1 : sehr einfach
5 : sehr schwer

48060

1

Fakultät berechnen

```
def compute(value: int) -> int:
    if value == 1:
        return 1
    return compute(value - 1) * value
```

Figure 1: factorialMT

2

```
def compute(input: str) -> str:
    a: str = ""
    b: str = ""
    for i in range(len(input) - 1, -1, -1):
        a = input[i] + a
        b = b + input[i]
    return a + b
```

Figure 2: forwardBackwardMT

1
Anzahl gleiche Buchstaben an gleicher Stelle

```
def compute(first_input: str, second_input: str) -> int:
    counter: int = 0
    if len(first_input) < len(second_input):
        length_shortest_input: int = len(first_input)
    else:
        length_shortest_input: int = len(second_input)
    for i in range(length_shortest_input):
        if first_input[i] == second_input[i]:
            counter += 1
    return counter
```

Figure 3: commonCharsMT

```
def compute(word: str, substring: str) -> bool:
    for i in range(len(word)):
        for j in range(len(substring)):
            if i + j >= len(word):
                break
            if word[i + j] != substring[j]:
                break
            else:
                if j == len(substring) - 1:
                    return True
    return False
```

2
Check ob Substring enthalten

Figure 4: containsSubstringMT

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1
check wie oft Buchstaben vorkommen

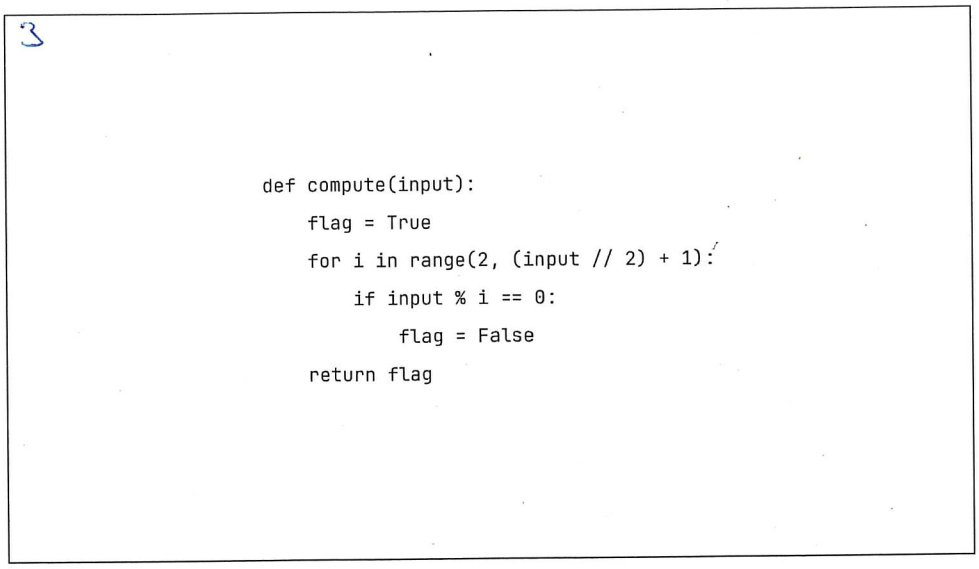
```
def compute(word: str, letters: list[str]) -> int:
    letterCount: int = 0
    for i in range(len(word)):
        for j in range(len(letters)):
            if word[i] == letters[j]:
                letterCount += 1
    return letterCount
```

Figure 5: countLettersMT

1
Durchschnitt

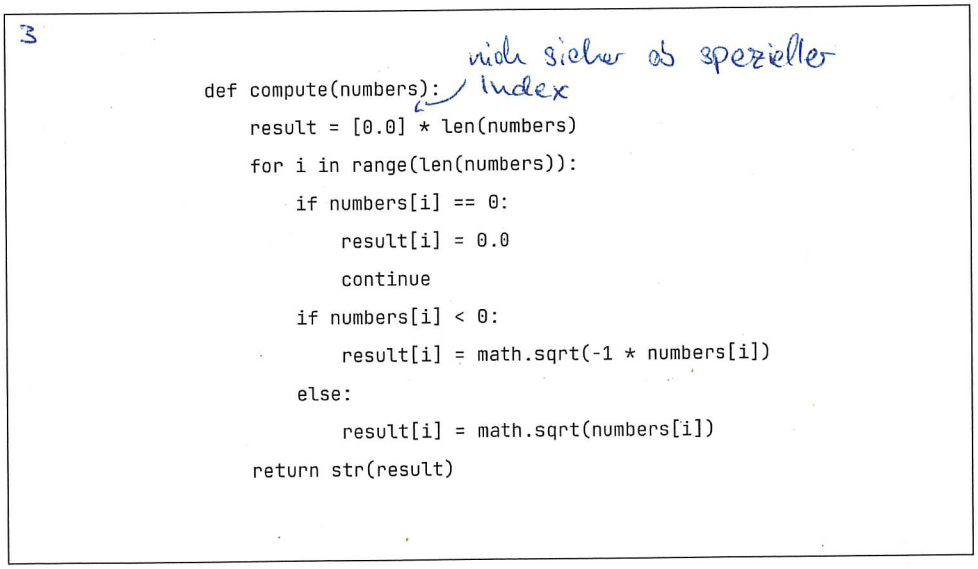
```
def compute(numbers: list[int]) -> float:
    counter: int = 0
    sum: int = 0
    while counter < len(numbers):
        sum = sum + numbers[counter]
        counter = counter + 1
    result: float = sum / counter
    return result
```

Figure 6: arrayAverageMT



```
def compute(input):
    flag = True
    for i in range(2, (input // 2) + 1):
        if input % i == 0:
            flag = False
    return flag
```

Figure 7: primeMN



```
def compute(numbers):
    result = [0.0] * len(numbers)
    for i in range(len(numbers)):
        if numbers[i] == 0:
            result[i] = 0.0
            continue
        if numbers[i] < 0:
            result[i] = math.sqrt(-1 * numbers[i])
        else:
            result[i] = math.sqrt(numbers[i])
    return str(result)
```

Figure 8: squareRootMN

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4

```
def compute(sentence: str) -> str:
    result: list[int] = []
    words: list[str] = sentence.split()
    for i in range(len(words)):
        if i > 0:
            result.append(" ")
        result.append(words[i][0].upper() + words[i][1:])
    return "".join(result)
```

wusste nicht wel genau was split macht

Figure 9: capitalizeFirstLetterMT

2

a^b

```
def compute(a: int, b: int) -> int:
    if b == 0:
        return 1
    if b == 1:
        return a
    return a * compute(a, b - 1)
```

Figure 10: powerMT

2
prüft wie viele Nummern im Intervall liegen

```
def compute(string, start, end):
    result = 0
    keys = string.split(" ")
    for i in range(len(keys)):
        key = int(keys[i])
        check = (key >= start and key <= end)
        if check:
            result += 1
    return result
```

Figure 11: countIntegerIntervalMN

2
prüft ob Wort ein Palindrom (? sowas wie Otto) ist

```
def compute(word):
    result = True
    for i in range(0, len(word) // 2):
        j = len(word) - 1 - i
        if word[i] != word[j]:
            result = False
            break
    return result
```

Figure 12: palindromeMN

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4

prüft ob Klammern aufgehen

append/push / pop durcheinander geworfen

```
def compute(sentence):
    stack = []
    for i in sentence:
        if i == '(':
            stack.append(')')
        elif i == '{':
            stack.append('}')
        elif i == '[':
            stack.append(']')
        elif len(stack) == 0 or stack.pop() != i:
            return False
    return len(stack) == 0
```

Figure 13: validParenthesesMN

3

Sucht Position von key (hat auch speziellen Namen der mir grad nicht einfällt)

```
def compute(array, key):
    index1 = 0
    index2 = len(array) - 1
    while index1 <= index2:
        m = (index1 + index2) // 2
        if key < array[m]:
            index2 = m - 1
        elif key > array[m]:
            index1 = m + 1
        else:
            return m
    return -1
```

Figure 14: binarySearchMN

3
eigentlich Quersumme

```
def compute(number):
    if number == 0:
        return 0
    return (number % 10) + compute(number // 10)
```

Überschrift in der Studie

Figure 15: crossSumMN

1
findet Position von x in Liste

```
def compute(array: list[int], x: int) -> int:
    for i in range(len(array)):
        if array[i] == x:
            return i
    return -1
```

Figure 16: linearSearchMT

4
Im nachhinein Konversion von Binär zu Dezimal

```
def compute(number):
    if number == "0":
        return 0
    if number == "1":
        return 1
    if number[-1] == "0":
        return 2 * compute(number[:-1])
    if number[-1] == "1":
        return 1 + 2 * compute(number[:-1])
    return -1
```

wusste Listenindex Bedeutung nicht mehr

Figure 17: binaryToDecimalMN

2
Sortiere nach Größe absteigend

```
def compute(a: int, b: int, c: int, d: int) -> list[int]:
    if a > b:
        b, a = a, b
    if c > d:
        d, c = c, d
    if a > c:
        c, a = a, c
    if b > d:
        d, b = b, d
    if b > c:
        c, b = b, c
    return [a, b, c, d]
```

Figure 18: unrolledSortMT

2
sortiese nach Größe aufsteigend

```
def compute(array: list[int]) -> list[int]:
    for i in range(len(array)):
        for j in range(i, 0, -1):
            if array[j-1] > array[j]:
                array[j-1], array[j] = array[j], array[j-1]
    return array
```

Figure 19: bubbleSortMT

1
kgV

```
def compute(number1: int, number2: int) -> int:
    result: int = number1 * number2
    for i in range(1, number1 * number2):
        if i % number1 == 0 and i % number2 == 0:
            result = i
            break
    return result
```

Figure 20: leastCommonMultipleMT