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Roll no 5

Expt 1 : To study the implementation of stack using array

```
#include <stdio.h>
int STK[100], TOP = -1, i, n, x, choice;
void Push();
void Pop();
void Peep();
void Display();
void main()
{
printf("\t Implementation of STACK using array\n");
printf("Enter the size of Stack ");
scanf("%d", &n);
do
{
printf("\n Stack Operation \n");
printf("1.Push\t 2.Pop\t 3.Peep\t 4.Display\t 5.Exit\t");
printf("\n Enter your choice: ");
scanf("%d", &choice);
switch (choice)
{
case 1:
Push();
break;
case 2:
Pop();
break;
case 3:
Peep();
break;
case 4:
Display();
break;
case 5:
printf("Exit: Program Finished  ");
break;
default:
printf("Please enter a valid choice\n");
}
}
while (choice != 5);
}

void Push()
{
if (TOP >= n - 1)
{
printf(" Stack Overflow \n");
}
else
{
printf(" Enter the element to be pushed: ");
```

```
scanf("%d", &x);
TOP++;
STK[TOP] = x;
}
}

void Pop()
{
if (TOP < 0)
{
printf(" Stack Underflow \n");
}
else
{
printf(" The popped element is: %d \n", STK[TOP]);
TOP--;
}
}
void Peep()
{
printf(" Enter the position of the element from the top which you want to peep: ");
scanf("%d", &i);
if (TOP - i + 1 < 0)
{
printf(" Stack Underflow on Peep \n");
}
else
{
printf(" The %d element from the top is: %d \n", i, STK[TOP - i + 1]);
}
}

void Display()
{
if (TOP < 0)
{
printf(" Stack is empty \n");
}
else
{
printf(" The element in the stack are:");
for (i = TOP; i > -1; i--)
{
printf("\n %d \n", STK[i]);
}
}
}
```

```
 Stack Operation
1.Push   2.Pop   3.Peep  4.Display       5.Exit
 Enter your choice: 4
 The element in the stack are:
 17

 7

 10

 Stack Operation
1.Push   2.Pop   3.Peep  4.Display       5.Exit
 Enter your choice: 2
 The popped element is: 17

 Stack Operation
1.Push   2.Pop   3.Peep  4.Display       5.Exit
 Enter your choice: 3
 Enter the position of the element from the top which
 The 1 element from the top is: 7

 Stack Operation
1.Push   2.Pop   3.Peep  4.Display       5.Exit
 Enter your choice: 4
 The element in the stack are:
 7

 10

 Stack Operation
1.Push   2.Pop   3.Peep  4.Display       5.Exit
 Enter your choice:
```

```
        Implementation of STACK using array
Enter the size of Stack 3

 Stack Operation
1.Push   2.Pop   3.Peep  4.Display       5.Exit
 Enter your choice: 1
 Enter the element to be pushed: 10

 Stack Operation
1.Push   2.Pop   3.Peep  4.Display       5.Exit
 Enter your choice: 1
 Enter the element to be pushed: 7

 Stack Operation
1.Push   2.Pop   3.Peep  4.Display       5.Exit
 Enter your choice: 1
 Enter the element to be pushed: 17

 Stack Operation
1.Push   2.Pop   3.Peep  4.Display       5.Exit
 Enter your choice: 4
 The element in the stack are:
 17

 7

 10

 Stack Operation
1.Push   2.Pop   3.Peep  4.Display       5.Exit
 Enter your choice: 2
 The popped element is: 17
```