PROGRAM 1

1.A)

Create a Java class called Student with the following details as variables within it.

(i) USN

(ii) Name

(iii) Branch

(iv) Phone

Write a Java program to create n Student objects and print the USN, Name, Branch, and Phone of these objects with suitable headings.

```
package labprograms;
import java.util.Scanner;
class Stud
{
	String usn,name,phno,branch;
	Stud(String usn,String name,String branch,String phno)
	{
		this.usn=usn;
		this.name=name;
		this.branch=branch;
		this.phno=phno;
	}
	void display()
	{
		System.out.println(usn+"\t\t"+name+"\t\t"+branch+"\t\t"+phno);
	}
}
public class p1a {
	public static void main(String[] args) {
		String usn,name,branch,phno;
		System.out.println("Enter the number of Students info you want to store : ");
		Scanner sc=new Scanner(System.in);
		int n=sc.nextInt();
```

```
        Stud[] s=new Stud[n];
        for(int i=0;i<n;i++)
        {
            System.out.println("Enter details of "+(i+1)+" student : ");
            System.out.print("USN : ");
            usn=sc.next();
            System.out.print("Name : ");
            name=sc.next();
            System.out.print("Branch : ");
            branch=sc.next();
            System.out.print("Phone Number : ");
            phno=sc.next();
            s[i]=new Stud(usn,name,branch,phno);
        }
        System.out.println("\nStudent details :: ");
        System.out.println("USN"+"\t\t\t"+"NAME"+"\t\t"+"BRANCH"+"\t\t"+"PHNO");
        for(int i=0;i<n;i++)
            s[i].display();
        sc.close();
    }
}
```

1.B)

Write a Java program to implement the Stack using arrays. Write Push(), Pop(), and Display() methods to demonstrate its working.

```
package labprograms;
import java.util.Scanner;
class Stack  {
	int[] s;
	int top;
	int size;
	Stack(int size)  {
		this.size=size;
		s=new int[size];
		top=-1;
	}
	void push(int element) {
		if(top==size-1)
			System.out.println("Stack Overflow");
		else
			s[++top]=element;
	}
	void pop()  {
		if(top==-1)
			System.out.println("Stack Underflow");
		else
			System.out.println("Popped element is "+s[top--]);
	}
	void display() {
		if(top==-1)
			System.out.println("Stack is empty");
		else {
			System.out.println("Stack elements are : ");
			for(int i=top;i>=0;i--)
```

```
                System.out.print(s[i]+" ");
}       }       }
public class p1b {
        public static void main(String[] args) {
                int element,choice,size;
                Scanner sc=new Scanner(System.in);
                System.out.print("Enter stack size : ");
                size=sc.nextInt();
                Stack st=new Stack(size);
                for(;;)  {
                        System.out.println("\nStack Operations : ");
                        System.out.println("1.Push");
                        System.out.println("2.Pop");
                        System.out.println("3.Display");
                        System.out.println("4.Exit");
                        System.out.print("Enter your choice : ");
                        choice=sc.nextInt();
                        switch(choice)    {
                        case 1:
                                System.out.println("Enter element to push : ");
                                element=sc.nextInt();
                                st.push(element);
                                break;
                        case 2:
                                st.pop();
                                break;
                        case 3:
                                st.display();
                                break;
                        default: System.exit(0);
                        }
                        sc.close();
                }
        }       }
```