EX.NO: 01	OPERATOR, INPUT AND OUTPUT OPERATIONS
DATE:	

PROGRAM 1:

1.Write a program to calculate the area of a triangle using Heron's formula.
(Hint: Heron's formula is given as: area = sqrt(S*(S–a)*(S–b)*(S–c)

```
import math
a=int(input("Enter a number(a):"))
b=int(input("Enter a number(b):"))
c=int(input("Enter a number(c):"))
s=(a+b+c)/2
area=math.sqrt((s*(s-a)*(s-b)*(s-c)))
print("Area of triangle is:",area)
```

OUTPUT:

```
Enter a number(a):5
Enter a number(b):6
Enter a number(c):7
Area of triangle is: 14.696938456699069
```

PROGRAM 2:

2.Write a program to calculate the distance between two points.

```
import math
x1=int(input("Enter a point(x1):"))
y1=int(input("Enter a point(y1):"))
x2=int(input("Enter a point(x2):"))
y2=int(input("Enter a point(y2):"))
d=math.sqrt(((x2-x1)**2)+((y1-y2)**2))
print("The distance between two points:",d)
```

OUTPUT:

```
Enter a point(x1):2
Enter a point(y1):5
Enter a point(x2):6
Enter a point(y2):1
The distance between two points: 5.656854249492381
```

PROGRAM 3:

3.Write a program to calculate the area of a circle, rectangle, triangle, and square.

```
import math
print("Area of circle")
r=int(input("Enter a radius:"))
area=math.pi*r*r
print("Area of circle is:",area)
print("Area of rectangle")
l=int(input("Enter a length:"))
b=int(input("Enter a breadth:"))
area=l*b
print("Area of rectangle is:",area)
print("Area of triangle")
b=int(input("Enter the base:"))
h=int(input("Enter the height:"))
area=0.5*b*h
print("Area of triangle is:",area)
print("Area of square")
s=int(input("Enter a side:"))
area=s*s
print("Area of square is:",area)
```

OUTPUT:

```
Area of circle
Enter a radius:5
Area of circle is: 78.53981633974483
Area of rectangle
Enter a length:30
Enter a breadth:21
Area of rectangle is: 630
Area of triangle
Enter the base:58
Enter the height:26
Area of triangle is: 754.0
Area of square
Enter a side:77
Area of square is: 5929
```

PROGRAM 4:

4.Write a program to print the digit at one's place of a number.

```
n=int(input("Enter the number:"))
one_n=n%10
print("The one's digit of the number is:",one_n)
```

OUTPUT:

```
Enter the number:357
The one's digit of the number is: 7
```

PROGRAM 5:

5.Write a program to calculate the total amount of money in the piggy bank, given the coins of ₹10, ₹5, ₹2, and ₹1.

```
a=int(input("Enter the number of ₹10 coins:"))
b=int(input("Enter the number of ₹5 coins:"))
c=int(input("Enter the number of ₹2 coins:"))
total_amt=a*10+b*5+c*2
print("The total amount in the piggy bank is:",total_amt)
```

OUTPUT:

```
Enter the number of ₹10 coins:23
Enter the number of ₹5 coins:456
Enter the number of ₹2 coins:87
The total amount in the piggy bank is: 2684
```

PROGRAM 6:

6.Write a program to calculate the bill amount for an item given its quantity sold, value, discount, and tax.

```
q=int(input("Enter the quantity of the item:"))
v=int(input("Enter the value:"))
d=int(input("Enter the discount in %:"))
d=d/100
t=int(input("Enter the tax in %:"))
t=t/100
bill_amt=q*v-d+t
print("The bill amount is:",bill_amt)
```

OUTPUT:

```
Enter the quantity of the item:24
Enter the value:235
Enter the discount in %:10
Enter the tax in %:4
The bill amount is: 5643.9
```

PROGRAM 7:

7.Write a python program to calculate a household's electricity bill.
The user should enter the number of units consumed. The charges are as follows:

- For the first 100 units: ₹1.50 per unit
- For the next 100 units (101–200): ₹2.00 per unit
- For units above 200: ₹3.00 per unit

A fixed meter charge of ₹50 is added to the bill.
Display the total amount to be paid with a proper bill format

```
n=int(input("Enter the number of units consumed:"))
print("Number of units consumed:",n)
if(n<=100):
  print("bill:",1.50*n+50)
elif(n>100 and n<=200):
  print("bill:",2.00*n+50)
else:
  print("bill:",3.00*n+50)
```

OUTPUT:

```
Enter the number of units consumed:100
Numner of units consumed: 100
bill: 200.0
```

PROGRAM 8:

8.Develop a Python program that calculates an employee's net salary. Accept input for:

Employee name and ID

Number of hours worked

Hourly wage

Calculate the gross salary and deduct 10% as tax. Display a proper salary slip with all details.

```
e_name=input("Enter your name:")
e_id=int(input("Enter your ID:"))
e_hrs=float(input("Enter the hrs worked"))
e_wages=float(input("Enter the hourly wages:"))
grs=e_hrs*e_wages
tax=0.10*grs
grs_n=grs-tax
net_salary=grs_n
print("\n-------- Salary Slip --------")
print(f"Employee Name: {e_name}")
print(f"Employee ID: {e_id}")
print(f"Hours Worked: {e_hrs}")
print(f"Hourly Wage: ₹{e_wages}")
print(f"Gross Salary: ₹{grs:.2f}")
print(f"Tax Deduction (10%): ₹{tax:.2f}")
print(f"Net Salary: ₹{net_salary:.2f}")
print("----------------------------")
```

OUTPUT:

```
Enter your name:shree
Enter your ID:45
Enter the hrs worked5
Enter the hourly wages:40

-------- Salary Slip --------
Employee Name: shree
Employee ID: 45
Hours Worked: 5.0
Hourly Wage: ₹40.0
Gross Salary: ₹200.00
Tax Deduction (10%): ₹20.00
Net Salary: ₹180.00
-----------------------------
```

PROGRAM 9:

9.Write a Python program to calculate the total cost of movie tickets. Accept:

Number of tickets

Ticket category (Silver: ₹120, Gold: ₹180, Platinum: ₹250)

Add 18% GST to the ticket cost. Display a formatted bill.

```
n=int(input("Enter the no.of tickets:"))
a=input("Enter the class:")
print("The bill")
if(a=="silver"):
  print("Total cost",120*n+18/100)
elif(a=="gold"):
  print("Total cost",180*n+18/100)
else:
  print("Total cost",250*n+18/100)

print("class",a)
print("no.of tickets:",n)
```

OUTPUT:

```
Enter the no.of tickets:4
Enter the class:silver
The bill
Total cost 480.18
class silver
no.of tickets: 4
```

PROGRAM 10:

10.Develop a Python program that estimates travel fare based on distance and transport mode.

Input:

Distance (in km)

Mode (Bus: ₹5/km, Train: ₹2/km, Cab: ₹10/km)

Calculate and display the total fare and estimated travel time (assuming constant speeds for each mode).

```
d=int(input("Enter the distance:"))
m=input("Enter the mode:")
if(m=="bus"):
  print("Total fare:",5*d)
  print("travel time:",d/5)
elif(m=="train"):
  print("Total fare:",2*d)
  print("travel time:",d/2)
else:
  print("Total fare:",10*d)
  print("travel time:",d/2)
```

OUTPUT:

```
Enter the distance:10
Enter the mode:train
Total fare: 20
travel time: 5.0
```

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Program	10	
Output	5	
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Total	20	