Python Assignments: Functions and If Conditions

Assignment 1: Temperature Converter

Objective: Create a function that converts temperatures between Celsius and Fahrenheit.

Instructions:

1. Define a function `convert_temperature` that takes two arguments: `temperature` and `unit`.
2. If `unit` is `'C'`, convert the temperature to Fahrenheit.
3. If `unit` is `'F'`, convert the temperature to Celsius.
4. Use if conditions to determine the conversion formula.
5. Return the converted temperature.

Example:

```
convert_temperature(100, 'C')  # Output: 212.0
convert_temperature(32, 'F')   # Output: 0.0
```

Assignment 2: Grade Calculator

Objective: Write a function to calculate the grade based on a score.

Instructions:

1. Define a function `calculate_grade` that takes a single argument `score`.
2. Use if-elif-else conditions to determine the grade:
    - `A` for scores 90 and above
    - `B` for scores 80-89
    - `C` for scores 70-79
    - `D` for scores 60-69
    - `F` for scores below 60
3. Return the grade as a string.

Example:

```
calculate_grade(85)  # Output: 'B'
calculate_grade(72)  # Output: 'C'
```

Assignment 3: Even or Odd Checker

Objective: Create a function to check if a number is even or odd.

Instructions:

1. Define a function `is_even_or_odd` that takes an integer `number`.
2. Use an if condition to check if the number is even or odd.
3. Return `'Even'` if the number is even, and `'Odd'` if the number is odd.

Example:

```
is_even_or_odd(10)  # Output: 'Even'
is_even_or_odd(7)   # Output: 'Odd'
```

Assignment 4: Simple Calculator

Objective: Implement a basic calculator using functions and if conditions.

Instructions:

1. Define a function `simple_calculator` that takes three arguments: `num1`, `num2`, and `operation`.
2. Use if conditions to perform the operation:
   - `'add'` for addition
   - `'subtract'` for subtraction
   - `'multiply'` for multiplication
   - `'divide'` for division
3. Return the result of the operation.
4. Handle division by zero by returning `'Error: Division by zero'`.

Example:

```
simple_calculator(10, 5, 'add')       # Output: 15
simple_calculator(10, 5, 'subtract')  # Output: 5
simple_calculator(10, 5, 'multiply')  # Output: 50
simple_calculator(10, 0, 'divide')    # Output: 'Error: Division by zero'
```

Assignment 5: Leap Year Checker

Objective: Write a function to determine if a year is a leap year.

Instructions:

1. Define a function `is_leap_year` that takes an integer `year`.
2. Use if conditions to check if the year is a leap year:
   - A year is a leap year if it is divisible by 4, but not divisible by 100, except if it is also divisible by 400.
3. Return `True` if the year is a leap year, otherwise `False`.

Example:

```
is_leap_year(2020)  # Output: True
is_leap_year(1900)  # Output: False
is_leap_year(2000)  # Output: True
```

These assignments provide a good mix of practice with functions and conditional logic in Python. Feel free to adjust the complexity based on the learners' level.