**Exercise 3: Implement a program for stack that performs following operations using array.**

#include<stdio.h>

#include<conio.h>

#include<stack.h>

#define MAX 10

typedef struct

{

int data[MAX];

int top;

}STACK;

void main()

{

int val,pos,ch;

STACK s1;

clrscr();

init(&s1);

while(1)

{

clrscr();

printf("\nSTACK OPERATIONS");

printf("\n1. PUSH");

printf("\n2. POP");

printf("\n3. PEEP");

printf("\n4. CHANGE");

printf("\n5. DISPLAY");

printf("\n6. EXIT");

printf("\nEnter Option: ");

scanf("%d",&ch);

switch(ch)

{

case 1: printf("\nPlease Enter Value: ");

scanf("%d",&val);

push(&s1,val);

break;

case 2: val=pop(&s1);

if(val!=NULL)

printf("\nPopped value is: %d\n",val);

break;

case 3: val=peep(&s1);

if(val!=NULL)

printf("\nTop value is: %d\n",val);

break;

case 4: printf("\nPlease Enter Position: ");

scanf("%d",&pos);

printf("\nPlease Enter Value: ");

scanf("%d",&val);

change(&s1,pos,val);

break;

case 5: display(&s1);

break;

case 6: exit(0);

break;

default:

printf("\nPlease Enter proper option...");

}

getch();

}

}

void init(STACK \*s)

{

s->top=-1;

printf("\nStack initialized...");

}

void push(STACK \*s,int val)

{

if(s->top==MAX-1)

{

printf("STACK OVERFLOW...\n");

}

else

{

s->top++;

s->data[s->top]=val;

printf("Value %d inserted...\n",val);

}

}

int pop(STACK \*s)

{

int val=NULL;

if(s->top==-1)

{

printf("STACK UNDERFLOW...\n");

}

else

{

val=s->data[s->top];

s->top--;

}

return val;

}

int peep(STACK \*s) //returns top most element

{

int val=NULL;

if(s->top==-1)

{

printf("STACK UNDERFLOW...\n");

}

else

{

val=s->data[s->top];

}

return val;

}

void display(STACK \*s)

{

int i;

if(s->top==-1)

{

printf("STACK is empty...\n");

}

else

{

printf("STACK\n");

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

{

printf("%d\n",s->data[i]);

}

}

}

void change(STACK\*s,int pos,int val)

{

int i=s->top-(pos-1);

if(0<=i)

{

s->data[i]=val;

}

else

printf("invalid position");

}