Program No.	10
Roll No.	1525
Topic.	Circular Linked List
Title of Program.	
Objective.	**Operation on stack**

Source Code:

```
/* name : bhairav kedare
 * roll 1525
 * objective : to perform actions on array
 */

import java.util.Scanner;

/* Stack Class */

class Stack
{
	int max;
	int[] sArray;
	int tos;

	public Stack(int size)
	{
		max=size;
		sArray=new int [max];
		tos=-1;
	}

	//Push
	public void Push(int val)
	{
		if(tos==max-1)
		{
			System.out.println("Stack Overflow!");
```

```
        }
        else
        {
                sArray[++tos]=val;

        }
}//end of push

//Pop
public void Pop()
{
        if(tos==-1)
        {
                System.out.println("Stack Underflow!");
        }
        else
        {
                System.out.println("Element popped is "+sArray[tos]);
                tos--;
        }
}//end of pop

//Peek
public void Peek()
{
        if(tos==-1)
        {
                System.out.println("Stack Underflow!");
        }
        else
        {
                System.out.println("Element at the TOS: "+sArray[tos]);
        }

}//end of peek

//Display
public void Display()
{
```

```
            if(tos == -1)
            {
                  System.out.println("Stack Underflow!");
            }
            else
            {
                  System.out.println("Stack Contains: \n");
                  for(int i=tos;i>=0;i--)
                  {
                        System.out.println(sArray[i]);
                  }
            }
      }//end of Display
}//end of stack class


/* Menu */
class AStack
{
      public static void main(String[] args)
      {
            Scanner scan=new Scanner(System.in);
            Stack s= new Stack(4);
            char ch;

            do
            {
                  System.out.println("\n *** Stack - Array Implementation *** \n");
                  System.out.println("1.Push an element on the stack");
                  System.out.println("2.Pop an element from the stack");
                  System.out.println("3.Peek operation");
                  System.out.println("4.Display the stack");

                  System.out.print("Enter Your Choice:");

                  int choice=scan.nextInt();

                  switch(choice)
                  {
```

```
                    case 1:
                        System.out.print("Enter the Value:");
                        s.Push(scan.nextInt());
                        break;

                    case 2:
                        System.out.println("Option 2");
                        s.Pop();
                        break;

                    case 3:
                        s.Peek();
                        break;

                    case 4:
                        s.Display();
                        break;

                    default:
                        System.out.println("Incorrect Choice!");

                }//end of switch

                System.out.print("Do you want to continue (Y/N)?: ");
                ch=scan.next().charAt(0);

            }while (ch!='n' || ch!='N');
        }//end of main
}
```

OUTPUT:

push to stack

```
 *** Stack - Array Implementation ***

1.Push an element on the stack
2.Pop an element from the stack
3.Peek operation
4.Display the stack
Enter Your Choice:4
Stack Contains:

20
10
Do you want to continue (Y/N)?:
```

Popped

```
 *** Stack - Array Implementation ***

1.Push an element on the stack
2.Pop an element from the stack
3.Peek operation
4.Display the stack
Enter Your Choice:4
Stack Contains:

1
Do you want to continue (Y/N)?: 2

 *** Stack - Array Implementation ***

1.Push an element on the stack
2.Pop an element from the stack
3.Peek operation
4.Display the stack
Enter Your Choice:2
Option 2
Element popped is 1
Do you want to continue (Y/N)?:
```

DISPLAY STACK

```
Enter the Value:30
Do you want to continue (Y/N)?: 4

 *** Stack - Array Implementation ***

1.Push an element on the stack
2.Pop an element from the stack
3.Peek operation
4.Display the stack
Enter Your Choice:4
Stack Contains:

30
20
10
Do you want to continue (Y/N)?:
```

UNDERFLOW:

```
Enter Your Choice:4
Stack Underflow!
Do you want to continue (Y/N)?:
```

PEEK the stack after popping out

```
30
20
10
Do you want to continue (Y/N)?:
1

 *** Stack - Array Implementation ***

1.Push an element on the stack
2.Pop an element from the stack
3.Peek operation
4.Display the stack
Enter Your Choice:2
Option 2
Element popped is 30
Do you want to continue (Y/N)?: 3

 *** Stack - Array Implementation ***

1.Push an element on the stack
2.Pop an element from the stack
3.Peek operation
4.Display the stack
Enter Your Choice:4
Stack Contains:

20
10
Do you want to continue (Y/N)?:
```