

Assignment 2

Due on July 6th, 2023

Introduction to Programming with Python

Columbia University Pre-College Program—Summer Session I

Instructor: Daniel Kadyrov

In this assignment, you will practice using variables, floats, integers, strings, lists, and dictionary methods in Python. You will write a program that performs some simple calculations and manipulations on different types of data. You will submit your program as a .py file on the course website. The file should be named `LastName_FirstName_Assignment2.py` where last name and first name are replaced with your last name and first name.

Problem 1 - For Loops

1. Write a for loop that prints the numbers from 1 to 10, one per line.
2. Write a for loop that iterates over a list of names and prints “Hello, name” for each name in the list.
3. Write a for loop that calculates the sum of all the elements in a list of numbers and prints the result.
4. Write a for loop that reverses a string and prints the reversed string. For example, if the string is “python”, the output should be “nohtyp”.
5. Write a for loop that counts how many times each letter appears in a string and prints the letter and its frequency. For example, if the string is “banana”, the output should be:

```
b: 1  
a: 3  
n: 2
```

6. Write a for loop that iterates over a dictionary of students and their grades and prints the name and grade of each student who passed the course. Assume that passing is 60% or higher.
7. Write a for loop that prints the multiplication table for a given number n. For example, if n is 5, the output should be:

```
5 x 1 = 5  
5 x 2 = 10  
5 x 3 = 15  
5 x 4 = 20  
5 x 5 = 25  
5 x 6 = 30  
5 x 7 = 35  
5 x 8 = 40  
5 x 9 = 45  
5 x 10 = 50
```

Problem 2 - While Loops

1. Write a while loop that prints the numbers from 1 to 10, one per line.
2. Write a while loop that asks the user to enter a name and prints "Hello, name" until the user enters "quit".

Problem 3 - Conditionals

1. Write a program that asks the user to enter a number and prints whether it is even or odd using an if else statement.
2. Write a program that creates a list of 10 random numbers between 1 and 100 and prints the smallest and the largest number in the list using a loop and an if else statement.
3. Write a program that creates a dictionary with the keys being the names of some fruits and the values being their prices. Then, ask the user to enter a fruit name and print the price of that fruit using an if else statement. If the fruit name is not in the dictionary, print "Sorry, we don't have that fruit."