List Comprehension.md 2025-03-05

## **ℒ** List Comprehension Challenges with Lists & Nested Lists Only **⑥**

## **Example Lists Used:**

```
nested_numbers = [[10, 15, 21], [33, 40, 45], [50, 60, 75]]
matrix = [[4, 3, 8], [5, 6, 7], [9, 11, 13]]
words_list = [["madam", "level", "python"], ["racecar", "wow", "data"]]
numbers_list = [[10, 20, 30], [1, 2, 3], [5, 15, 25]]
sentence_list = [["Python", "is", "fun"], ["AI", "rocks", "comprehension"]]
grid = [[(x, y) for y in range(3)] for x in range(3)]
```

## **Challenges:**

- 1 Extract all odd numbers from a nested list and square them.
- 2 Flatten a matrix and keep only the prime numbers.
- 3 Find all words that are palindromes inside a nested word list.
- 4 Filter out words with less than 4 letters and return a flattened list.
- [5] Generate a new list containing the sum of corresponding elements in two nested lists.
- 6 Extract unique vowels from all words in a nested list.
- **7** Find all numbers in a nested list that are divisible by both 3 and 5.
- **8** Convert a nested list of words into their lengths but only for words longer than 3 letters.
- 9 Create a list of coordinate pairs from a 3x3 grid representation.
- 10 Reverse each word in a nested list, but only if it starts with a vowel.