DATA STRUCTURE AND ANALYSIS OF ALGORITHM

KCA 253 : Session 2020-21

EXPERIMENT – 6

PROGRAM :

```
#include<stdio.h>
#include<conio.h>

#define max 5
#define lVALUE -1
struct stack { int s[max]; int top;}st;

int stackFULL();
int stackEMPTY();
void push(int);
int pop();
void display();

void main()
{
   int item,k;
   st.top=lVALUE;
   //clrscr();

   printf("\n Stack Implementation");

   do
   {
      printf("\nMAIN MENU");
```

```
printf("\nPUSH   => 1");
printf("\nPOP    => 2");
printf("\nDISPLAY=> 3");
printf("\nEXIT   => 4");

printf("\nSelect an operation ==> "); scanf("%d",&k);

switch(k)
{
   case 1:
   printf("\n Enter the item to push/add ==> "); scanf("%d",&item);

   (stackFULL())? printf("\nStack is OverFlow"): push(item);
   break;

   case 2:
   if (stackEMPTY()) printf("\nStack UnderFlow");
   else
   {
      item=pop();
      printf("\nThe poped element is %d",item);
      break;
   }

   case 3: display(); break;

   case 4: printf("\nEnd of program. BYE BYE ");
}
```

```
   } while (k!=4);
   getch();
}



int stackFULL()
   {
     if(st.top>=max-1)
       return 1;
         else
       return 0;
   }

int stackEMPTY()
   {
     if(st.top==lVALUE)
       return 1;
         else
       return 0;
   }

void push(int item)
   {
    st.top++;
    st.s[st.top]=item;
   }

int pop()
```

```
{
 int item;
 item=st.s[st.top];
 st.top--;
 return item;
}

void display()
{
  int i;
  (stackEMPTY()) ? printf("Stack is empty !") : printf ("elements of stack =");

  for(i=st.top;i>=0;i--) printf("=> %d",st.s[i]);
}
```

OUTPUT :

Stack Implementation

MAIN MENU

PUSH => 1

POP => 2

DISPLAY=> 3

EXIT => 4

Select an operation ==> 1

Enter the item to push/add ==> 12

MAIN MENU

PUSH => 1

POP => 2

DISPLAY=> 3

EXIT => 4

Select an operation ==> 1

Enter the item to push/add ==> 35

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MAIN MENU

PUSH => 1

POP => 2

DISPLAY=> 3

EXIT => 4

Select an operation ==> 3

elements of stack ==> 35=> 12

MAIN MENU

PUSH => 1

POP => 2

DISPLAY=> 3

EXIT => 4

Select an operation ==> 2

The poped element is 35

MAIN MENU

PUSH => 1

POP => 2

DISPLAY=> 3

EXIT => 4

Select an operation ==> 4

End of program. BYE BYE