EXPERIMENT NO.3.2

STACK USING LINKED LIST:

#include<iostream>

using namespace std;

struct node {   int

data;   struct node

*next; };

class stack {   struct

node *top;   public:

stack()

  {

     top=NULL;

  }

   void push();

void pop();

void show(); };

void stack::push()

{

   int value;   struct node *ptr;   cout<<"\nPUSH

Operation\n";   cout<<"Enter a number to insert:

";   cin>>value;   ptr=new node;

```cpp
ptr->data=value;    ptr->next=NULL;

if(top!=NULL)       ptr->next=top;    top=ptr;

cout<<"\nNew item is inserted to the stack!!!";


} void

stack::pop()

{    struct node

*temp;

if(top==NULL)

   {

      cout<<"\nThe stack is empty!!!";

   }

   temp=top;    top=top->next;    cout<<"\nPOP

Operation........\nPoped value is "<<temp->data;    delete temp;


}


void stack::show()

{    struct node *ptr1=top;

cout<<"\nThe stack is\n";

while(ptr1!=NULL)

   {

      cout<<ptr1->data<<" ->";

ptr1=ptr1->next;

   }
```

```cpp
    cout<<"NULL\n";
} int main() {
stack s;    int
choice;
while(1)
    {       cout<<"\n-------------------------------------------------------";
        cout<<"\n\t\tSTACK USING LINKED LIST\n\n";
cout<<"1:PUSH\n2:POP\n3:DISPLAY STACK\n4:EXIT";
        cout<<"\nEnter your choice(1-4): ";
        cin>>choice;
switch(choice)
    {
case 1:
        s.push();
break;      case 2:
        s.pop();
break;      case 3:
        s.show();
break;      case 4:
return 0;
break;
default:
        cout<<"\nPlease enter correct choice(1-4)!!";
        break;
```

```
        }

    }

    return 0;

}
```

OUTPUT:

```
STACK USING LINKED LIST
1:PUSH
2:POP
3:DISPLAY STACK
4:EXIT
Enter your choice(1-4): 1

PUSH Operation Enter a
number to insert: 10

New item is inserted to the stack!!!
-----------------------------------------------------------
                    STACK USING LINKED LIST

1:PUSH
2:POP
3:DISPLAY STACK
4:EXIT
Enter your choice(1-4): 1

PUSH Operation Enter a
number to insert: 20

New item is inserted to the stack!!!
-----------------------------------------------------------
                    STACK USING LINKED LIST

1:PUSH
2:POP
3:DISPLAY STACK
4:EXIT
Enter your choice(1-4): 1
```

PUSH Operation Enter a
number to insert: 30

New item is inserted to the stack!!!

                        STACK USING LINKED LIST

1:PUSH
2:POP
3:DISPLAY STACK
4:EXIT
Enter your choice(1-4): 2

POP Operation........
Poped value is 30
---STACK USING LINKED
LIST

1:PUSH
2:POP
3:DISPLAY STACK
4:EXIT
Enter your choice(1-4): 1

PUSH Operation Enter a
number to insert: 30

New item is inserted to the stack!!!

STACK USING LINKED LIST

1:PUSH
2:POP
3:DISPLAY STACK
4:EXIT
Enter your choice(1-4): 3

The stack is
30 ->20 ->10 ->NULL

STACK USING LINKED LIST

1:PUSH

2:POP
3:DISPLAY STACK
4:EXIT
Enter your choice(1-4): 2

POP Operation........
Poped value is 30

STACK USING LINKED LIST

1:PUSH
2:POP
3:DISPLAY STACK
4:EXIT
Enter your choice(1-4): 2

POP Operation........
Poped value is 20

STACK USING LINKED LIST
1:PUSH
2:POP
3:DISPLAY STACK
4:EXIT
Enter your choice(1-4): 2

POP Operation........
Poped value is 10

                        STACK USING LINKED LIST

1:PUSH
2:POP
3:DISPLAY STACK 4:EXIT
Enter your choice(1-4):