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If-Else Programs

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1) Write a C program to read the value of an integer m and display the value of n is 1 when m is larger than 0, 0 when m is 0 and -1 when m is less than 0.

Test Data : -5

Expected Output :

The value of n = -1

2) Write a C program to determine eligibility for admission to a professional course based on the following criteria:

Eligibility Criteria : Marks in Maths >=65 and Marks in Phy >=55 and Marks in Chem>=50 and Total in all three subject >=190 or Total in Maths and Physics >=140 ---------- Input the marks obtained in Physics :65 Input the marks obtained in Chemistry :51 Input the marks obtained in Mathematics :72 Total marks of Maths, Physics and Chemistry : 188 Total marks of Maths and Physics : 137 The candidate is not eligible.

Expected Output :

The candidate is not eligible for admission.

3) Write a C program to read the roll no, name and marks of three subjects and calculate the total, percentage and division.

Test Data :

Input the Roll Number of the student :784

Input the Name of the Student :James

Input the marks of Physics, Chemistry and Computer Application : 70 80 90

Expected Output :Roll No : 784, Name of Student : James

Marks in Physics : 70

Marks in Chemistry : 80

Marks in Computer Application : 90

Total Marks = 240

Percentage = 80.00

Division = First

4) Write a C program to read temperature in centigrade and display a suitable message according to the temperature state below:

Temp < 0 then Freezing weather

Temp 0-10 then Very Cold weather

Temp 10-20 then Cold weather

Temp 20-30 then Normal in Temp

Temp 30-40 then Its Hot

Temp >=40 then Its Very Hot

Test Data :

42

Expected Output :

Its very hot.

5) Write a C program to check whether a character is an alphabet, digit or special character.

Test Data :

@

Expected Output :

This is a special character.

6) Write a program in C to calculate and print the electricity bill of a given customer. The customer ID, name, and unit consumed by the user should be captured from the keyboard to display the total amount to be paid to the customer.

Unit	Charge/unit
upto 199	@1.20
200 and above but less than 400	@1.50
400 and above but less than 600	@1.80
600 and above	@2.00

If bill exceeds Rs. 400 then a surcharge of 15% will be charged and the minimum bill should be of Rs. 100/-

Net Amount Paid By the Customer : 1840.00

7) Write a program in C to accept a grade and declare the equivalent description :

Grade	Description
E	Excellent
V	Very Good
G	Good
A	Average
F	Fail

Test Data :
Input the grade :A
Expected Output :
You have chosen : Average

8) C program to find the greatest number among three numbers

```
Enter the number1 = 12

Enter the number2 = 456

Enter the number3 = 12

Greatest number = 456
```

9) C program to check the sign of a given number

- Input: 5
- Output: No. is positive

```
Enter the number  = 5

Enter number is a positve number
```

```
Enter the number  = -58

Enter number is a negative number
```

```
Enter the number  = 0

Enter number is zero
```

10) Check whether the triangle is equilateral, scalene, or isosceles

```
Enter first side of triangle: = 3

Enter second side of triangle: = 3

Enter third side of triangle: = 3

Equilateral triangle.
```

```
Enter first side of triangle: = 5

Enter second side of triangle: = 6

Enter third side of triangle: = 7

Scalene triangle.
```

```
Enter first side of triangle: = 4

Enter second side of triangle: = 6

Enter third side of triangle: = 4

Isosceles triangle.
```

11) C program to check whether a character is an alphabet or not

```
Enter any character: y

It is an aplhabate.
```

```
Enter any character: 9

It is not an aplhabate.
```

12) C program to check vowel or consonant

```
Enter any character: a

It is an vowel.
```

```
Enter any character: c

It is a consonant.
```

```
Enter any character: 6

It is not an vowel nor consonant.
```

13) C program to check whether the triangle is valid or not if angles are given

The angle property of the triangle says that the sum of all three angles should be equal to 180.

```
Enter 1 angles of triangle: = 45

Enter 2 angles of triangle: = 90

Enter 3 angles of triangle: = 45

Valid Triangle.
```

14) Write a C program that takes two numbers and an arithmetic operator (+, -, *, /) as input, and then performs the operation.

```
Enter first number: 10
Enter second number: 5
Enter operator (+, -, *, /): *
Expected Output: 10 * 5
```

15) Write a C program to check if a given number is divisible by both 5 and 11.

```
Enter a number: 55
Expected Output: 55 is divisible by both 5 and 11
```

16) Write a C program to simulate a traffic light system. The user will enter a color (red, yellow, or green), and the program will display the corresponding action:

Red: Stop

Yellow: Ready

Green: Go

17) Write a C program to calculate income tax based on the following slabs:

Income <= ₹2,50,000: No tax

Income > ₹2,50,000 and <= ₹5,00,000: 5% tax on income exceeding ₹2,50,000

Income > ₹5,00,000 and <= ₹10,00,000: 20% tax on income exceeding ₹5,00,000

Income > ₹10,00,000: 30% tax on income exceeding ₹10,00,000

```
Enter annual income: ₹9,00,000
Expected Output: Tax = ₹1,00,000
```

18) Write a C program to calculate the Body Mass Index (BMI) and classify it based on the following criteria:

- BMI < 18.5: Underweight
- BMI 18.5 - 24.9: Normal weight
- BMI 25 - 29.9: Overweight
- BMI >= 30: Obesity

```
Enter weight (in kg): 70
Enter height (in meters): 1.75
Expected Output: BMI = 22.86 (Normal weight)
```

19) Write a C program to solve a quadratic equation of the form $ax^2 + bx + c = 0$.

Display the roots based on the discriminant value:

Discriminant > 0: Two real and distinct roots
Discriminant == 0: Two real and equal roots
Discriminant < 0: No real roots (complex roots)

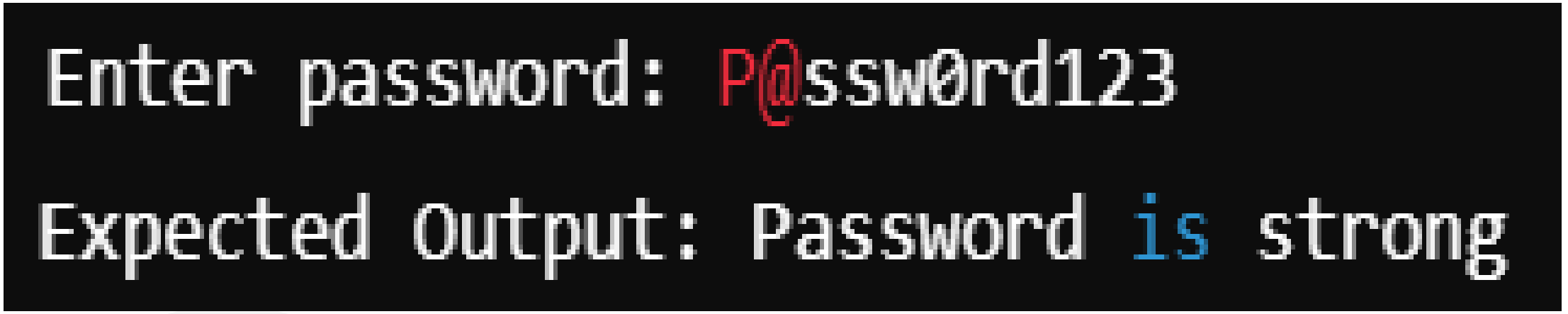
```
Enter coefficients a, b, c: 1, -3, 2

Expected Output: Roots are 2 and 1 (Real and distinct)
```

20) Write a C program to simulate an ATM withdrawal. The program should check the balance and the requested amount, and then perform the withdrawal. If the balance is insufficient, it should display an error message.

```
Enter balance: ₹5000
Enter amount to withdraw: ₹6000
Expected Output: Insufficient balance
```

21) Write a C program to check the strength of a password. The password should be at least 8 characters long, contain both uppercase and lowercase letters, include at least one digit, and have at least one special character.



22) Write a C program for a grocery store to calculate the total price after applying discounts:

If the purchase amount is over ₹5,000, give a 10% discount.

If the purchase amount is over ₹2,000 but below ₹5,000, give a 5% discount.

Additionally, apply a ₹200 loyalty discount if the customer has been a member for more than 3 years.

```
Enter total purchase amount: ₹4,500
Enter membership duration in years: 5
Expected Output: Total after discounts = ₹4,075
```

23) **Write a C program to calculate the fuel efficiency of a vehicle based on the fuel consumed and the distance traveled. The program should also determine the vehicle's efficiency class:**

For fuel efficiency >= 15 km/l: Very Efficient

For fuel efficiency between 10 km/l and 15 km/l: Efficient

For fuel efficiency between 5 km/l and 10 km/l: Low Efficiency

For fuel efficiency < 5 km/l: Very Low Efficiency

```
Enter distance traveled (km): 400
Enter fuel consumed (liters): 30
Expected Output: Fuel efficiency = 13.33 km/l (Efficient)
```

24) Write a C program to classify a quadrilateral based on its side lengths and angles as

Square, Rectangle, Rhombus, Parallelogram, Trapezium, or Irregular.

For square: all sides must be equal, and all angles must be 90 degrees.

For rectangle: opposite sides must be equal, and all angles must be 90 degrees.

For rhombus: all sides must be equal, but angles are not 90 degrees.

```
Enter four sides: 5, 5, 5, 5
Enter four angles: 90, 90, 90, 90
Expected Output: Square
```

25) Write a C program to calculate body fat percentage based on the following formula for men and women:

For men: BFP = 1.20 * BMI + 0.23 * Age - 16.2
For women: BFP = 1.20 * BMI + 0.23 * Age - 5.4 Based on the BFP,
display the body fat category: Essential Fat, Athlete, Fitness, Average, or Obese.

```
Enter gender (M/F): M
Enter BMI: 24.5
Enter age: 30
Expected Output: Body Fat Percentage = 22.85 (Average)
```

26) Write a C program to calculate an employee's bonus based on the following rules:

If the employee has worked for more than 10 years, they get a 15% bonus.

If tpphe employee has worked for more than 5 years but less than 10 years, they get a 10% bonus.

If the employee has worked for 5 years or less, they get a 5% bonus.

Add an extra ₹5000 if the employee’s salary is less than ₹40,000.

```
Enter salary: ₹35,000
Enter years of service: 8
Expected Output: Bonus = ₹8,500
```

27) Write a C program to input basic salary of an employee and calculate its Gross salary according to following:

Basic Salary <= 10000 : HRA = 20%, DA = 80%

Basic Salary <= 20000 : HRA = 25%, DA = 90%

Basic Salary > 20000 : HRA = 30%, DA = 95%

28) Write a C program to input the amount of water consumed (in liters) by a household and calculate the water bill according to the following rules:

If water consumed <= 1000 liters: Rate is ₹1 per liter

If water consumed <= 3000 liters: Rate is ₹0.75 per liter

If water consumed > 3000 liters: Rate is ₹0.50 per liter

29) Write a C program to input the age of a person and calculate the price of a movie ticket as follows:

Age <= 12: ₹100

Age <= 60: ₹200

Age > 60: ₹150

Write a C program to input the annual salary of an employee and calculate the income tax as per the following rules:

Salary <= ₹2,50,000: No tax

Salary <= ₹5,00,000: 5% tax

Salary > ₹5,00,000: 10% tax