Tasca S7.01
Estructuras de datos y de control

NIVELL 1
Exercici 1: Calculadora de l'índex de massa corporal:

```
altura = float(input("Ingresa tu altura en centímetros:"))
peso = float(input("Ingresa tu peso en kg:"))

altura = altura / 100
imc = peso / (altura * altura)

print("Bajo peso: <18,5")
print("Peso normal: 18,5-24,9")
print("Sobrepeso: 24,9-29,9")
print("Obesidad: >30")
print("Tu resultados es: ", imc)
```

```
Bajo peso: <18,5
Peso normal: 18,5-24,9
Sobrepeso: 24,9-29,9
Obesidad: >30
Tu resultados es:  23.37472607742878
```

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Exercici 2: Convertidor de temperatures de Celsius a Fahrenheit

```
celsius = float(input("Ingresa la temperatura en °Celsius:"))
fahrenheit = (celsius * 9 / 5) + 32
print(fahrenheit,"°F")
```

```
86.0 °F
```

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Exercici 3: Comptador de paraules d'un text.

```
textInput = str(input("Ingresa el texto del que quieras contar las palabras:"))
palabras = textInput.split()
numeroDePalabras = len(palabras)
print("Número de palabras:", numeroDePalabras)
```

```
Número de palabras:  2
```

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Exercici 4: Diccionari invers.

```
def invert_dict(dictionary):
    inverted_dict = {value: key for key, value in dictio-
nary.items()}
    return inverted_dict

def check_duplicates(dictionary):
    if len(set(dictionary.values())) != len(dictionary):
        print("Se encontraron valores repetidos.")

OriginalDictionary = {'a': 1, 'b': 2, 'c': 3, 'd': 5, 'e': 5,
}
invertedDictionary = invert_dict(OriginalDictionary)

print("Diccionario original:", OriginalDictionary)
print("Diccionario inverso:", invertedDictionary)
check_duplicates(OriginalDictionary)
```

```
Diccionario original: {'a': 1, 'b': 2, 'c': 3, 'd': 5, 'e': 5}
Diccionario inverso: {1: 'a', 2: 'b', 3: 'c', 5: 'e'}
Se encontraron valores repetidos.
```

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NIVELL 2
Exercici 1: Diccionari invers amb duplicats

```
OriginalDictionary = {'a': 1, 'b': 2, 'c': 3, 'd': 2, 'e': 3,
'f': 1}

def check_duplicates(dictionary):
    seen = []
    duplicated = []

    for value in dictionary.values():
        if value in seen:
            duplicated.append(value)
        else:
            seen.append(value)

    return duplicated

print("Duplicated numbers: ", check_duplicates(OriginalDictio-
nary))
```

```
Duplicated numbers:  [2, 3, 1]
```

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NIVELL 3
Exercici 1: Comptador i endreçador de paraules d'un text.

```
from collections import Counter
import string

def WordCounter(filename):
    with open(filename, 'rt') as file:
        text = file.read()

    text = text.translate(str.maketrans('', '',
string.punctuation))
    text = text.lower()
    words = text.split()
    words = [word for word in words
             if not word.startswith('¡')]
    word_counter = Counter(words)

    alphabetically_organized = {}
    for word, count in word_counter.items():
        letter = word[0]
        if letter not in alphabetically_organized:
            alphabetically_organized[letter] =
[(word, count)]
        else:
            alphabetically_organized[letter].appen-
d((word, count))

    return alphabetically_organized

filename = '/Users/kiku/Desktop/ItAcademy/S7
Python/tu_me_quieres_blanca.txt'
wordList = WordCounter(filename)

for letter, words_list in sorted(wordList.items()):
    print(f"{letter}:")
    for word, count in sorted(words_list):
        print(f"  '{word}': {count}")
```

```
a:
 'a': 3
 'agua': 1
 'al': 2
 'alba': 4
 'alcobas': 1
 'alimenta': 1
 'alma': 1
 'amarga': 1
 'azucena': 1
b:
 'baco': 1
 'banquete': 1
 'bebe': 1
 'blanca': 3
 'boca': 1
 'bosques': 1
 'buen': 1
c:
 'cabañas': 1
 'carnes': 2
 'casta': 3
 'cerrada': 1
 'con': 4
 'conservas': 1
...
 'vete': 1
 'vive': 1
y:
 'y': 5
```

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NIVELL 2
Exercici 2: Conversió de tipus de dades

```
def filterNumbers(inputList):
    floatNumbers = []
    nonFloatNumbers = []

    for element in inputList:
        if isinstance(element,str):
            try:
                floatElement = float(element)
                floatNumbers.append(floatElement)
            except ValueError:
                nonFloatNumbers.append(element)
        else:
            nonFloatNumbers.append(element)

    return floatNumbers, nonFloatNumbers

myList = [ '1.3', 'one' , '1e10' , 'seven', '3-1/2',
('2',1,1.4,'not-a-number'), [1,2,'3','3.4']]
floats, nonFloats = filterNumbers(myList)

print("Números float: ", floats)
print("Números no convertibles: ", nonFloats)
```

```
Números float:  [1.3, 10000000000.0]
Números no convertibles:  ['one', 'seven', '3-1/2', ('2', 1, 1.4, 'not-a-number'), [1, 2, '3', '3.4']]
```