## Problem 1: "Admission Eligibility"

*Story*: Rajesh is an admission officer at a prestigious university. He needs a program to determine whether a student is eligible for admission based on their test scores. The eligibility criteria are as follows:

* + The student must score above 75 in Math and above 80 in Science.
  + The average score in all subjects must be at least 70.

Write a Python program that takes input for Math, Science, and English scores of a student and prints whether the student is eligible for admission or not.

## Problem 2: "Temperature Converter"

*Story*: Priya is a weather analyst who needs a program to convert temperatures from Celsius to Fahrenheit and vice versa. She often needs to perform these conversions quickly during her analysis.

Write a Python program that asks the user to input a temperature along with its unit (C for Celsius or F for Fahrenheit) and then converts it to the other unit.

## Problem 3: "Guess the Number Game"

*Story*: Anand and his friends are playing a number guessing game. The program generates a random number between 1 and 100, and the player has to guess the number. The program provides hints such as "too high" or "too low" after each guess until the player guesses the correct number.

Write a Python program that generates a random number and lets the user guess until they guess correctly. Provide appropriate feedback after each guess.

## Problem 4: "Grade Calculator"

*Story*: Meena is a teacher who needs a program to calculate the grades of her students. She follows a simple grading system where:

* + 90 and above: A
  + 80-89: B
  + 70-79: C
  + 60-69: D
  + Below 60: F

Write a Python program that takes input for a student's score and prints their corresponding grade.

## Problem 5: "Simple Interest Calculator"

*Story*: Rohit is studying finance and needs a program to calculate simple interest for his assignments. He wants to quickly calculate the interest based on the principal amount, rate, and time.

Write a Python program that takes input for principal amount, rate of interest, and time period, and then calculates and prints the simple interest.

## Problem 6: "Vowel Counter"

*Story*: Ritu is analyzing some text data and wants to know the frequency of each vowel (a, e, i, o, u) in the text. She needs a program to count the occurrences of each vowel.

Write a Python program that takes a string input from the user and counts the occurrences of each vowel. Ignore case sensitivity.

## Problem 7: "Palindrome Checker"

*Story*: Sanjay is learning about palindromes in his computer science class. He wants to check if a given word is a palindrome or not. A palindrome is a word that reads the same forwards and backwards.

Write a Python program that takes a word as input and checks whether it is a palindrome or not.

## Problem 8: "Leap Year Checker"

*Story*: Nisha is a calendar planner who wants to check if a given year is a leap year or not. She needs a program to quickly determine if a year is divisible by 4 but not by 100 unless it is also divisible by 400.

Write a Python program that takes a year as input and checks if it is a leap year or not.

## Problem 9: "Factorial Calculator"

*Story*: Suresh is studying permutations and combinations and needs a program to calculate factorials for his assignments. He wants a program to quickly calculate the factorial of a given number.

Write a Python program that takes an integer input from the user and calculates its factorial.

## Problem 10: "FizzBuzz Game"

*Story*: Deepak is teaching programming to elementary school students and wants to play the FizzBuzz game with them. In this game, players count numbers but replace numbers divisible by 3 with "Fizz", numbers divisible by 5 with "Buzz", and numbers divisible by both 3 and 5 with "FizzBuzz".

Write a Python program that prints the numbers from 1 to 100, but replaces multiples of 3 with "Fizz", multiples of 5 with "Buzz", and multiples of both 3 and 5 with "FizzBuzz".

## Problem 1: "Unique Elements"

*Story*: Ananya is analyzing data and needs to find unique elements in a list. She wants a program to quickly identify and display unique elements in a given list.

Write a Python program that takes a list as input and prints the unique elements present in the list.

## Problem 2: "List Manipulation"

*Story*: Rahul is managing a list of tasks for his project. He needs a program to perform various operations on the list such as adding, removing, and updating tasks.

Write a Python program that allows the user to perform the following operations on a list of tasks:

* + Add a task
  + Remove a task
  + Update a task
  + Display all tasks

## Problem 3: "Set Operations"

*Story*: Kavya is studying sets and wants to perform various set operations. She needs a program to demonstrate set operations like union, intersection, and difference.

Write a Python program that takes two sets as input and performs the following set operations:

* + Union
  + Intersection
  + Difference (both A - B and B - A)
  + Symmetric difference

## Problem 4: "Dictionary Manipulation"

*Story*: Arjun is managing a dictionary of employee records and needs a program to perform operations like adding new employees, updating their details, and retrieving information.

Write a Python program that allows the user to perform the following operations on a dictionary of employee records:

* + Add a new employee
  + Update employee details
  + Retrieve employee information
  + Display all employees

## Problem 5: "List Comprehensions"

*Story*: Naveen is learning about list comprehensions and wants to practice creating lists using this technique. He needs a program to generate lists based on specific criteria.

Write Python programs using list comprehensions to accomplish the following tasks:

* + Generate a list of even numbers between 1 and 20.
  + Generate a list of squares of numbers from 1 to 10.
  + Generate a list of names with more than 5 characters from a given list of names.

## Problem 6: "Set Comprehensions"

*Story*: Priya is intrigued by set comprehensions and wants to explore creating sets using this technique. She needs a program to generate sets based on specific criteria.

Write Python programs using set comprehensions to accomplish the following tasks:

* + Generate a set of vowels from a given string.
  + Generate a set of unique characters from a given string.
  + Generate a set of prime numbers between 1 and 50.

## Problem 7: "Dictionary Comprehensions"

*Story*: Rohit is fascinated by dictionary comprehensions and wants to practice creating dictionaries using this technique. He needs a program to generate dictionaries based on specific criteria.

Write Python programs using dictionary comprehensions to accomplish the following tasks:

* + Generate a dictionary mapping numbers to their squares from 1 to 10.
  + Generate a dictionary mapping names to their lengths from a given list of names.
  + Generate a dictionary mapping vowels to their counts in a given string.

## Problem 8: "Matrix Operations"

*Story*: Sneha is studying matrix operations and wants to perform various operations such as addition, multiplication, and transpose. She needs a program to demonstrate these operations.

Write a Python program that allows the user to perform the following matrix operations:

* + Matrix addition
  + Matrix multiplication
  + Transpose of a matrix

## Problem 9: "Tuple Operations"

*Story*: Rajesh is managing employee records and wants to use tuples to store information such as employee ID, name, and salary. He needs a program to perform operations like adding new records and displaying all records.

Write a Python program that allows the user to perform the following operations on a list of employee records stored as tuples:

* + Add a new employee record
  + Update employee details
  + Retrieve employee information
  + Display all employee records

## Problem 10: "Frequency Count"

*Story*: Anjali is analyzing text data and wants to count the frequency of each word in a given text. She needs a program to quickly generate a dictionary mapping words to their frequencies.

Write a Python program that takes a string input from the user and generates a dictionary mapping words to their frequencies.