Day 1: Basic Syntax and Variables

1. Write a Python program to swap the values of two variables without using a temporary variable.
2. Write a Python program to calculate the area and perimeter of a rectangle. The user should provide the length and width.
3. Write a program to convert temperature from Celsius to Fahrenheit and vice versa. The user should provide the temperature and the conversion direction.

Day 2: Conditionals

1. Write a program that asks the user to enter three numbers and prints the largest and smallest of the three.
2. Write a program that checks if a given year is a leap year. A year is a leap year if it is divisible by 4, but not divisible by 100, unless it is also divisible by 400.
3. Write a program that asks the user for a number and prints "Fizz" if the number is divisible by 3, "Buzz" if it is divisible by 5, and "FizzBuzz" if it is divisible by both 3 and 5. If the number is not divisible by 3 or 5, print the number itself.

Day 3: Loops

1. Write a program that prints all the prime numbers between 1 and 100.
2. Write a program that asks the user for a number and then prints the multiplication table for that number up to 12.
3. Write a program to print the sum of the first n natural numbers, where n is provided by the user. Ensure your program handles invalid inputs gracefully.

Day 4: Lists

1. Write a program that asks the user for a list of numbers and then prints the largest, smallest numbers, and their positions in the list.
2. Write a program that takes a list of numbers and returns a new list with the numbers sorted in ascending order without using the built-in sort function.
3. Write a program that takes a list of words and returns a list with the words in reverse order. Additionally, reverse each word in the list.

Day 5: Dictionaries

1. Write a program that counts the frequency of each word in a given sentence provided by the user and prints the word with the highest frequency.
2. Write a program that takes a dictionary of employee names and their salaries, then prints the name and salary of the employee with the highest and lowest salaries.
3. Write a program that merges two dictionaries. If a key appears in both dictionaries, sum the values. Print the resulting dictionary.

Day 6: Tuples

1. Write a program that takes a list of numbers and converts it into a tuple, then prints the tuple and the sum of all its elements.
2. Write a program that finds the index of an element in a tuple provided by the user. If the element is not in the tuple, print an appropriate message.
3. Write a program that takes a tuple of numbers and returns a new tuple containing only the numbers that are divisible by 3. Additionally, calculate the average of these numbers.

Day 7: Sets

1. Write a program that removes all duplicate elements from a list of numbers provided by the user and prints the unique elements. Sort the resulting set in ascending order before printing.
2. Write a program that takes two sets of numbers and prints their union, intersection, and symmetric difference.
3. Write a program that checks if one set is a subset of another set. If not, print the elements that are in the first set but not in the second set.

Submission Instructions

- Submit each day's homework by the due date specified.
- Ensure all your code is well-commented and organized.
- Use a single file for each day's homework, named as dayX_homework.py, where X is the day number.
- Submit your files on codelink pro

NOTE : PLEASE UPLOAD YOUR HOMEWORK ON OUT SOFTWARE CODELINK PRO BEFORE THE TIME EXPIRES !!

Homework submit software link:
https://codelinkpro.lovestoblog.com/