**/\* Program No. :**

**Aim : WAP to represent a class for stack that can store both integer and floating point numbers separately using class templates and perform the following operations on the stack - 1. Push, 2. Pop, 3. Display.**

**\*/**

#include<iostream.h>

#include<conio.h>

# define size 5

template<class typea>

class stack

{

int top;

typea array[size];

public:

stack()

{

top=-1;

}

void push(typea);

typea pop();

void display() const;

};

template<class typea>

void stack<typea>::push(typea no)

{

if(top==size-1)

cout<<"\n\n\t\tElement can't be pushed, because stack is full";

else

array[++top]=no;

}

template<class typea>

typea stack<typea>::pop()

{

if(top==-1)

return(-9999);

else

return(array[top--]);

}

template<class typea>

void stack<typea>::display() const

{

if(top==-1)

cout<<"\n\n\t\tStack is empty, No elements to display";

else

{

cout<<"\n\n\t\t"<<array[top]<<" <- TOP";

for(int i=top-1;i>=0;i--)

cout<<"\n\t\t"<<array[i];

}

}

void main()

{

int choice1,n;

float f;

char choice2;

stack<int> s1;

stack<float> s2;

do

{

clrscr();

cout<<"\n\n\t\t\t\tMENU"<<"\n\n\t\t1. Push to Integer stack"

<<"\n\t\t2. Pop from Integer stack"

<<"\n\t\t3. Display Integer stack"

<<"\n\t\t4. Push to Float Stack"

<<"\n\t\t5. Pop from Float Stack"

<<"\n\t\t6. Display Float Stack"

<<"\n\t\t7. Exit";

cout<<"\n\n\tEnter your choice (1-7) : ";

cin>>choice1;

switch(choice1)

{

case 1:do

{

cout<<"\n\t\tEnter element : ";

cin>>n;

s1.push(n);

cout<<"\n\tWant to enter more (y/n) : ";

cin>>choice2;

}while(choice2=='y'||choice2=='Y');

break;

case 2:do

{

n=s1.pop();

if(n==-9999)

{

cout<<"\n\n\t\tElement can't be poped, because stack is empty"

<<"\n\t\tPress any key";

choice2='n';

getch();

}

else

{

cout<<"\n\t\tElement popped : "<<n;

cout<<"\n\tWant to pop more (y/n) : ";

cin>>choice2;

}

}while(choice2=='y'||choice2=='Y');

break;

case 3:s1.display();

cout<<"\n\n\t\t\t\tPress any key";

getch();

break;

case 4:do

{

cout<<"\n\t\tEnter element : ";

cin>>f;

s2.push(f);

cout<<"\n\tWant to enter more (y/n) : ";

cin>>choice2;

}while(choice2=='y'||choice2=='Y');

break;

case 5:do

{

f=s2.pop();

if(f==-9999.00)

{

cout<<"\n\n\t\tElement can't be poped, because stack is empty"

<<"\n\t\tPress any key";

choice2='n';

getch();

}

else

{

cout<<"\n\t\tElement popped : "<<f;

cout<<"\n\tWant to pop more (y/n) : ";

cin>>choice2;

}

}while(choice2=='y'||choice2=='Y');

break;

case 6:s2.display();

cout<<"\n\n\t\t\t\tPress any key";

getch();

break;

case 7:break;

default:cout<<"\n\n\t\t\tIncorrect Choice"

<<"\n\n\t\tPress any key";

getch();

break;

}

}while(choice1!=7);

getch();

}

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