

Assignment questions Day 10: Functions in Python,

1. Temperature Converter

- Create a function `convert_temperature` that takes two arguments: temperature and unit (e.g., "C" for Celsius, "F" for Fahrenheit, "K" for Kelvin).
- The function should convert the given temperature to the other two units and return them as a tuple.

2. Grade Calculator

- Create a function `calculate_grade` that takes a list of scores as input.
- The function should calculate the average score and return the corresponding letter grade (e.g., A, B, C, D, F) based on a grading scale.

3. Prime Number Checker

- Create a function `is_prime` that takes an integer as input.
- The function should return True if the number is prime and False otherwise.
- Use this function within another function `find_primes` that takes a range (start and end) as input and returns a list of all prime numbers within that range.

4. Character Counter

- Create a function `count_characters` that takes a string as input.
- The function should return a dictionary where keys are characters and values are the number of occurrences of each character in the string.

5. Fibonacci Sequence Generator

- Create a function `generate_fibonacci` that takes an integer `n` as input.
- The function should return a list containing the first `n` numbers of the Fibonacci sequence.

Instructions:

- Students should solve the problems individually or in pairs.
- Instruct students to explain their code and the logic behind their solutions to the class.
- Provide hints and guidance as needed, but encourage students to find solutions independently.

These exercises will help students practice:

- Defining and using functions with different argument types (positional, keyword).
- Working with control flow (if/else, loops).
- Handling data structures (lists, dictionaries).
- Applying recursive logic (in the challenge question).