Name: Arnav Thakare

Roll No.: B-29

STACK

Programme Code:

```
#include <stdio.h>
#include <stdlib.h>
struct stackADT{ int stk[5]; int top;};
void push(struct stackADT *s, int e);
void pop(struct stackADT *s);
int peek(struct stackADT *s);
void display(struct stackADT *s);
int main()
{
struct stackADT S; int c, e, p;
S.top=-1;
while(1)
{
printf("\nEnter choice (1. push  2. pop  3. peek  4. display  5. exit): ");
scanf("%d",&c);
switch (c)
{
case 1:
printf("Enter element: ");
scanf("%d",&e);
push(&S,e);
break;
case 2:
pop(&S);
```

```
break;
case 3:
p=peek(&S);
printf("%d\n",p);
break;
case 4:
display(&S);
break;
case 5:
exit(1);
}
}
}
void push(struct stackADT *s, int e)
{
if (s->top==4)
printf("\nStack already full.\n");
else
{
s->top++;
s->stk[s->top]=e;
}
}
void pop(struct stackADT *s)
{
if (s->top==-1)
printf("\nStack already empty.\n");
else
{
int e=s->stk[s->top];
s->top--;
```

```
}
}
int peek(struct stackADT *s)
{
if(s->top==-1)
printf("\nStack already empty.\n");
else
return(s->stk[s->top]);
}
void display(struct stackADT *s)
{
int i=0;
while (i<=s->top)
{
printf("%d ",s->stk[i]);
i++;
}
printf("\n");
}
```

OUTPUT:

```
Enter choice (1. push  2. pop  3. peek  4. display  5. exit): 2

Stack already empty.

Enter choice (1. push  2. pop  3. peek  4. display  5. exit): 1
Enter element: 22

Enter choice (1. push  2. pop  3. peek  4. display  5. exit): 1
Enter element: 33

Enter choice (1. push  2. pop  3. peek  4. display  5. exit): 1
Enter element: 44

Enter choice (1. push  2. pop  3. peek  4. display  5. exit): 1
Enter element: 55

Enter choice (1. push  2. pop  3. peek  4. display  5. exit): 1
Enter element: 66

Enter choice (1. push  2. pop  3. peek  4. display  5. exit): 1
Enter element: 77

Stack already full.

Enter choice (1. push  2. pop  3. peek  4. display  5. exit): 4
22 33 44 55 66

Enter choice (1. push  2. pop  3. peek  4. display  5. exit): 2

Enter choice (1. push  2. pop  3. peek  4. display  5. exit): 4
22 33 44 55

Enter choice (1. push  2. pop  3. peek  4. display  5. exit): 3
55

Enter choice (1. push  2. pop  3. peek  4. display  5. exit): 5
```