Pseudocode

Exercises

Exercise 1

Translate the following English text into Pseudocode:

Imagine you have a list of grades for a class. You want to calculate the average grade for the class. First, add up all the grades together. Once you have the total, count how many grades there are. Then, divide the total sum of the grades by the number of grades. This will give you the average grade for the class.

Exercise 2

Translate the following English text into Pseudocode:

You have a list of numbers and your goal is to find the largest number in this list. Start by assuming the last number is the largest. Then, go through each number in the list one by one. For each number, check if it is larger than your current largest number. If it is, this new number becomes your new largest number. Continue this process until you have checked all the numbers in the list. The largest number you find this way is the maximum number in the list.

Exercise 3

Translate the following English text into Pseudocode:

Imagine you have an array of integers. Your task is to check if there's a number in the array that appears more than half the time. First, count how many times each number appears in the array. Then, determine the length of the array. Finally, check if any of the numbers appears more times than half the length of the array. If such a number exists, it is the majority element.

Exercise 4

A palindrome is a word, phrase, number, or other sequence of characters that reads the same forward and backward (ignoring spaces, punctuation, and capitalization).

Translate the following English text into Pseudocode:

You need to check if a given string is a palindrome. Start by removing any spaces and punctuation from the string and converting all characters to the same case (either upper or lower). Then, compare the first character with the last, the second with the second-to-last, and so on. If all corresponding characters are the same, then the string is a palindrome. If any corresponding characters differ, it's not a palindrome.

Exercise 5

Translate the following Pseudocode into Python code:

```
SET sum TO 0
FOR each number i FROM 1 TO 100
        IF the remainder of i divided by 2 equals 0 THEN
                ADD i TO sum
        END IF
END FOR
DISPLAY sum
```

Exercise 6

Translate the following Pseudocode into Python code:

```
FUNCTION reverseString(inputString)
        SET reversedString TO empty string
        FOR each character in inputString from end to start
                ADD character to reversedString
        END FOR
        RETURN reversedString
END FUNCTION

SET myString TO "Hello World" AS a string
SET result TO reverseString(myString)
DISPLAY result
```

Exercise 7

Translate the following Pseudocode into Python code:

```
FUNCTION isPrime(number)
        IF number less than 2 THEN
                RETURN False
        END IF
        FOR i FROM 2 TO number - 1
                IF number modulus i equals 0 THEN
                        RETURN False
                END IF
        END FOR
        RETURN True
END FUNCTION

SET num TO 17 AS an integer
SET primeStatus TO isPrime(num)
DISPLAY primeStatus
```

Exercise 8

Translate the following Python code into Pseudocode:
Tips: a,b = b,a is a very specific syntax, you can't use it in pseudocode.

```python
a, b = 0, 1
while a < 10:
    print(a)
    a, b = b, a + b
```

Exercise 9

Translate the following Python code into Pseudocode:

```python
string = "hello world"
char = 'l'
count = 0
for c in string:
    if c == char:
        count += 1
print(count)
```

Exercise 10

Translate the following Python code into Pseudocode:
Tips: you can use bracket to index and slice in pseudocode

```python
keys = ['apple', 'banana', 'orange']
values = [5, 3, 2]
fruit_dict = {}
for i in range(len(keys)):
    fruit_dict[keys[i]] = values[i]
print(fruit_dict)
```