

5.WAP to Implement Singly Linked List with following operations

a) Create a linked list.

b) Insertion of a node at first position, at any position and at end of list.

Display the contents of the linked list.

```
#include <stdio.h>
```

```
#include <stdlib.h>
```

```
struct node
```

```
{
```

```
    int data;
```

```
    struct node *next;
```

```
};
```

```
void main()
```

```
{
```

```
    struct node *head=NULL;
```

```
    insertatbeg(&head,2);
```

```
    insertatbeg(&head,1);
```

```
    insertatend(&head,3);
```

```
    insertatend(&head,5);
```

```
    insertatpos(&head,4,4);
```

```
    printlist(head);
```

```
}
```

```
void insertatbeg(struct node** head_ref,int new_data)
```

```
{
```

```
    struct node* new_node=(struct node*)malloc(sizeof(struct node));
```

```

    new_node->data=new_data;

    new_node->next=*head_ref;

    *head_ref=new_node;
}

void insertatend(struct node** head_ref,int new_data)
{
    struct node* new_node=(struct node*)malloc(sizeof(struct node));

    struct node* last=*head_ref;

    new_node->data=new_data;

    new_node->next=NULL;

    if(*head_ref==NULL)
    {
        new_node=*head_ref;
    }

    while(last->next!=NULL)
    {
        last=last->next;
    }

    last->next=new_node;

    return;
}

void insertatpos(struct node** head,int new_data,int pos)
{
    if(pos<=0)
    {
        printf("Invalid position");
    }
}

```

```

        return;
    }

    if(pos==1 || *head==NULL)
    {
        insertatbeg(head,new_data);

        return;
    }

    struct node* new_node=(struct node*)malloc(sizeof(struct node));

    struct node *temp=*head;

    new_node->data=new_data;

    int count=1;

    while(count<pos-1 && temp->next!=NULL)
    {
        temp=temp->next;

        count++;
    }

    new_node->next=temp->next;

    temp->next=new_node;
}

void printlist(struct node* node)
{
    struct node *temp=node;

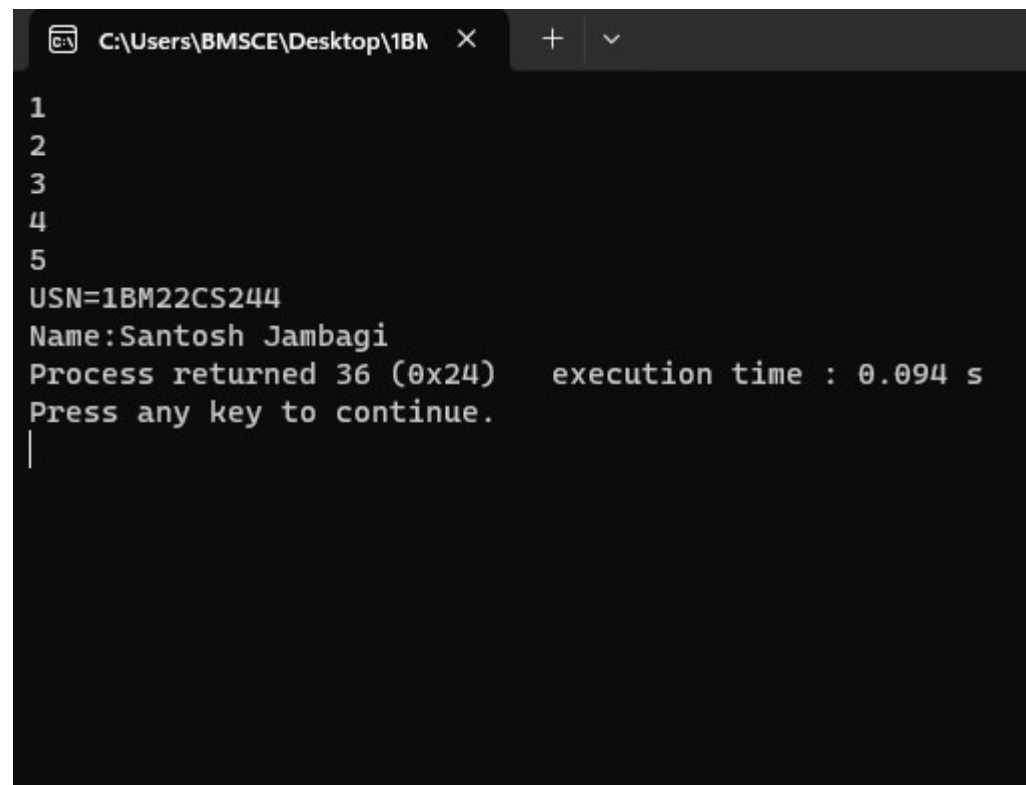
    while(temp!=NULL)
    {
        printf("%d\n",temp->data);

        temp=temp->next;
    }
}

```

```
}  
}
```

Output:



The screenshot shows a Windows command prompt window with a dark background. The title bar at the top indicates the file path 'C:\Users\BMSCE\Desktop\1BA' and includes standard window controls. The command prompt displays the following text: a list of numbers 1 through 5, the string 'USN=1BM22CS244', the name 'Name:Santosh Jambagi', the message 'Process returned 36 (0x24)' followed by 'execution time : 0.094 s', and the instruction 'Press any key to continue.' A vertical cursor is positioned on the line following the instruction.

```
C:\Users\BMSCE\Desktop\1BA >  
1  
2  
3  
4  
5  
USN=1BM22CS244  
Name:Santosh Jambagi  
Process returned 36 (0x24)    execution time : 0.094 s  
Press any key to continue.  
|
```