**Conditional Statements**

1. Write a program that takes a person's age as input and categorizes them as a child (0-12 years), teenager (13-19 years), adult (20-59 years), or senior (60+ years). If the age is negative or beyond 120, the program should display an error message.

2. Given three sides of a triangle, determine whether the triangle is equilateral, isosceles, or scalene. Also, check if the sides provided can form a triangle.

3. Write a program that takes marks in five subjects as input and calculates the grade as follows: A (90-100), B (80-89), C (70-79), D (60-69), F (below 60). If any mark is above 100 or below 0, print an error message.

4. Create a program that checks whether a given year is a leap year. The program should take into account the leap year rule of being divisible by 4, not divisible by 100 unless also divisible by 400.

5. A store gives a discount based on the total purchase amount: 10% for purchases above 10,000, 5% for purchases between 5,000 and 10,000, and no discount for purchases below 5,000. Write a program to calculate the final amount after the discount.

**Loops**

1.Write a program to calculate the sum of the series: 1 + 2 + 3 + ... + n. The value of n is taken as input from the user.

2.Create a program that prints the multiplication table for any number provided by the user up to 12.

3.Write a program to compute the factorial of a given number using a loop.

4.Generate all prime numbers between two given numbers. The user should input the starting and ending numbers.

**List**

1.Given a list of integers, create two separate lists: one containing all even numbers and the other containing all odd numbers.

2.Write a program that takes a list as input and prints it in reverse order without using the built-in reverse function.

3.Given a list of integers, find the sum of all positive numbers in the list. Ignore negative numbers.

4. Write a program that removes all duplicates from a list, leaving only unique elements.

**Tuple**

1. Given a tuple of student names and another tuple of their corresponding grades, write a program to display each student with their grade.

2. Write a program to convert a tuple of integers into a list, then sort the list in descending order.

3. Given a tuple of pairs (x, y), create a new tuple that contains the sum of each pair.

4. Write a program to find the maximum and minimum value in a tuple of integers.

5. Given two tuples, write a program to concatenate them into one and sort the result.

**Set**

1. Write a program that finds the common elements between two sets of integers provided by the user.

2. Given a sentence, write a program that returns all the unique words as a set.

3. Write a program that takes a list as input and returns a set with all duplicates removed.

**Dictionary**

1. Write a program that takes a sentence and returns a dictionary with the frequency of each word in the sentence.

2. Given a dictionary of student names and their marks, write a program to find and display the student with the highest marks.

3. Create a dictionary with product names as keys and their prices as values. Write a program that allows the user to input a product name and get the price. If the product is not in the dictionary, display a message.

4. Given a string, create a dictionary that shows the frequency of each character in the string.

**Functions**

1. Write a function that checks whether a given string is a palindrome (reads the same backward and forward).

2. Write a function that takes an integer as input and returns True if it is a prime number, otherwise returns False.

3. Write functions to calculate the area of a circle, rectangle, and triangle. Each function should take appropriate parameters.