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

**PROGRAM 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)))**

**a=int(input("enter the value of of a:"))**

**b=int(input("enter the value of of b:"))**

**c=int(input("enter the value of of c:"))**

**S=int(input("enter the value of of S:"))**

**A=(S\*(S-a)\*(S-b)\*(S-c))\*\*0.5**

**print(A)**

**OUTPUT:**

**enter the value of of a:1**

**enter the value of of b:1**

**enter the value of of c:1**

**enter the value of of S:2**

**1.4142135623730951**

**PROGRAM 2:**

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

**x1=int(input("enter the value of of x1:"))**

**y1=int(input("enter the value of of y1:"))**

**x2=int(input("enter the value of of x2:"))**

**y2=int(input("enter the value of of y2:"))**

**d=(((x2-x1)\*\*2)+((y2-y1)\*\*2))\*\*0.5**

**print(d)**

**OUTPUT:**

**enter the value of of x1:0**

**enter the value of of y1:0**

**enter the value of of x2:2**

**enter the value of of y2:2**

**2.8284271247461903**

**PROGRAM 3:**

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

**shape = input("Enter the any one shape circle, rectangle, triangle, square: ")**

**if shape == "circle":**

**radius = float(input("Enter the radius of the circle: "))**

**area = (22/7)\*radius\*\*2**

**elif shape == "rectangle":**

**length = float(input("Enter the length of the rectangle: "))**

**width = float(input("Enter the width of the rectangle: "))**

**area = length \* width**

**elif shape == "triangle":**

**base = float(input("Enter the base of the triangle: "))**

**height = float(input("Enter the height of the triangle: "))**

**area = 0.5 \* base \* height**

**elif shape == "square":**

**side = float(input("Enter the side of the square: "))**

**area = side\*\*2**

**else:**

**print("Invalid shape entered.")**

**exit()**

**print("The area of the", shape, "is:", area)**

**OUTPUT:**

**Enter the any one shape circle, rectangle, triangle, square: circle**

**Enter the radius of the circle: 2**

**The area of the circle is: 12.571428571428571**

**PROGRAM 4:**

**Write a program to print the digit at one’s place of a number.**

**n=int(input("enter the value of n:"))**

**r=n%10**

**print(r)**

**OUTPUT:**

**enter the value of n:354**

**4**

**PROGRAM 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\_10\_coins = int(input("Enter the number of ₹10 coins: "))**

**num\_5\_coins = int(input("Enter the number of ₹5 coins: "))**

**num\_2\_coins = int(input("Enter the number of ₹2 coins: "))**

**num\_1\_coins = int(input("Enter the number of ₹1 coins: "))**

**total\_amount = (num\_10\_coins \* 10) + (num\_5\_coins \* 5) + (num\_2\_coins \* 2) + (num\_1\_coins \* 1)**

**print("Total amount in the piggy bank: ₹", total\_amount)**

**OUTPUT:**

**Enter the number of ₹10 coins: 5**

**Enter the number of ₹5 coins: 6**

**Enter the number of ₹2 coins: 7**

**Enter the number of ₹1 coins: 8**

**Total amount in the piggy bank: ₹ 102**

**PROGRAM 6:**

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

**quantity\_sold = int(input("Enter the quantity sold: "))**

**value = float(input("Enter the value of the item: "))**

**discount = float(input("Enter the discount percentage: "))**

**tax = float(input("Enter the tax percentage: "))**

**total\_value = quantity\_sold \* value**

**discount\_amount = (discount / 100) \* total\_value**

**value\_after\_discount = total\_value - discount\_amount**

**tax\_amount = (tax / 100) \* value\_after\_discount**

**bill\_amount = value\_after\_discount + tax\_amount**

**print("Bill Amount: ₹", bill\_amount)**

**OUTPUT:**

**Enter the quantity sold: 4**

**Enter the value of the item: 300**

**Enter the discount percentage: 5**

**Enter the tax percentage: 3**

**Bill Amount: ₹ 1174.2**

**PROGRAM 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: 10For the first 100 units: ₹1.50 per unit 2)For the next 100 units (101–200): ₹2.00 per unit 3)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 <= 100:**

**bill\_amount = units \* 1.50**

**elif units <= 200:**

**bill\_amount = (100 \* 1.50) + ((units - 100) \* 2.00)**

**else:**

**bill\_amount = (100 \* 1.50) + (100 \* 2.00) + ((units - 200) \* 3.00)**

**total\_bill = bill\_amount + 50**

**print("Electricity Bill")**

**print("Units Consumed:", units)**

**print("Bill Amount: ₹", bill\_amount)**

**print("Meter Charge: ₹ 50")**

**print("Total Bill: ₹", total\_bill)**

**OUTPUT:**

**Enter the number of units consumed: 200**

**Electricity Bill**

**Units Consumed: 200**

**Bill Amount: ₹ 350.0**

**Meter Charge: ₹ 50**

**Total Bill: ₹ 400.0**

**PROGRAM 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.**

**employee\_name = input("Enter employee name: ")**

**employee\_id = input("Enter employee ID: ")**

**hours\_worked = float(input("Enter number of hours worked: "))**

**hourly\_wage = float(input("Enter hourly wage: "))**

**gross\_salary = hours\_worked \* hourly\_wage**

**tax = 0.10 \* gross\_salary**

**net\_salary = gross\_salary - tax**

**print("\nSalary Slip")**

**print("Employee Name:", employee\_name)**

**print("Employee ID:", employee\_id)**

**print("Hours Worked:", hours\_worked)**

**print("Hourly Wage: ₹", hourly\_wage)**

**print("Gross Salary: ₹", gross\_salary)**

**print("Tax (10%): ₹", tax)**

**print("Net Salary: ₹", net\_salary)**

**OUTPUT:**

**Enter employee name: elan**

**Enter employee ID: 123**

**Enter number of hours worked: 30**

**Enter hourly wage: 27**

**Salary Slip**

**Employee Name: elan**

**Employee ID: 123**

**Hours Worked: 30.0**

**Hourly Wage: ₹ 27.0**

**Gross Salary: ₹ 810.0**

**Tax (10%): ₹ 81.0**

**Net Salary: ₹ 729.0**

**PROGRAM 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 number of tickets: "))**

**category = input("Enter the ticket category (Silver, Gold, or Platinum): ")**

**if category == "Silver":**

**ticket\_price = 120**

**elif category == "Gold":**

**ticket\_price = 180**

**elif category == "Platinum":**

**ticket\_price = 250**

**else:**

**print("Invalid category selected.")**

**total\_ticket\_cost = num\_tickets\*ticket\_price**

**gst = 0.18\*total\_ticket\_cost**

**final\_bill=total\_ticket\_cost+gst**

**print("\nMovie Ticket Bill")**

**print("Number of Tickets:", num\_tickets)**

**print("Ticket Category:", category.capitalize())**

**print("Ticket Price per Ticket: ₹", ticket\_price)**

**print("Total Ticket Cost: ₹", total\_ticket\_cost)**

**print("GST (18%): ₹", gst)**

**print("Final Bill Amount: ₹", final\_bill)**

**OUTPUT:**

**Enter the number of tickets: 5**

**Enter the ticket category (Silver, Gold, or Platinum): Silver**

**Movie Ticket Bill**

**Number of Tickets: 5**

**Ticket Category: Silver**

**Ticket Price per Ticket: ₹ 120**

**Total Ticket Cost: ₹ 600**

**GST (18%): ₹ 108.0**

**Final Bill Amount: ₹ 708.0**

**PROGRAM 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 = float(input("Enter the distance in kilometers: "))**

**mode = input("Enter the mode of transport bus, train, or cab ")**

**if mode == "bus":**

**fare\_per\_km = 5**

**speed = 40**

**elif mode == "train":**

**fare\_per\_km = 2**

**speed = 60**

**elif mode == "cab":**

**fare\_per\_km = 10**

**speed = 50**

**else:**

**print("Invalid mode of transport selected.")**

**total\_fare = distance \* fare\_per\_km**

**travel\_time = distance / speed**

**print("\nTravel Fare and Estimated Travel Time")**

**print("Distance:", distance, "km")**

**print("Mode of Transport:", mode.capitalize())**

**print("Total Fare: ₹", total\_fare)**

**print("Estimated Travel Time:", travel\_time, "hours")**

**OUTPUT:**

**Enter the distance in kilometers: 120**

**Enter the mode of transport bus, train, or cab bus**

**Travel Fare and Estimated Travel Time**

**Distance: 120.0 km**

**Mode of Transport: Bus**

**Total Fare: ₹ 600.0**

**Estimated Travel Time: 3.0 hours**

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