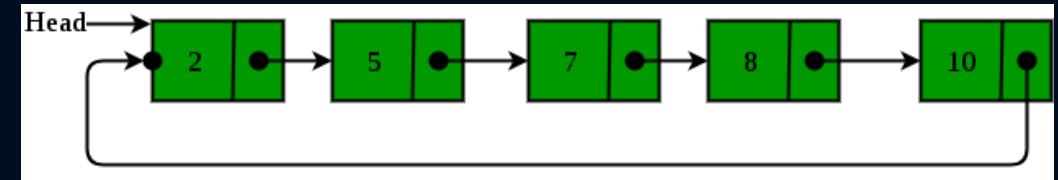
## Linked List Data Structure

A linked list is a linear data structure, in which the elements are not stored at contiguous memory locations. In simple words, a linked list consists of nodes where each node contains a data field and a reference (link) to the next node in the list. The elements in a linked list are linked using pointers as shown in the below image:

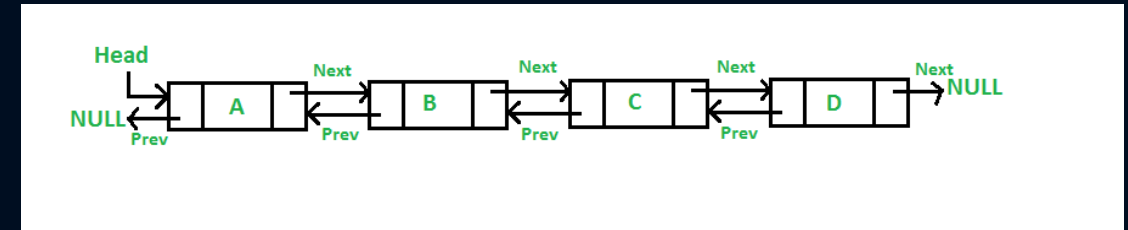
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## Circular Linked List



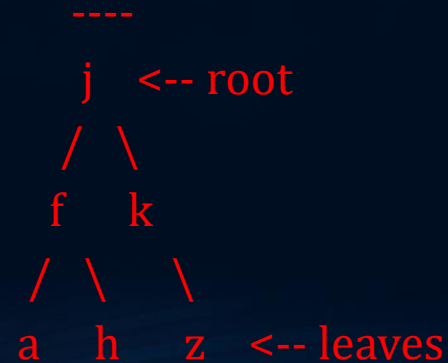
## Doubly Linked List



## Binary Tree

**Trees:** trees are hierarchical data structures. The top most node is called root of the tree. The elements that are directly under an element are called its children. The element directly above something is called its parent. Finally, elements with no children are called leaves.

tree



## Binary Search Tree

**Binary Search Tree** is a node-based binary tree data structure which has the following properties:

- The left subtree of a node contains only nodes with keys lesser than or equal to the node's key.
- The right subtree of a node contains only nodes with keys greater than the node's key.
- The left and right subtree each must also be a binary search tree.



# DESCRIBE PROBLEM STATEMENT

SHOPPING is the process whereby consumers directly buy goods, services etc. from a seller interactively in real-time without an intermediary service over the internet. The goal of this application is to develop a interface for retailers and consumers. This would be easy to use and hence make the shopping experience pleasant for the users. the goal of this application is to develop an easy to use, where users can search for products, view a complete description of the products and order the products. The user can easily add a product to or remove a product from the shopping cart. An user can view the complete specification of the product along with various images.

# FUNCTIONALITY USED SPECIFIC TO THE COURSE

## SIMPLY LINKED LIST

A linked list is a linear data structure where each element is a separate object.

Linked list elements are not stored at contiguous location; the elements are linked using pointers.

Each node of a list is made up of two items - the data and a reference to the next node. The last node has a reference to null. The entry point into a linked list is called the head of the list. It should be noted that head is not a separate node, but the reference to the first node. If the list is empty then the head is a null reference.

### Linked List Operations

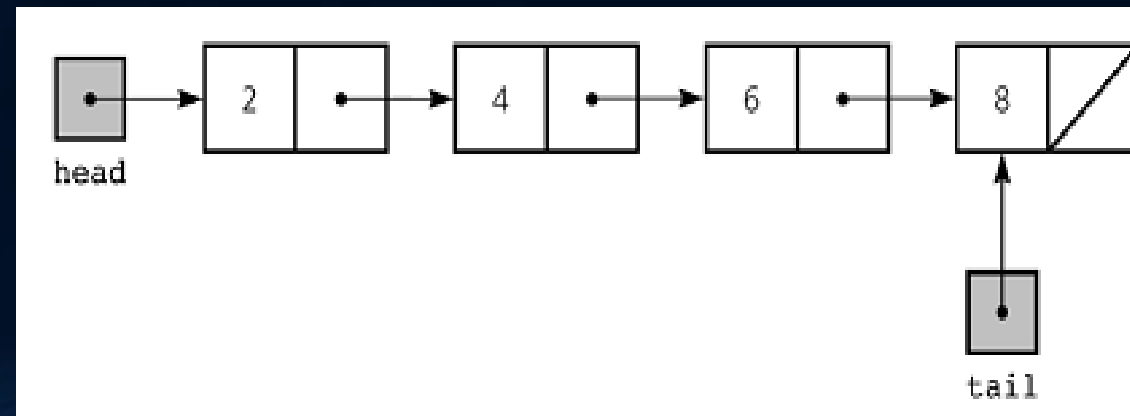
Add

Delete

Display

Traversing

Iterator



# HOW OBJECT IS ACHIEVED IN THE PROJECT

Main object is to implement Data structure. Linked list is the type of data structure mainly used to implement shopping cart.

1. Collection of items each containing properties for cart information such as quantity and price.
2. Items should be able to be added and removed.
3. The cart should be able to be emptied in a single action.
4. Certain parts of the data should be updated when items are added/removed such as subtotal, quantity etc.

Admin should input all the available item names with their quantity and price. The shopping main page opens. User must log-in to proceed further. If the user haven't registered then user must register with their name, email id, contact number and address. User can search for needed items, select and add to cart. After adding items user can either place order or can cancel the items. After placing order total price will be calculated and shown in the screen. User can log-out of page in the end.