23/11/2020

Program wap to implement singly linked list with following operations

(a) Create a linked list
(b) Insertion (c) Deletion (d) display the contents of linked list.

Pseudo code :-

```
Insert_beginning{
Struct node {
    int data
    Struct node *next;
};

insert_begin(Struct node **head, int new_data)
{
  Struct node* new_node =(Struct node*)malloc(
                          sizeof(Struct node));
  new_node->data = new_data;
  if (*head==NULL)
     { new_node->next=data NULL;
       *head = new_node;
     }
  else
     {new_node -> next = *head.
       *head = new_node;
     }
}

insert_end { struct node **head, int new_data)
{ Struct node *new_node = (struct node*) malloc
                          (sizeof(structnode));
```

```
Struct node *last = *head;
new_node -> data = new_data;
new_node -> next = NULL;
if (head == NULL)
  { *head = new_node;
  }
else { while (last -> next != NULL)
         { last = last -> next;
         }
       last -> next = new_node;
  }
```

```
Insert_given_position (struct node **head, int new_data,
                       int pos)
{ Struct node **new_node, *temp;
new_node = (struct node *) malloc (sizeof (struct node));
    temp = *head;
for (i=0; i<pos; i++)
    new_node -> data = new_data;
    new_nodod -> next = NULL;
  if (position == 1).
  { new_node -> next = temp;
    *head = new_node;
    return;
  }
 for (i=1; i<pos-1; i++)
  { temp = temp -> next;
  }
  new_node -> next = temp -> next;
   temp -> next = new_node;
}
```

```
delete_begin(struct node **head){
  struct node *temp = *head;
    if (*head = NULL)
        printf("List is empty");
    else{
        *head = ptr->next;
        free(ptr);
    }
}

delete_end (struct node **head){
    struct node *temp, *temp1;
    if(*head == NULL)
        printf ("List is empty");
    else if (*head->next == NULL)
    { *head = NULL;
      free (head);
    }
    else
    { temp = head;
      while (temp->next != NULL)
      { temp1 = temp;
        temp = temp->next;
      }
        temp1->next = NULL;
      free (temp);
    }
}

void delete_pos (struct node *head, pos)
{ struct node * temp, *temp1;
  for (i=0; i<pos; i++)
  { temp1 = temp
    temp = temp->next;
  }
```

```
if (temp == NULL)
  { printf("There are less than the elements
          given position in list");
  } &
}
temp1 -> next = temp -> next;
      free (temp);
}
```