MODULE & LIBRARIES

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INSPIRE INNOVATION

Module:
- A file containing code (functions, classes, variables, etc.) that can be imported and used in other Python programs.

Libraries:
- A collection of modules and packages that provide specific functionality.

MODULE & LIBRARIES

Module:

1. Create math_utils.py

```python
def add(a, b):
    """Add two numbers"""
    return a + b

def multiply(a, b):
    """Multiply two numbers"""
    return a * b

def factorial(n):
    """Calculate factorial of n"""
    if n <= 1:
        return 1
    return n * factorial(n - 1)

PI = 3.14159

class Calculator:
    def __init__(self):
        self.history = []

    def calculate(self, operation, a, b):
        if operation == "add":
            result = add(a, b)
        elif operation == "multiply":
            result = multiply(a, b)
        else:
            result = None

        self.history.append(f"{operation}({a}, {b}) = {result}")
        return result
```

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Module:

2. Import functions or class from math_utils.py

```
3    from math_utils import add, multiply, factorial, PI, Calculator
4
5    result = add(5, 3)
6    print(f"Addition Result: {result}")
```

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Libraries:

```python
 9    import os
10    import sys
11    import datetime
12    import random
13
14    sys.path.append(os.path.dirname(os.path.dirname(os.path.abspath(__file__))))
15
16    now = datetime.datetime.now()
17    today = datetime.date.today()
18    formatted_date = now.strftime("%Y-%m-%d %H:%M:%S")
19
20    print(f"Now date: {now}")
21    print(f"Today's Date: {today}")
22    print(f"Current Date and Time: {formatted_date}")
23
24    random_number = random.randint(1, 100)
25    random_choice = random.choice(['apple', 'banana', 'orange'])
26    random.shuffle([1, 2, 3, 4, 5])
27
28    print(f"Random Number: {random_number}")
29    print(f"Random Choice: {random_choice}")
30    print(f"Shuffled List: {[1, 2, 3, 4, 5]}")
```