5/2/2024

1) WAP to implimant doubly linked list with primitive operation:

(a) Create a doubly linked list

```
struct node {
    int data;
    struct node *prev;
    struct node *next;
};
struct node *head, *tail;
head = 0;

void create_dll() {

    struct node *newnode;
newnode = (struct node *) malloc (sizeof (struct node));
    printf("Enter data:");
    scanf("%d", &newnode->data);
    newnode->next = 0;
    newnode->prev = 0;

if (head == 0) {
    head = tail = newnode;
    }
else { newnode->prev = tail;
        tail->next = newnode;
            tail = newnode;
    }
}
```

(b) Insert a newnode to the left of a node

```
-> void in_at_left () {

    Struct node *newnode, *ptr; ptr = head;
newnode = (struct node*) malloc (sizeof (struct node));
    printf ("Enter data: ");
    scanf ("%d", &newnode -> data);
  int count = 0 , pos;
    printf ("Enter position: ");
     scanf ("%d", &pos);

    while ( count < pos) {
        ptr = ptr -> next ;
         count ++ ;
        }

    ptr -> prev -> next = newnode;
      ptr newnode -> prev = ptr -> prev ;
      newnode -> next = ptr;
      ptr -> prev -> next = newnode;
         ptr -> prev = newnode;
}
```

(c) Delete the node based on a specific value.

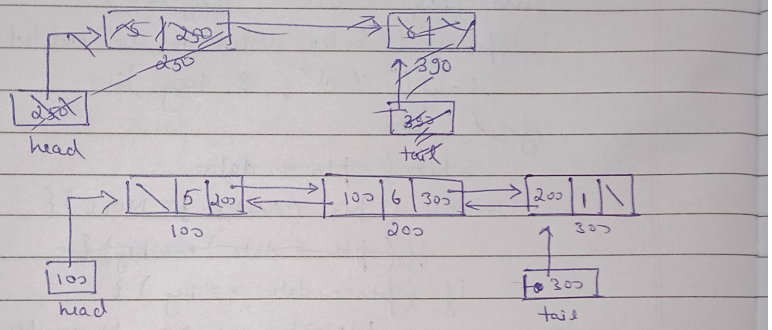
→ void del_at_pos(){

struct node *ptr; ptr = head;
int key, val, flag = 0;
printf("Enter value to be deleted: ");
scanf("%d", &key);
~~if (~~
~~while (ptr -> data~~
while (ptr ~~->next~~ != NULL){
~~if (ptr -> data != key) {~~
if (ptr -> data == key) {
ptr -> prev -> next = ~~ptr->n~~ ptr -> next;
ptr -> next -> prev = ptr -> prev;
~~free(ptr);~~ flag = 1;
}
~~break;~~ ~~flag = 1;~~ free(ptr);
~~ptr = ptr;~~ ~~ptr -> next;~~ break; }
else {
ptr = ptr -> next;
}
}
if (flag == 1) {
printf("Element deleted");
}
else {
printf("Element not found");
}
}

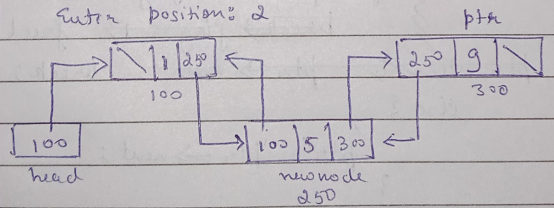
Output

a) Enter data: 5
Enter data: 6
Enter data: 1

new node will be created like this.



b) Enter data: 5
Enter position: 2



c) Enter value to be deleted: 5

Before: 2 3 5 1
After: 2 3 1

Before

for

(b) Enter data : 5

Enter position: 2

Before : 1 9

After : 1 5 9

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