

3

```
def compute(array):  
    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 1: bubbleSortMN

1

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

Figure 2: leastCommonMultipleMN

4

```

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

```

Figure 3: binarySearchMT

2

```

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

```

Figure 4: linearSearchMT

4

```

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

```

Figure 5: containsSubstringMT

3

```

def compute(numbers: list[int]) -> str:
    result: list[float] = [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 6: squareRootMT

1

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

Figure 7: crossSumMT

3

```
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 8: validParenthesesMN

2

```
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 9: commonCharsMT

3

```
def compute(number: str) -> int:
    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
```

Figure 10: binaryToDecimalMT

2

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

Figure 11: powerMT

3

```
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 12: unrolledSortMT

```
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 13: countIntegerIntervalMN

```
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 14: countLettersMT

```
def compute(sentence: str) -> str:
    result: list[str] = []
    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)
```

Figure 15: capitalizeFirstLetterMT

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

Figure 16: factorialMN


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

Figure 17: arrayAverageMN

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

Figure 18: primeMT

```
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 19: palindromeMN

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

Figure 20: forwardBackwardMN