

**TASK REPORT**  
**ALGORITHMS AND DATA STRUCTURE**  
**WEEK 4**



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## TASK

### 1. Write a Python program to find the longest word in a given String.

```
Week4 > 📄 coba1.py > ...
1  # A program to find the longest word in a given string
2
3  def find_longest_word(kalimat):
4      """Find the longest word in the given sentence."""
5      words = kalimat.split() # Split the sentence into words
6      longest_word = max(words, key=len) # Find the word with the maximum length
7      return longest_word
8
9  # Example usage
10 input_sentence = "I love to learn python"
11 longest_word = find_longest_word(input_sentence)
12 print(f'The longest word is "{longest_word}")
13
14 # Example usage 2
15 input_sentence1 = "I am a python programmer"
16 longest_word = find_longest_word(input_sentence1)
17 print(f'The longest word is "{longest_word}")
18
19 print('\n--- Oleh L200234275 ---')
```

Picture 1.1 the code.

```
PS D:\Semester 4\Algorithm_and_structuredata> & C:/Users/Acer/AppData/Local/Programs/Python/Python311/python.exe "d:/Semester 4/Algorithm_and_structuredata/Week4/coba1.py"
The longest word is "python"
The longest word is "programmer"
--- Oleh L200234275 ---
```

Picture 1.2 the output.

### 2. Write a Python program to find one missing number in a given array of numbers between 1 and 10.

```
1  # A program to find one missing number in a given array of numbers between 1 and 10
2
3  def find_missing_number(arr):
4      """Find the missing number in the given array."""
5      expected_sum = sum(range(1, 11)) # Sum of numbers from 1 to 10
6      actual_sum = sum(arr) # Sum of numbers in the given array
7      missing_number = expected_sum - actual_sum # The difference is the missing number
8      return missing_number
9
10 # Example usage
11 input_array = [1, 2, 3, 4, 5, 6, 8, 9, 10]
12 missing_number = find_missing_number(input_array)
13 print(f'Missing number is {missing_number}')
14
15 # Example usage 2
16 input_array1 = [1, 3, 4, 5, 6, 7, 8, 9, 10]
17 missing_number = find_missing_number(input_array1)
18 print(f'Missing number is {missing_number}')
19
20 print('\n--- Oleh L200234275 ---')
```

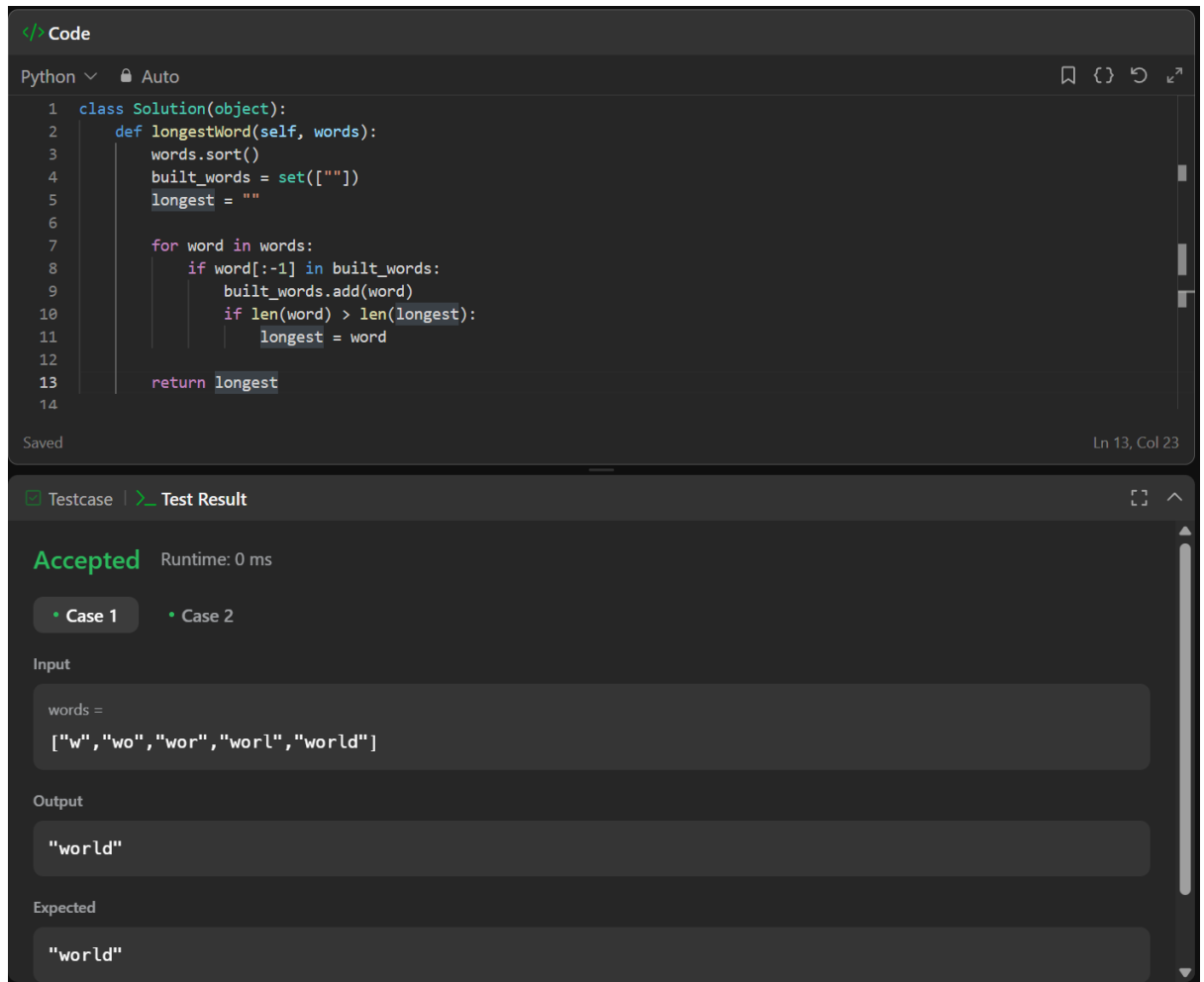
Picture 2.1 the code.

```
PS D:\Semester 4\Algorithm_and_structuredata> & C:/Users/Acer/AppData/Local/Programs/Python/Python311/python.exe "d:/Semester 4/Algorithm_and_structuredata/Week4/coba2.py"
Missing number is 7
Missing number is 2
--- Oleh L200234275 ---
```

Picture 2.2 the output.

## Letcode

### 1. Longest Word in Dictionary



The screenshot shows a LeetCode interface with a Python solution for the 'Longest Word in Dictionary' problem. The code is as follows:

```
1 class Solution(object):
2     def longestWord(self, words):
3         words.sort()
4         built_words = set([""])
5         longest = ""
6
7         for word in words:
8             if word[:-1] in built_words:
9                 built_words.add(word)
10                if len(word) > len(longest):
11                    longest = word
12
13        return longest
14
```

Below the code editor, the 'Testcase' tab is selected, showing 'Test Result'. The status is 'Accepted' with a runtime of 0 ms. Two test cases are listed: 'Case 1' (selected) and 'Case 2'. For 'Case 1', the input is `words = ["w", "wo", "wor", "worl", "world"]`, the output is `"world"`, and the expected result is `"world"`.

## 2. Missing Number

Code

Python Auto

```
1 class Solution(object):
2     def missingNumber(self, no):
3         h = len(no)
4         jum_harapkan = h * (h + 1) // 2
5         jum_akt = sum(no)
6         missing_number = jum_harapkan - jum_akt
7         return missing_number
8
```

SavedLn 3, Col 20

TestcaseTest Result

Case 1Case 2Case 3

Input

nums =  
[3,0,1]

Output

2

Expected

2

Contribute a testcase