

# Programming Practice Questions

## 1. Prime Numbers

Task: Write a program to find all prime numbers between 1 and 20.

Hint: A prime number is divisible only by 1 and itself.

## 2. Sum of Values

Task: Calculate and print the sum of all numbers from 1 to 50.

## 3. Armstrong Number Check (3-Digit)

Task: Check if a given 3-digit number (e.g., 153) is an Armstrong number.

Formula:

Armstrong Number =  $a^3 + b^3 + c^3$  (where abc are digits)

## 4. Palindrome Check

Task: Determine if a given number (e.g., 121, 2442) is a palindrome (reads the same backward).

## 5. Factors of a Number

Task: Find and print all factors of a given number.

## 6. Swap Two Variables

Task: Write a program to swap the values of two variables.

## 7. Area of a Circle

Task: Compute the area of a circle given its radius.

Formula:

Area =  $\pi \times r^2$

## 8. Simple Interest Calculation

Task: Calculate simple interest given principal, rate, and time.

Formula:

SI =  $(P \times R \times T) / 100$

## 9. Celsius to Fahrenheit Conversion

Task: Convert a given temperature from Celsius to Fahrenheit.

Formula:

F =  $(C \times 9/5) + 32$

#### 10. Square of a Number

Task: Compute the square of a given number.

#### 11. Cube of a Number

Task: Compute the cube of a given number.

#### 12. Leap Year Check

Task: Determine if a given year is a leap year.

Rules:

- Divisible by 4 but not by 100, OR
- Divisible by 400.

#### 13. Minimum Currency Notes Combination

Task: Find the minimum number of notes (INR5, INR10, INR20, INR50, INR100, INR500) for a given amount.

#### 14. Multiplication Table Using `goto`

Task: Generate the multiplication table of any number using the `goto` statement.

#### 15. Countdown from a Number to 10

Task: Print numbers in decreasing order from a given number down to 10.

#### 16. Switch-Case Program

Task: Implement a menu-driven program with the following cases:

- Case 1: Check if a number is even or odd.
- Case 2: Check if a year is a leap year.
- Case 3: Generate the square of a number.
- Case 4: Generate the cube of a number.

#### 17. Voting Eligibility Check

Task: Check if a person is eligible to vote (age  $\geq$  18).

#### 18. Largest of Three Numbers

Task: Take three numbers as input and print the largest one.

#### 19. 4-Digit Password Validation

Task: Check if a 4-digit password is valid (e.g., no repeating digits, specific patterns).

## 20. OTP-Based Password Validation

Task: Extend the previous program to include OTP verification for password validation.

## 21. ATM Currency Dispenser

Task: Simulate an ATM that dispenses money using the minimum number of notes (INR5, INR10, INR20, INR50, INR100, INR500).

## 22. Multiplication Table

Task: Generate the multiplication table of any given number.

## 23. Fibonacci Series

Task: Print the Fibonacci sequence up to a specified limit.

## 24. Factorial of a Number

Task: Compute the factorial of a given number.

Formula:

$$n! = n \times (n-1) \times (n-2) \times \dots \times 1$$