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 the length of the First side:"))
b = int(input("Enter the length of the Second side:"))
c = int(input("Enter the length of the Third side:"))
S = (a+b+c)/2
area = math.sqrt(S*(S-a)*(S-b)*(S-c))
print("The Area of the Triangle is",area)
```

OUTPUT:

```
Enter the length of the First side:5
Enter the length of the Second side:6
Enter the length of the Third side:7
The Area of the Triangle is 14.696938456699069
```

PROGRAM 2:

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

```
import math
x1 = int(input("Enter the x1 value:"))
y1 = int(input("Enter the y1 value:"))
x2 = int(input("Enter the x2 value:"))
y2 = int(input("Enter the y2 value:"))
distance = math.sqrt((((x2-x1)^2)+((y2-y1)^2)))
print(f"The Distance between the Two Points is {distance}")
```

(or)

```
point_1 = int(input("Enter the value of the Starting Point:"))
point_2 = int(input("Enter the value of the Ending Point:"))
distance = (point_2-point_1)
print("The Distance between the Two Points is",distance)
```

OUTPUT:

```
Enter the x1 value:3
Enter the y1 value:4
Enter the x2 value:7
Enter the y2 value:8
The Distance between the Two Points is 3.4641016151377544

Enter the value of the Starting Point:10
Enter the value of the Ending Point:20
The Distance between the Two Points is 10
```

PROGRAM 3:

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

```
radius = int(input("Enter the Radius of the Circle:"))
length = int(input("Enter the Length of the Rectangle:"))
breadth = int(input("Enter the Breadth of the Rectangle:"))
base = int(input("Enter the Base of the Triangle:"))
height = int(input("Enter the Height of the Triangle:"))
side = int(input("Enter the Side of the Square:"))
pi = 3.14
area_circle = pi*radius*radius
area_rectangle = length*breadth
area_triangle = 0.5*base*height
area_square = side*side
print("The Area of the Circle is",area_circle)
```

```
print("The Area of the Rectangle is",area_rectangle)
print("The Area of the Triangle is",area_triangle)
print("The Area of the Square is",area_square)
```

OUTPUT:

```
Enter the Radius of the Circle:5
Enter the Length of the Rectangle:4
Enter the Breadth of the Rectangle:5
Enter the Base of the Triangle:4
Enter the Height of the Triangle:5
Enter the Side of the Square:4
The Area of the Circle is 78.5
The Area of the Rectangle is 20
The Area of the Triangle is 10.0
The Area of the Square is 16
```

PROGRAM 4:

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

```
num = int(input("Enter a Number to find the one's place:"))
n = num%10
print("The Digit at one's place of the Given number is",n)
```

OUTPUT:

```
Enter a Number to find the one's place:123
The Digit at one's place of the Given number is 3
```

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.

```
num_ten = int(input("Enter the Number of Ten Rupees:"))
num_five = int(input("Enter the Number of Five Rupees:"))
num_two = int(input("Enter the Number of Two Rupees:"))
num_one = int(input("Enter the Number of One Rupees:"))
```

```
total_amt = (num_ten*10)+(num_five*5)+(num_two*2)+(num_one*1)
print("The Total Amount in the Piggy Bank is",total_amt)
```

OUTPUT:

```
Enter the Number of Ten Rupees:10
Enter the Number of Five Rupees:20
Enter the Number of Two Rupees:30
Enter the Number of One Rupees:40
The Total Amount in the Piggy Bank is 300
```

PROGRAM 6:

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

```
price = int(input("Enter the Price of the Product:"))
quantity = int(input("Enter the Quantity of the Product:"))
discount = int(input("Enter the Discount for the Product(in Percentage):"))
tax = int(input("Enter the Tax for the Product(in Percentage):"))
amount = price*quantity
aft_discount = amount*(discount/100)
amount-=aft_discount
aft_tax=amount*(tax/100)
amount += aft_tax
print("The Bill Amount for the Item is",amount)
```

OUTPUT:

```
Enter the Price of the Product:50
Enter the Quantity of the Product:10
Enter the Discount for the Product(in Percentage):5
Enter the Tax for the Product(in Percentage):5
The Bill Amount for the Item is 498.75
```

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.

```
units = int(input("Enter the Number of Units Consumed:"))
if (units<0) :
    print("Enter the Proper Number of Units.")
elif (units<=100) :
    amount = (units*1.50)
    print("The Bill Amount is",amount)
elif (units<=200) :
    amount = (100*1.50)+((units-100)*2.00)
    print("The Bill Amount is",amount)
else :
    amount = (100*1.50)+(100*2.00)+((units-200)*3.00)
    print("The Bill Amount is",amount)
meter_amount = 50
total_amount = amount+meter_amount
print("-----THE BILL-----")
print("------------------------------------------------")
print(" S.No     Particulars     Amount    ")
print(f" 01     Number of Units     {units}")
```

```
print(f" 02     Unit Amount     {amount:.2f}")
print(f" 03     Meter Amount     {meter_amount:.2f}")
print(f" 04        Total         {total_amount:.2f}")
print("-----------------------------------------------")
```

OUTPUT:

```
Enter the Number of Units Consumed:350
The Bill Amount is 800.0
-----THE BILL-----
-----------------------------------------------
 S.No     Particulars     Amount
 01     Number of Units     350
 02     Unit Amount     800.00
 03     Meter Amount     50.00
 04        Total         850.00
-----------------------------------------------
```

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.

```
emp_name = input("Enter the Name of an Employee:")
emp_id = int(input("Enter the Id of an Employee:"))
hours_work = int(input("Enter the Number of Hours Worked:"))
hours_wages = int(input("Enter the Hourly Wages:"))
gross_salary = hours_work*hours_wages*30
tax = gross_salary*(10/100)
```

```
net_salary = gross_salary-tax
print("-----THE SALARY SLIP-----")
print("-------------------------------------------------")
print(" S.No     Particulars     Salary ")
print(f" 01        Name          {emp_name}")
print(f" 02          Id          {emp_id}")
print(f" 03     Gross Salary     {gross_salary:.2f}")
print(" 04         Tax             10%")
print(f" 05     Net Salary       {net_salary:.2f}")
print("-------------------------------------------------")
```

OUTPUT:

```
Enter the Name of an Employee:Dharun M
Enter the Id of an Employee:51
Enter the Number of Hours Worked:8
Enter the Hourly Wages:1500
-----THE SALARY SLIP-----
-------------------------------------------------
 S.No     Particulars     Salary
 01        Name          Dharun M
 02          Id          51
 03     Gross Salary     360000.00
 04         Tax             10%
 05     Net Salary       324000.00
-------------------------------------------------
```

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.

   ```
   num_tickets = int(input("Enter the Total Number of Tickets Wanted:"))
   ```

```
ticket_category = input("Enter the Ticket Category as (for Silver : S ,
Gold : G , Platinum : P):")
up_ticket_category = ticket_category.upper()
if (up_ticket_category == 'S') :
   price = num_tickets*120
elif (up_ticket_category == 'G') :
   price = num_tickets*180
elif (up_ticket_category == 'P') :
   price = num_tickets*250
else :
   print("Kindly Enter the Valid Ticket Category!!!!!")
tax = price*(18/100)
price += tax
print("-----THE SRI SAKTHI CINEMAS-----")
print("---------------------------------------------------------------")
print(" S.No     Particulars            Amount   ")
print(f" 01    Number of Tickets          {num_tickets}")
print(f" 02      Ticket Category          {up_ticket_category}")
print(" 03          Tax                  18%  ")
print(f" 04         Price               {price}")
print("---------------------------------------------------------------")
```

OUTPUT:

```
Enter the Total Number of Tickets Wanted:10
Enter the Ticket Category as (for Silver : S , Gold : G , Platinum : P):p
-----THE SRI SAKTHI CINEMAS-----
---------------------------------------------------------------
 S.No     Particulars            Amount
 01    Number of Tickets          10
 02      Ticket Category          P
 03          Tax                  18%
```

04 Price 2950.0

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).

```
distance = int(input("Enter the Distance in Kilometers:"))
mode = input("Enter the Mode of Transport (for Bus:B , Train:T , Cab:C):")
cap_mode = mode.upper()
speed_bus = 30
speed_train = 40
speed_cab = 35
if (cap_mode == 'B') :
    amt_fare = (distance*5)
    time_min = (distance%speed_bus)
    time_hrs = (distance//speed_bus)
elif (cap_mode == 'T') :
    amt_fare = (distance*2)
    time_min = (distance%speed_train)
```

```
    time_hrs = (distance//speed_bus)
elif (cap_mode == 'C') :
    amt_fare = (distance*10)
    time_min = (distance%speed_cab)
    time_hrs = (distance//speed_bus)
print(f"The Total Fare Amount is {amt_fare} Rupees.")
print(f"The Total Time Taken to reach the Place is {time_hrs} Hours
{time_min} Minutes.")
```

OUTPUT:

```
Enter the Distance in Kilometers:1500
Enter the Mode of Transport (for Bus:B , Train:T , Cab:C):t
The Total Fare Amount is 3000 Rupees.
The Total Time Taken to reach the Place is 50 Hours 20 Minutes.
```

DEPARTMENT OF CSE		
Program	10	
Output	5	
Viva-Voce	5	
Total	20	