

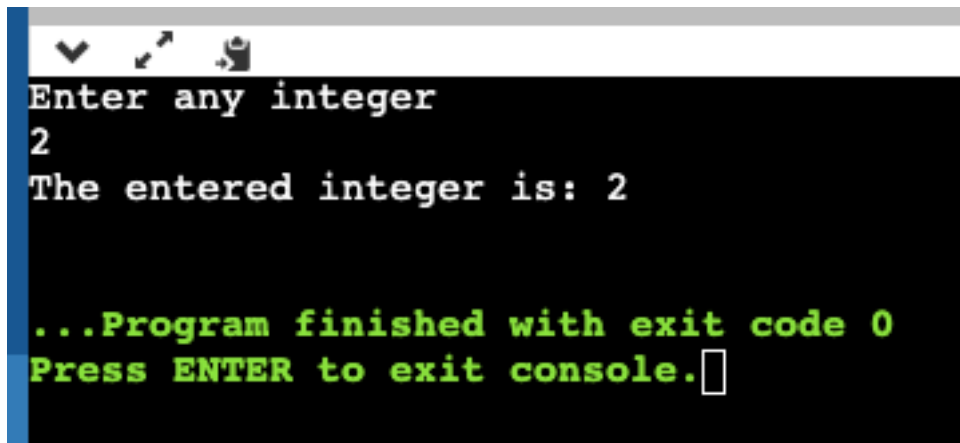
JAVA PROGRAMMING LAB

PROGRAM 1-20

1. To print an integer entered by the user:-

```
import java.util.Scanner;
```

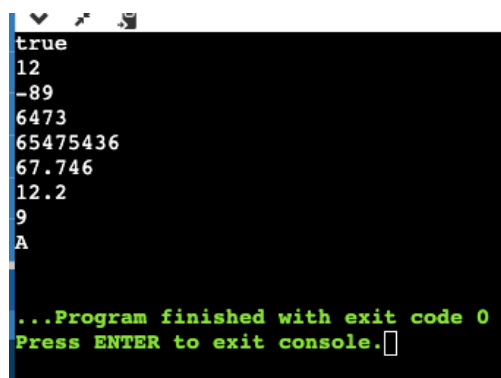
```
public class Main{  
    public static void main(String args[]){  
  
        System.out.println("Enter any integer");  
        Scanner sc=new Scanner(System.in);  
        int a=sc.nextInt();  
        System.out.println("The entered integer is: "+a);  
    }  
}
```



```
Enter any integer  
2  
The entered integer is: 2  
  
...Program finished with exit code 0  
Press ENTER to exit console.
```

2. Write a program to demonstrate the usage of primitive data types—Boolean, char, byte, short, Int, long, float and double:-

```
public class Main{  
    public static void main(String args[]){  
  
        boolean a=true;  
        System.out.println(a);  
        byte b=12;  
        System.out.println(b);  
        short c=-89;  
        System.out.println(c);  
        int d=6473;  
        System.out.println(d);  
        long e=65475436;  
        System.out.println(e);  
        double f=67.746;  
        System.out.println(f);  
        float g=12.2f;  
        System.out.println(g);  
        char h='9';  
        System.out.println(h);  
        char i=65;  
        System.out.println(i);  
  
    }  
}
```



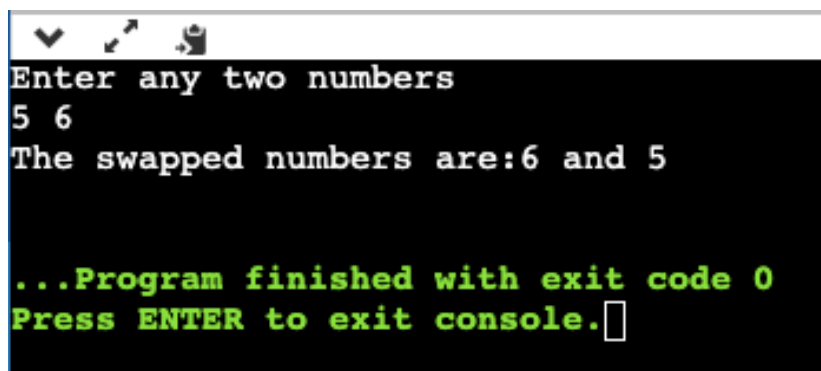
A screenshot of a console window showing the output of the Java program. The output consists of the following lines: true, 12, -89, 6473, 65475436, 67.746, 12.2, 9, and A. At the bottom, a green message states: "...Program finished with exit code 0 Press ENTER to exit console."

```
true  
12  
-89  
6473  
65475436  
67.746  
12.2  
9  
A  
  
...Program finished with exit code 0  
Press ENTER to exit console.
```

3. Swapping two numbers using temporary variable:-

```
import java.util.Scanner;
public class Main{
    public static void main(String args[]){

        System.out.println("Enter any two numbers");
        Scanner sc=new Scanner(System.in);
        int a=sc.nextInt();
        int b=sc.nextInt();
        int c;
        c=a;
        a=b;
        b=c;
        System.out.println("The swapped numbers are:"+a+"
"+"and"+" "+b);
    }
}
```

A screenshot of a Java IDE console window. The window has a title bar with standard OS icons. The console output is as follows: "Enter any two numbers" followed by the user input "5 6". Then, "The swapped numbers are:6 and 5" is printed. At the bottom, a green message states "...Program finished with exit code 0" and "Press ENTER to exit console." with a cursor icon.

```
Enter any two numbers
5 6
The swapped numbers are:6 and 5

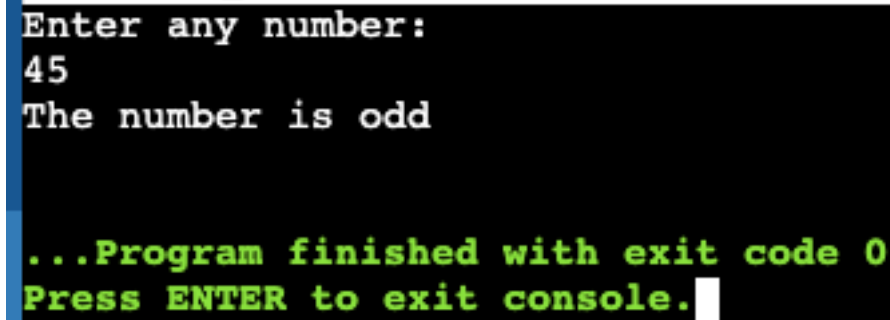
...Program finished with exit code 0
Press ENTER to exit console.
```

4.Check whether a number is even or odd using if..else statement:-

```
import java.util.Scanner;

public class Main{
```

static



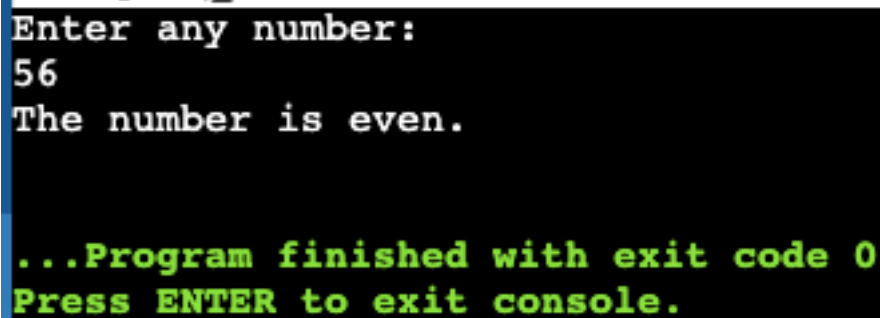
```
Enter any number:
45
The number is odd

...Program finished with exit code 0
Press ENTER to exit console.
```

public
void

```
main(String args[]){
    System.out.println("Enter any number: ");
    Scanner s=new Scanner(System.in);
    int a=s.nextInt();
    if(a%2==0){
        System.out.println("The number is even.");
    }
```

else{



```
Enter any number:
56
The number is even.

...Program finished with exit code 0
Press ENTER to exit console.
```

```
        System.out.println("The number is odd");
```

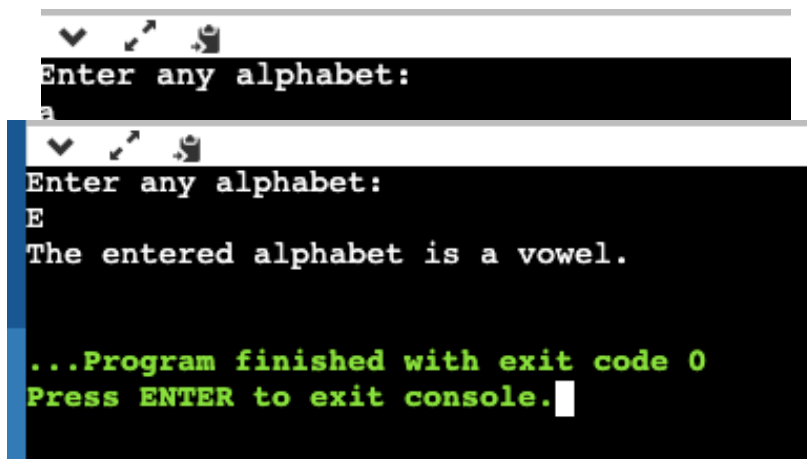
```
    }
}
}
```

5. Check whether an alphabet is a vowel or a consonant using if...else statement:-

```
import java.util.Scanner;
```

```
public class Main{
    public static void main(String args[]){
```

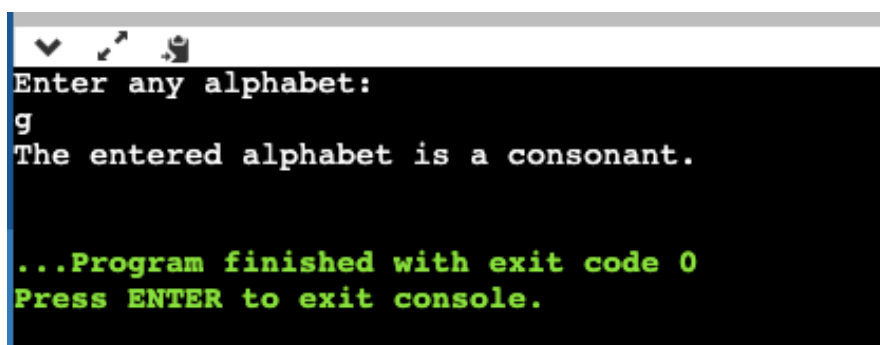
```
System.out.println("Enter any alphabet: ");
Scanner sc=new Scanner(System.in);
char a=sc.next().charAt(0);
if(a=='a' || a=='e' || a=='i' || a=='o' || a=='u'){
    System.out.println("The entered alphabet is a vowel.");
}
else if(a=='A' || a=='E' || a=='I' || a=='O' || a=='U'){
    System.out.println("The entered alphabet is a vowel.");
}
else{
    System.out.println("The entered alphabet is a
consonant.");
}
}
```



The screenshot shows a Java IDE window with a dark background. The console output is as follows:

```
Enter any alphabet:
a
Enter any alphabet:
E
The entered alphabet is a vowel.

...Program finished with exit code 0
Press ENTER to exit console.
```



The screenshot shows a Java IDE window with a dark background. The console output is as follows:

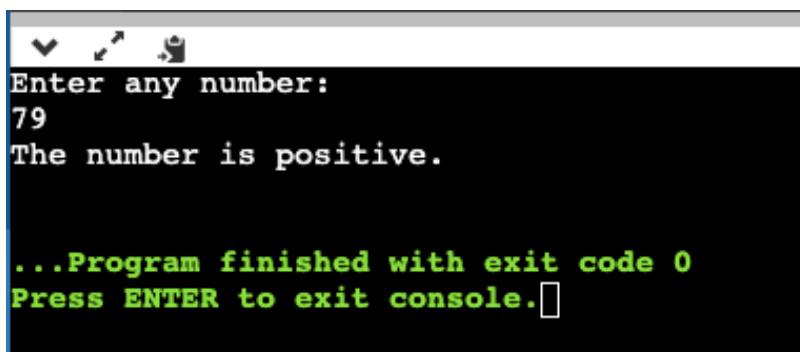
```
Enter any alphabet:
g
The entered alphabet is a consonant.

...Program finished with exit code 0
Press ENTER to exit console.
```

6. Check if a number is positive or negative using if..else.

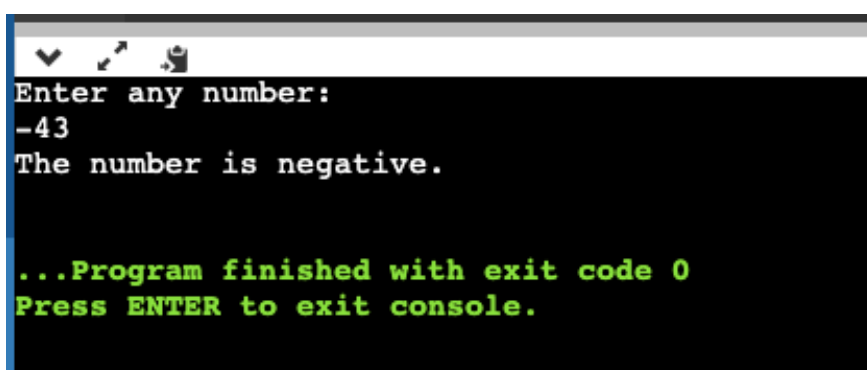
```
import java.util.Scanner;

public class Main{
    public static void main(String args[]){
        System.out.println("Enter any number: ");
        Scanner ob1=new Scanner(System.in);
        int a=ob1.nextInt();
        if(a>0){
            System.out.println("The number is positive.");
        }else if(a<0){
            System.out.println("The number is negative.");
        }
        else{
            System.out.println("Zero");
        }
    }
}
```



```
Enter any number:
79
The number is positive.

...Program finished with exit code 0
Press ENTER to exit console.
```



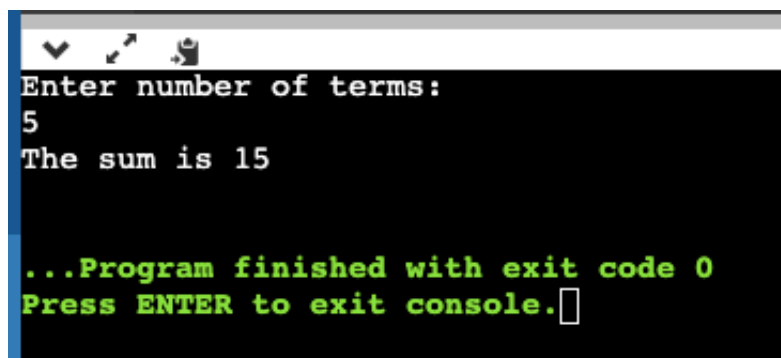
```
Enter any number:
-43
The number is negative.

...Program finished with exit code 0
Press ENTER to exit console.
```

7. Sum of natural numbers using for loop:-

```
import java.util.Scanner;

public class Main{
    public static void main(String args[]){
        System.out.println("Enter number of terms: ");
        Scanner sc=new Scanner(System.in);
        int n=sc.nextInt();
        int sum=0;
        for(int i=0;i<=n;i++){
            sum+=i;
        }
        System.out.println("The sum is "+sum);
    }
}
```

A screenshot of a Java IDE's console window. The window has a title bar with standard OS icons. The console output is as follows: "Enter number of terms:" followed by the user input "5" on the next line. Then, "The sum is 15" is printed. At the bottom, a green message states "...Program finished with exit code 0" and "Press ENTER to exit console." with a cursor icon at the end.

```
Enter number of terms:
5
The sum is 15

...Program finished with exit code 0
Press ENTER to exit console.
```

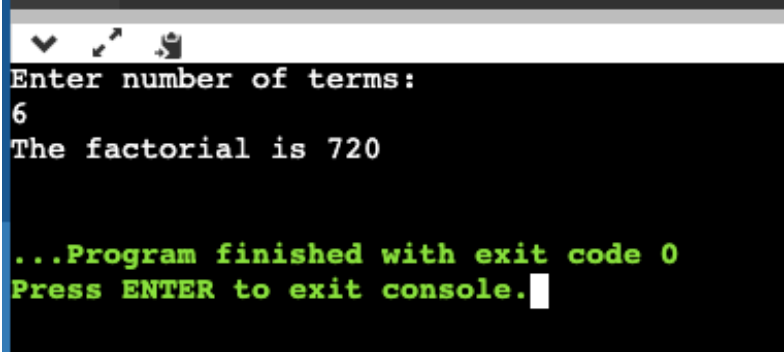
8. Find factorial of a number using for loop:-

```
import java.util.Scanner;
```

```

public class Main{
    public static void main(String args[]){
        System.out.println("Enter number of terms: ");
        Scanner sc=new Scanner(System.in);
        int n=sc.nextInt();
        int fact=1;
        for(int i=1;i<=n;i++){
            fact*=i;
        }
        System.out.println("The factorial is "+fact);
    }
}

```



```

Enter number of terms:
6
The factorial is 720

...Program finished with exit code 0
Press ENTER to exit console.

```

9. *Generate multiplication table using for loop:-*

```

import java.util.Scanner;

public class Main{
    public static void main(String args[]){
        System.out.println("Enter the number whose table you
want to print:");
        Scanner sc=new Scanner(System.in);
        int n=sc.nextInt();
        for(int i=1;i<=10;i++){

            System.out.println(n+" "+"*"+" " +i+" "+"=" +n*i);

```



```
}  
}  
}
```

```
Enter the number whose table you want to print:  
7  
7 * 1 =7  
7 * 2 =14  
7 * 3 =21  
7 * 4 =28  
7 * 5 =35  
7 * 6 =42  
7 * 7 =49  
7 * 8 =56  
7 * 9 =63  
7 * 10 =70  
  
...Program finished with exit code 0  
Press ENTER to exit console.
```

10. Display uppercased alphabet using for loop:-

```
import java.util.Scanner;
```

```
public class Main{  
    public static void main(String args[]){  
        System.out.println("The uppercased alphabets are:");  
        for(char i='A';i<='Z';i++){  
  
            System.out.println(i);  
        }  
    }  
}
```

```
The uppercased alphabets are:
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
U
V
W
X
Y
Z

...Program finished with exit code 0
Press ENTER to exit console.
```

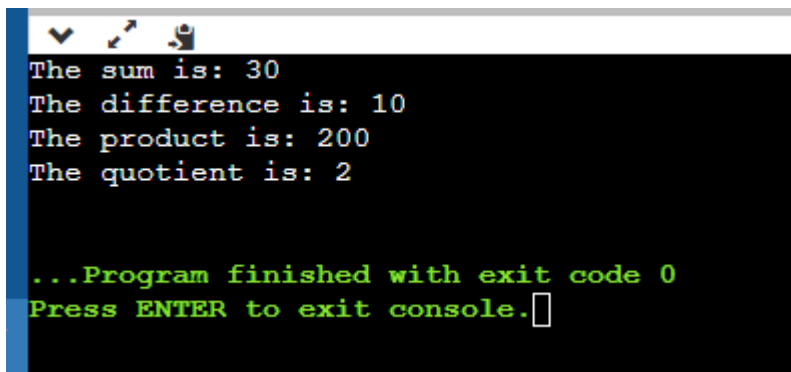
Calculator:-

```
public class Calculator{
    private int a;
    private int b;
    Calculator(int i,int j){
        this.a=i;
        this.b=j;
    }
    public int add(){
        return (a+b);
    }
    public int subtract(){
        return(a-b);
    }
    public int mult(){
        return(a*b);
    }
    public int div(){
        return (a/b);
    }
}
```

```

public static void main(String args[]){
    Calculator c=new Calculator(20,10);
    System.out.println("The sum is: "+ c.add());
    System.out.println("The difference is: "+c.subtract());
    System.out.println("The product is: "+c.mult());
    System.out.println("The quotient is: "+c.div());
}
}

```



```

The sum is: 30
The difference is: 10
The product is: 200
The quotient is: 2

...Program finished with exit code 0
Press ENTER to exit console.

```

11. Find GCD of two numbers using for loop and if statement:-

```
import java.util.Scanner;
```

```

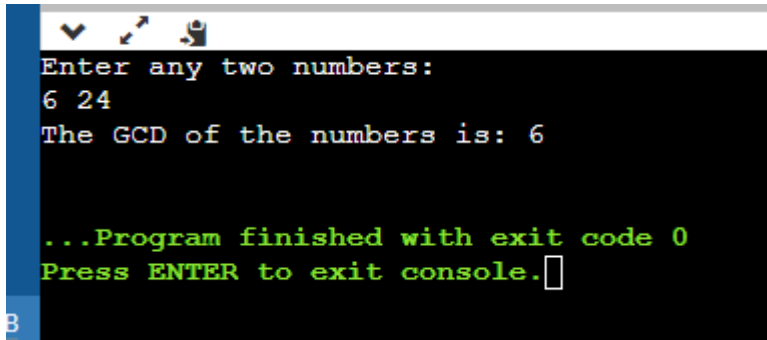
public class A{
    public static void main(String args[]){
        System.out.println("Enter any two numbers: ");
        Scanner sc=new Scanner(System.in);
        int a=sc.nextInt();
        int b=sc.nextInt();
        int gcd=1;
        for(int i=1;i<=a&&i<=b;i++){
            if(a%i==0&&b%i==0){
                gcd=i;
            }
        }
    }
}

```

```

    }
    System.out.println("The GCD of the numbers is: "+ gcd);
}
}

```



```

Enter any two numbers:
6 24
The GCD of the numbers is: 6

...Program finished with exit code 0
Press ENTER to exit console.

```

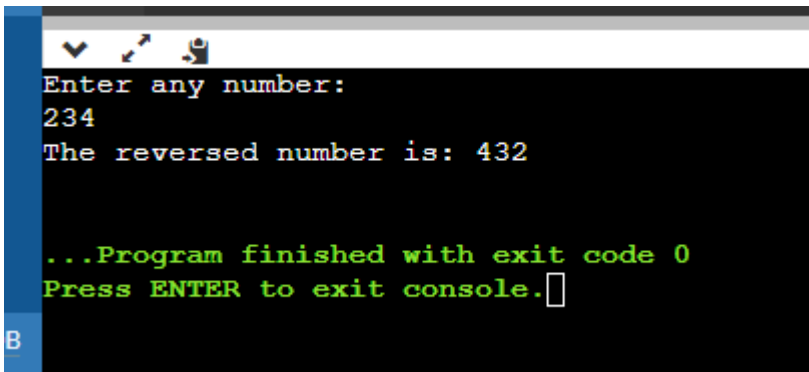
12. Program to find the reverse of a number:-

```

import java.util.Scanner;

public class A{
    public static void main(String args[]){
        System.out.println("Enter any number: ");
        Scanner sc=new Scanner(System.in);
        int n=sc.nextInt();
        int rev=0;
        while(n>0){
            int a=n%10;
            n=n/10;
            rev=(rev*10)+a;
        }
        System.out.println("The reversed number is: "+rev);
    }
}

```



```
Enter any number:
234
The reversed number is: 432

...Program finished with exit code 0
Press ENTER to exit console.
```

13. Demonstrate creating a class and instance(object):-

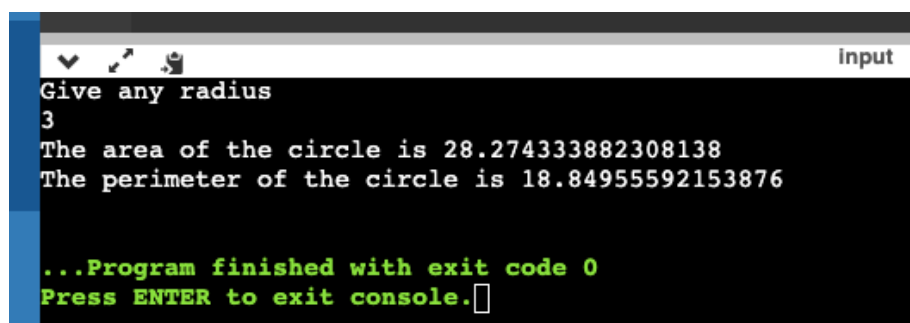
```
import java.util.Scanner;
```

```
public class Circle{
```

```
    public static void main(String args[]){
        System.out.println("Give any radius");
        Scanner ob1=new Scanner(System.in);
        int r=ob1.nextInt();
```

```
        double area=Math.PI*r*r;
        double perimeter=2*Math.PI*r;
```

```
        System.out.println("The area of the circle is "+area);
        System.out.println("The perimeter of the circle is
"+perimeter);
    }
}
```

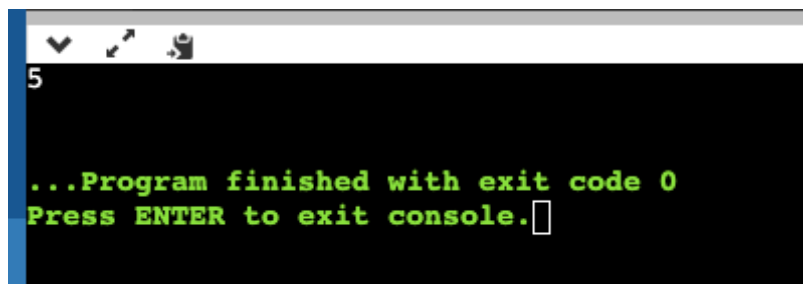


```
Give any radius
3
The area of the circle is 28.274333882308138
The perimeter of the circle is 18.84955592153876

...Program finished with exit code 0
Press ENTER to exit console.
```

14.Demonstrate using Instance/Class variable by creating a simple public class:-

```
public class A{
    int a;
    static int b;
    public static void fun1(){
        b=3;
    }
    public static void main(String args[]){
        A a=new A();
        a.fun1();
        System.out.println(5);
    }
}
```

A screenshot of a Java IDE's console window. The window has a dark background with a light blue title bar. The console output shows the number '5' on the first line, followed by two lines of green text: '...Program finished with exit code 0' and 'Press ENTER to exit console.' with a cursor icon at the end.

15.Demonstrate the java class using getter setter method for accessing private data members:-

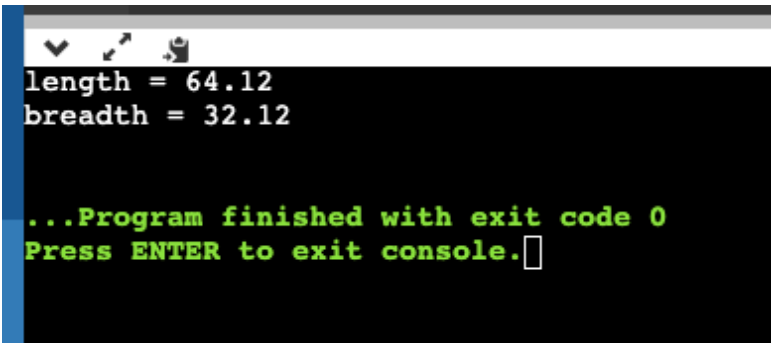
```
public class A{
    private double length;
    private double breadth;

    public void setter(double l,double b){
        length=l;
```

```

        breadth=b;
    }
    public void getter(){
        System.out.println("length = "+length);
        System.out.println("breadth = "+breadth);
    }
    public static void main(String args[]){
        A rect1=new A();
        rect1.setter(64.12,32.12);
        rect1.getter();
    }
}

```



```

length = 64.12
breadth = 32.12

...Program finished with exit code 0
Press ENTER to exit console.

```

16. Demonstrate the use of static variable:-

```

public class Swap{
    static int a;
    static int b;

    public static void set(int i,int j){
        a=i;
        b=j;
    }
    public static void Swap(){
        int c=0;
        c=a;
        a=b;
        b=c;
    }
}

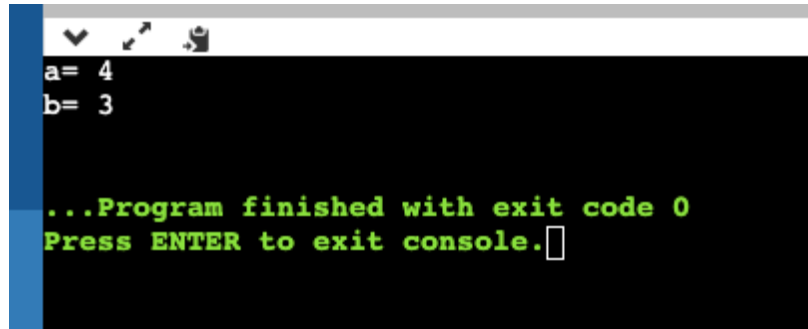
```

```

    }

    public static void main(String args[]){
        Swap.set(3,4);
        Swap.Swap();
        System.out.println("a= "+a);
        System.out.println("b= "+b);
    }
}

```



```

a= 4
b= 3

...Program finished with exit code 0
Press ENTER to exit console.

```

17. Demonstrate the use of static method:-

```

public class Software{

    static double sw_price;
    static String sw_name;
    static int sw_Lic;

    public static void set(double i,String j,int k){
        sw_price=i;
        sw_name=j;
        sw_Lic=k;
    }

    public static void get(){
        System.out.println(sw_price+sw_name+sw_Lic);
    }

    public static void main(String args[]){

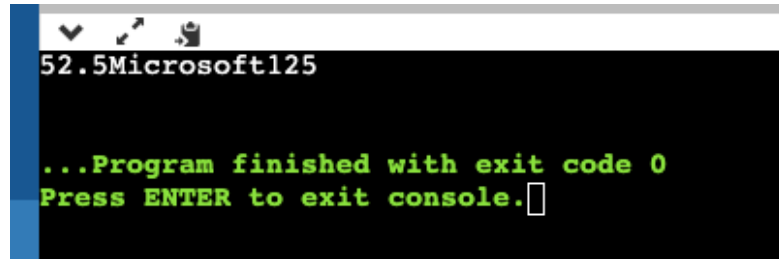
```



```

Software.set(52.5,"Microsoft",125);
Software.get();
}
}

```



```

52.5Microsoft125

...Program finished with exit code 0
Press ENTER to exit console.

```

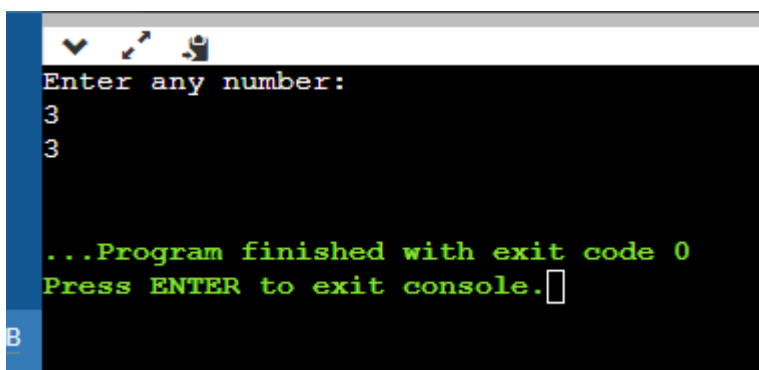
18. Demonstrate the use of Scanner class for taking input/output from user:-

```

import java.util.Scanner;

public class A{
    public static void main(String args[]){
        System.out.println("Enter any number: ");
        Scanner sc=new Scanner(System.in);
        int n=sc.nextInt();
        System.out.println(n);
    }
}

```



```

Enter any number:
3
3

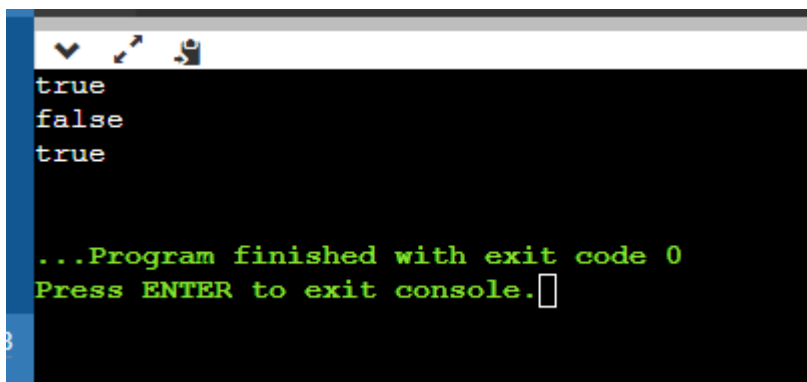
...Program finished with exit code 0
Press ENTER to exit console.

```

19. Light program:-

```
import java.util.Scanner;
```

```
public class Light{
    boolean isOn;
    void switchOn(){
        isOn=true;
        System.out.println(isOn);
    }
    void switchOff(){
        isOn=false;
        System.out.println(isOn);
    }
    public static void main(String args[]){
        Light led=new Light();
        Light halogen=new Light();
        led.switchOn();
        halogen.switchOff();
        System.out.println(led.isOn);
    }
}
```



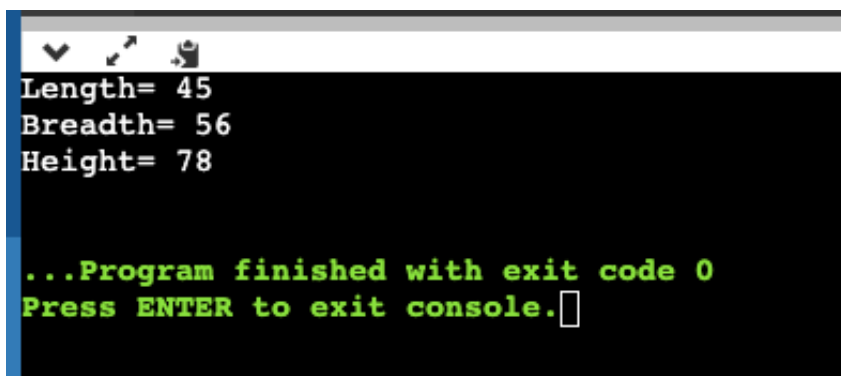
```
true
false
true

...Program finished with exit code 0
Press ENTER to exit console.
```

20. Box Program:-

```
public class Box{
    private static int length;
    private static int breadth;
    private static int height;

    public static void set(int i,int j, int k){
        length=i;
        breadth=j;
        height=k;
    }
    public static void get(){
        System.out.println("Length= "+length);
        System.out.println("Breadth= "+breadth);
        System.out.println("Height= "+height);
    }
    public static void main(String args[]){
        Box b1=new Box();
        b1.set(45,56,78);
        b1.get();
    }
}
```

A screenshot of a console window showing the output of a Java program. The window has a title bar with standard OS icons. The output text is as follows:
Length= 45
Breadth= 56
Height= 78

...Program finished with exit code 0
Press ENTER to exit console.
The text is displayed in a monospaced font, with the first three lines in white and the last two lines in green.

