

Cs301 Assignment no 1 fall 2020

```
#include <iostream>
using namespace std;
//Structure of the Node
class student
{
    public:
    int marks;
    string name;

    student *link=NULL;
};
student *top = NULL;
bool isempty()
{
    if(top == NULL)
        return true;
    else
        return false;
}
//Function to insert an element in stack
void push (int marks ,string name)
{
    student *ptr = new student();
    ptr->marks = marks;
    ptr->name = name;
    ptr->link = top;
    top = ptr;
    cout<<"Student Record SUCCESSFULLY Saved\n\n";
```

```

}
//Function to delete an element from the stack
void pop ()
{
    if ( isempty() )
        cout<<"Stack is Empty\n\n";
    else
    {
        student *ptr = top;
        top = top -> link;
        delete(ptr);
        cout<<"Student deleted Successfully\n";
    }
}

```

```

void reverse()
{
    student *current = top;
    student *prev = NULL, *link = NULL;
    while (current != NULL)
    {
        // Store next
        link = current->link;
        // Reverse current node's pointer
        current->link = prev;
        // Move pointers one position ahead.
        prev = current;
        current = link;
    }
    link = prev;
}

```

```

        if ( isempty() )
        cout<<"Stack is Empty\n";
    else
    {
        cout<<"Name"<<"          "<<"Marks\n"<<"-----"<<"
            "<<"-----\n";
        for (int i; i<=2;i++){

            {   cout<<prev->name<<"          "<<prev->marks<<"\n";
                prev=prev->link;
            }
        }
    }

}

// Function to Display the stack
void displayStack()
{
    if (isempty())
        cout<<"Stack is Empty\n";
    else
    {
        student *temp=top;
        cout<<"Name"<<"          "<<"Marks\n"<<"-----"<<"
            "<<"-----\n";
        while(temp!=NULL)
        {   cout<<temp->name<<"          "<<temp->marks<<"\n";
            temp=temp->link;
        }
        cout<<"\n";
    }
}

```

```
}
```

```
// Main function
```

```
int main()
```

```
{
```

```
int choice, flag=1, value;
```

```
string name;
```

```
while (choice <5){
```

```
cout<<"1. To add a student in Stack.\n 2. To remove a Student from Stack.\n 3.  
    Display all students of Stack.\n4.    Display top 3 positions of students. \  
n5.    Press 5 or any other key to close the program.\n\nEnter your choice  
(1,2,3,4,5):";
```

```
cin>>choice;
```

```
switch (choice)
```

```
{
```

```
case 1:cout<<"Enter Name of Student:";
```

```
    cin>>name;
```

```
    cout<<"Enter Marks of Student:";
```

```
    cin>>value;
```

```
    push(value,name);
```

```
    break;
```

```
case 2: pop();
```

```
    break;
```

```
case 3: displayStack();
```

```
    break;
```

```
case 4: reverse();
```

```
    break;
```

```
        flag=0;
    }
}

system("PAUSE");
}
```