In The Name Of God

The Most Compassionate And Merciful

Problem Set - 8-a

Linked List

1. Develop a **linked list** then try to implement these functions for your linked list.

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| Struct Node{  int data;  Struct Node \* next; }; |

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| 1.struct Node \* insert\_at(int value , struct Node \*head , int house); 2.struct Node \* edit(int house, int newValue,struct Node \*head); 3.struct Node \* delete\_by\_index(int index , struct Node \*head); 4.struct Node \* delete\_by\_value(int number , struct Node \*head); 5.int search(int number , struct Node \*head); 6.struct Node \*add\_end(int data , struct Node \*head); 7.struct Node \*add\_first(int newValue , struct Node \*head); 8.struct Node \*delete\_first(struct Node \*head); 9.struct Node \*delete\_last(struct Node \*head); 10.void delete\_list(struct Node \*head); 11.int get(int house , struct Node \*head); 12.int listlen(struct Node \*head); 13.void bubbleSort(struct Node \*head); 14.void printList(struct Node \*head); |

2. **Binary search tree (BST)** from given int [ ] using linked list.

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| 1.struct Node\* newNode(int data);  2.struct Node\* insert(struct Node\* root, int data);  3.struct Node\* search(int data);  4.void print(struct Node\* root);  5.bool isEmpty(struct Node\* root);  6.int depth(struct Node\* root);  7.void delete(struct Node\* root, int data);  8.void clear(struct Node\* root); |

3. Develop a **doubly linked** list and implement previous functions for the linked list.(Double)

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| 1.void printList(struct Node \*head);  2.int listlen(struct Node \*head);  3.struct Node \* insert\_at(struct Node \*head ,int value , int index);  4.int search( struct Node \*head, int number ); 5.struct Node \*add\_end(struct Node \*head, int data ); 6.struct Node \*add\_first(struct Node \*head, int newValue); 7.struct Node \*delete\_first(struct Node \*head); 8.struct Node \*delete\_last(struct Node \*head); 9.void delete\_list(struct Node \*head); 10.int get( struct Node \*head, int index ); 11.struct Node \* edit(struct Node \*head, int index, int newValue); 12.struct Node \* delete\_by\_index(int index , struct Node \*head); 13.struct Node \* delete\_by\_value(int number , struct Node \*head); |

4. Develop a **circular linked list** and implement previous functions for it.

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| Struct Node{  int data;  Struct Node \* next; }; |