**Challenge 1: Even or Odd**

**Problem: Write a program to check if a number is even or odd.**

**Solution:**

**num = int(input("Enter a number: "))**

**if num % 2 == 0:**

**print("Even")**

**else:**

**print("Odd")**

**Challenge 2: Largest of Three Numbers**

**Problem: Find the largest of three numbers.**

**Solution:**

**a, b, c = map(int, input("Enter three numbers: ").split())**

**if a >= b and a >= c:**

**print(f"Largest: {a}")**

**elif b >= a and b >= c:**

**print(f"Largest: {b}")**

**else:**

**print(f"Largest: {c}")**

**Challenge 3: Positive, Negative or Zero**

**Problem: Determine if a number is positive, negative, or zero.**

**Solution:**

**num = int(input("Enter a number: "))**

**if num > 0:**

**print("Positive")**

**elif num < 0:**

**print("Negative")**

**else:**

**print("Zero")**

**Challenge 4: Leap Year Checker**

**Problem: Write a program to check if a year is a leap year.**

**Solution:**

**year = int(input("Enter a year: "))**

**if (year % 4 == 0 and year % 100 != 0) or (year % 400 == 0):**

**print("Leap Year")**

**else:**

**print("Not a Leap Year")**

**Challenge 5: Sum of First N Natural Numbers**

**Problem: Calculate the sum of the first N natural numbers.**

**Solution:**

**n = int(input("Enter N: "))**

**sum\_n = sum(range(1, n+1))**

**print(f"Sum: {sum\_n}")**

**Challenge 6: Factorial of a Number**

**Problem: Compute the factorial of a number.**

**Solution:**

**n = int(input("Enter a number: "))**

**fact = 1**

**for i in range(1, n+1):**

**fact \*= i**

**print(f"Factorial: {fact}")**

**Challenge 7: Fibonacci Series**

**Problem: Print the first N Fibonacci numbers.**

**Solution:**

**n = int(input("Enter N: "))**

**a, b = 0, 1**

**for \_ in range(n):**

**print(a, end=" ")**

**a, b = b, a + b**

**Challenge 8: Check for Prime Number**

**Problem: Determine if a number is prime.**

**Solution:**

**n = int(input("Enter a number: "))**

**if n < 2:**

**print("Not Prime")**

**else:**

**for i in range(2, int(n \*\* 0.5) + 1):**

**if n % i == 0:**

**print("Not Prime")**

**break**

**else:**

**print("Prime")**

**Challenge 9: Reverse a Number**

**Problem: Reverse the digits of a number.**

**Solution:**

**num = int(input("Enter a number: "))**

**rev = 0**

**while num > 0:**

**rev = rev \* 10 + num % 10**

**num //= 10**

**print(f"Reversed: {rev}")**

**Challenge 10: Count Digits in a Number**

**Problem: Count the number of digits in a number.**

**Solution:**

**num = int(input("Enter a number: "))**

**count = 0**

**while num > 0:**

**num //= 10**

**count += 1**

**print(f"Number of digits: {count}")**

**Challenge 11: Multiplication Table**

**Problem: Print the multiplication table of a given number.**

**Solution:**

**num = int(input("Enter a number: "))**

**for i in range(1, 11):**

**print(f"{num} x {i} = {num\*i}")**

**Challenge 12: Palindrome Number**

**Problem: Check if a number is a palindrome.**

**Solution:**

**num = input("Enter a number: ")**

**if num == num[::-1]:**

**print("Palindrome")**

**else:**

**print("Not a Palindrome")**

**Challenge 13: Armstrong Number**

**Problem: Check if a number is an Armstrong number.**

**Solution:**

**num = input("Enter a number: ")**

**sum\_digits = sum(int(digit) \*\* len(num) for digit in num)**

**if int(num) == sum\_digits:**

**print("Armstrong Number")**

**else:**

**print("Not an Armstrong Number")**

**Challenge 14: Print All Even Numbers in a Range**

**Problem: Print all even numbers from 1 to N.**

**Solution:**

**n = int(input("Enter N: "))**

**for i in range(2, n+1, 2):**

**print(i, end=" ")**

**Challenge 15: Sum of Digits**

**Problem: Find the sum of digits of a number.**

**Solution:**

**num = int(input("Enter a number: "))**

**sum\_digits = 0**

**while num > 0:**

**sum\_digits += num % 10**

**num //= 10**

**print(f"Sum of digits: {sum\_digits}")**

**Challenge 16: Print a Right-Angled Triangle Pattern**

**Problem: Print a pattern of stars.**

**Solution:**

**n = int(input("Enter the number of rows: "))**

**for i in range(1, n+1):**

**print("\*" \* i)**

**Challenge 17: Reverse a String**

**Problem: Reverse a string using a loop.**

**Solution:**

**s = input("Enter a string: ")**

**rev = ""**

**for char in s:**

**rev = char + rev**

**print(f"Reversed string: {rev}")**

**Challenge 18: Find the GCD of Two Numbers**

**Problem: Compute the greatest common divisor (GCD) of two numbers.**

**Solution:**

**import math**

**a, b = map(int, input("Enter two numbers: ").split())**

**print(f"GCD: {math.gcd(a, b)}")**

**Challenge 19: Print Prime Numbers in a Range**

**Problem: Print all prime numbers up to N.**

**Solution:**

**n = int(input("Enter N: "))**

**for num in range(2, n+1):**

**for i in range(2, int(num \*\* 0.5) + 1):**

**if num % i == 0:**

**break**

**else:**

**print(num, end=" ")**

**Challenge 20: Find the LCM of Two Numbers**

**Problem: Compute the least common multiple (LCM) of two numbers.**

**Solution:**

**import math**

**a, b = map(int, input("Enter two numbers: ").split())**

**lcm = (a \* b) // math.gcd(a, b)**

**print(f"LCM: {lcm}")**