**Exp.No Implementation of Stack**

**Date**

**PROGRAM:**

#include<iostream.h>

#define MAX 5

class stack

{

int arr[MAX];

int top;

public:

stack()

{

top=-1;

}

void push(int i)

{

top++;

try

{

if(top<MAX)

{

arr[top]=i;

cout<<"Element inserted in the Stack is"<<arr[top];

}

else

{

throw top;

}

}

catch(int n)

{

cout<<"exception \n";

cout<<"Stack is full\n";

}

}

int pop()

{

try

{

if(top==-1)

throw top;

else

{

int data=arr[top];

arr[top]=NULL;

top--;

return data;

}

}

catch(int n)

{

cout<<"exception \n";

cout<<"stack is empty\n";

}

}

void display();

};

void stack::display()

{

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

cout<<arr[i]<<”\n”;

}

int main()

{

stack a;

char p;

int n,no;

cout<<"size of stack="<<MAX;

do

{

cout<<"\n 1.Push operation\n";

cout<<"\n2.Pop operation \n";

cout<<”3.Display\n”;

cout<<"Enter your choice \n";

cin>>n;

switch(n)

{

case 1:

cout<<"enter the item \n";

cin>>no;

a.push(no);

break;

case 2:

no=a.pop();

cout<<"The popped item is"<<no;

break;

case 3:

a.display();

break;

default:

cout<<"Entered a wrong choice \n";

break;

}

cout<<"do you want to continue(y or n)\n";

cin>>p;

}while(p=='y');

return 0;

}

**INPUT AND OUTPUT:**

Size of the stack 5

1.Push operation

2.Pop operation

3.Display

Enter your choice

1

Enter the item

10

Element inserted in the Stack is 10

Do you want to continue(y or n)

y

1.Push operation

2.Pop operation

3.Display

Enter your choice 1

Enter the item

20

Element inserted in the Stack is 20

Do you want to continue(y or n)

y

1.Push operation

2.Pop operation

3.Display

Enter your choice 3

20

10

Do you want to continue(y or n)

y

1.Push operation

2.Pop operation

3.Display

Enter your choice 2

The popped item is 20

Do you want to continue(y or n)

y

1.Push operation

2.Pop operation

3.Display

Enter your choice 2

The popped item is 10

Do you want to continue(y or n)

y

1.Push operation

2.Pop operation

3.Display

Enter your choice 2

Exception

Stack is empty

Do you want to continue(y or n)

n

**Exp.No Implementation of Queue**

**Date**

**PROGRAM:**

#include<iostream.h>

#define MAX 5

class queue

{

int a[MAX];

int rear,front;

public:

queue()

{

rear=0;

front=0;

}

void insert(int i);

int remove();

int isfull();

int isempty();

void display();

};

void queue::insert(int i)

{

try

{

if(isfull())

throw 1;

else

{

a[rear]=i;

cout<<"element inserted is"<<a[rear];

rear++;

}

}

catch(int n)

{

cout<<"exception \n";

cout<<"queue is full \n";

}

}

int queue::remove()

{

try

{

if(isempty())

throw 1;

else

return(a[front++]);

}

catch(int n)

{

cout<<"exception \n";

cout<<"queue is empty \n";

}

}

int queue::isempty()

{

if(front==rear)

return 1;

else

return 0;

}

int queue::isfull()

{

if(rear==MAX)

return 1;

else

return 0;

}

void queue::display()

{

for(int i=front;i<rear;i++)

cout<<arr[i];

}

int main()

{

queue a;

char p;

int n,no;

cout<<"size of queue="<<MAX;

do

{

cout<<"\n1.Insert operation\n";

cout<<"2.delete operation \n";

cout<<"enter your choice\n";

cin>>n;

switch(n)

{

case 1:

cout<<"enter the item \n";

cin>>no;

a.insert(no);

break;

case 2:

no=a.remove();

cout<<"the deleted item is"<<no;

break;

case 3:

a.display();

break;

default:

cout<<"entered a wrong choice\n";

break;

}

cout<<"do you want to continue(yorn)\n";

cin>>p;

}while(p=='y');

return 0;

}

**INPUT AND OUTPUT:**

Size of the queue 5

1.insert operation

2.delete operation

3.display

Enter your choice

1

Enter the item

1

Element inserted is

10

do you want to continue(y or n)

y

1.insert operation

2.delete operation

3.display

Enter your choice

1

Enter the item

20

Element inserted is

20

Do you want to continue(y or n)

y

1.Insert operation

2.delete operation

3.display

Enter your choice

2

Enter the item

20

The deleted item is

20

Do you want to continue(y or n)

y

1.insert operation

2.delete operation

3.display

Enter your choice

2

Enter the item

10

The deleted item is

10

Do you want to continue(y or n)

y

1.insert operation

2.delete operation

3.display

Enter your choice

2

Exception

The queue is empty

Do you want to continue(y or n)

n

**Exp.No Hashing Technique**

**Date**