4)Stack using array

#include <stdio.h>

#define MAX 5

int Stack[MAX], top = -1;

int IsFull();

int IsEmpty();

void Push(int ele);

void Pop();

void Top();

void Display();

int main()

{

int ch, e;

do

{

printf("1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT"); printf("\nEnter your choice : "); scanf("%d", &ch);

switch(ch)

{

case 1:

printf("Enter the element : "); scanf("%d", &e);

Push(e);

break;

case 2:

Pop();

break;

case 3:

Top();

break;

case 4:

Display();

break;

}

} while(ch <= 4);

return 0;

}

int IsFull()

{

if(top == MAX - 1)

return 1;

else

return 0;

}

int IsEmpty()

{

if(top == -1)

return 1;

else

return 0;

}

void Push(int ele)

{

if(IsFull())

printf("Stack Overflow...!\n"); else

{

top = top + 1;

Stack[top] = ele;

}

}

void Pop()

{

if(IsEmpty())

printf("Stack Underflow...!\n"); else

{

printf("%d\n", Stack[top]); top = top - 1;

}

}

void Top()

{

if(IsEmpty())

printf("Stack Underflow...!\n"); else

printf("%d\n", Stack[top]); }

void Display()

{

int i;

if(IsEmpty())

printf("Stack Underflow...!\n"); else

{

for(i = top; i >= 0; i--) printf("%d\t", Stack[i]); printf("\n");

}

}

Output

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 1

Enter the element : 10

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 1

Enter the element : 20

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 1

Enter the element : 30

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 1

Enter the element : 40

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 1

Enter the element : 50

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 1

Enter the element : 60

Stack Overflow...!

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 4

50 40 30 20 10 1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 3

50

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 2

50

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 2

40

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice :

30

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 2

20

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 2

10

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 2

Stack Underflow...!

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 5

4) stack using linked list

#include <stdio.h>

#include <stdlib.h>

struct node

{

int Element;

struct node \*Next;

}\*List = NULL;

typedef struct node Stack;

int IsEmpty();

void Push(int e);

void Pop();

void Top();

void Display();

int main()

{

int ch, e;

do

{

printf("1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT"); printf("\nEnter your choice : "); scanf("%d", &ch);

switch(ch)

{

case 1:

printf("Enter the element : "); scanf("%d", &e);

Push(e);

break;

case 2:

Pop();

break;

case 3:

Top();

break;

case 4:

Display();

break;

}

} while(ch <= 4);

return 0;

}

int IsEmpty()

{

if(List == NULL)

return 1;

else

return 0;

}

void Push(int e)

{

Stack \*NewNode = malloc(sizeof(Stack));

NewNode->Element = e;

if(IsEmpty())

NewNode->Next = NULL;

else

NewNode->Next = List;

List = NewNode;

}

void Pop()

{

if(IsEmpty())

printf("Stack is Underflow...!\n"); else

{

Stack \*TempNode;

TempNode = List;

List = List->Next;

printf("%d\n", TempNode->Element); free(TempNode);

}

}

void Top()

{

if(IsEmpty())

printf("Stack is Underflow...!\n"); else

printf("%d\n", List->Element); }

void Display()

{

if(IsEmpty())

printf("Stack is Underflow...!\n"); else

{

Stack \*Position;

Position = List;

while(Position != NULL)

{

printf("%d\t", Position->Element); Position = Position->Next; }

printf("\n");

}

}

Output

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT

Enter your choice : 1

Enter the element : 10

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT

Enter your choice : 1

Enter the element : 20

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT

Enter your choice : 1

Enter the element : 30

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT

Enter your choice : 1

Enter the element : 40

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 1

Enter the element : 50

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 4

50 40 30 20 10 1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 3

50

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 2

50

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 2

40

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 2

30

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 2

20

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 2

10

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 2

Stack is Underflow...!

1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT Enter your choice : 5