Technische Hochschule Ingolstadt, WI
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Software Development (Winter 25/26)

Assignment 03

Bonus points can be claimed until November 3rd 2025, 09:25 AM

Exercise 1 *(While-Loops, 2 Points)*

Calculate simple statistics on a list of integers. Write a programm that lets the user enter integers until he or she enters "stop". The numbers entered are to be stored in a list. Then, using a for loop, calculate the following statistics on this list:

- Minimum
- Maximum
- Mean

Example: The results for the entered sequence `3, 7, 2, 'stop'` should be: minimum → 2, maximum → 7, mean → 4

Exercise 2 *(Loop conversions, 2 Points)*

Carry out the following conversions between loop types.

a) Convert the following list comprehension into a normal for loop.

```
customers = [
    ["Max", "Mustermann", "01.01.83"],
    ["Martina", "Musterfrau", "02.02.84"],
    ["Gabi", "Meier", "03.03.85"]
]

last_names = [person[1] for person in customers]
```

b) Convert the following for loop into a while loop.

```
numbers = [1, 4, 2, 8, 5]
squared_numbers = []

for number in numbers:
  squared_numbers.append(number * number)
```

c) Convert the following while loop into a for loop.

```
import random

secret_number = random.randint(1, 100) # Generate random number
guess = 0

while guess != secret_number:
  guess = int(input("Guess a number between 1 and 100: "))
  if guess > secret_number:
    print("Too high! Guess again.")
  elif guess < secret_number:
    print("Too low! Guess again.")
  else:
    print("You guessed it! The number was", secret_number)
```

Exercise 3 *(Word-Count, 1 Points)*

Count how often the individual words of a short text occur in it. To do this, write a programm that breaks down *one* string into its words. Then output the frequency of the individual words to the user.
Example: For the string "I study at THI and I have fun", the output to the user should look similar to: I: 2, study: 1, at: 1, THI: 1, and: 1, I: 2, have: 1, fun: 1.
Tip: Use the function `count()` defined on lists.