



Assignment-2

Sem: 3rd	Subject code: BCS304	Subject: Data structure and applications
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1. Discuss the different types of queue.
2. Design circular queue using dynamically allocated arrays. Give steps to relocate elements in dynamic array for proper insertion and deletion.
3. What is the advantage of circular queue over ordinary queue? Give ADT to perform various operations on circular queue. Also give ADT to check for empty and full.
4. Give structure representation in C to create a singly linked list (SLL). Give C routine to implement following operations on SLL.
 - a) Create SLL of integer data.
 - b) Insert a node at rear end.
 - c) Delete a node from front end.
 - d) Display all nodes.
5. Write a C function for the following SLL operations.
 - a) To count the number of nodes present in the list.
 - b) To search for a suitable data and display appropriate message.
 - c) To delete a node where information field is specified.
 - d) To concatenate two lists.
 - e) To reverse (invert) a list.
 - f) To create an ordered (sorted) list.
6. Discuss how to read a polynomial consisting of ‘n’ terms implemented using SLL.
7. Write the node representation of the linked representation of a polynomial. Also give the algorithm to perform addition on two polynomials.
8. Differentiate between SLL, DLL, Circular list and header linked list. Give algorithm to insert a node in circular linked list and traverse the list.
9. What is circular DLL? Write a C function to perform the following operations on CDLL.
 - a) Insert an element at the beginning and end
 - b) Delete an element at beginning and end
 - c) Display the contents.
10. Discuss how to implement stacks and queues using linked list.
11. Give a suitable steps to insert a node between A and B (consider the cases where A is NULL, B is NULL and A & B are **not** NULL)