Assignment – 7.5

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Task 1 : Mutable Default Argument – Function Bug

Prompt: Fix the code so that it does not use a mutable default argument.

Code:

```
#Fix the code so that it does not use a mutable default argument.
def add_item(item, items=None):
    if items is None:
        items = []
    items.append(item)
    return items
print(add_item(1))
print(add_item(2))
```

Output:

```
[1]
[2]
```

Task 2 (Floating-Point Precision Error)

Code:

```
import math
def check_sum():
    return math.isclose(0.1 + 0.2, 0.3)
print(check_sum())
```

Output:

```
True
```

Task 3: (Recursion Error – Missing Base Case)

Code:

```
def countdown(n):
    if n < 0:
        return
    print(n)
    return countdown(n-1)
countdown(5)
```

Output:

```
5
4
3
2
1
0
```

Task 4: (Dictionary Key Error)

Code:

```
def get_value():
    data = {"a": 1, "b": 2}
    return data.get("c", None)
print(get_value())
```

Output:

```
None
```

Task 5: (Infinite Loop – Wrong Condition)

Code:

```
def loop_example():
    i = 0
    while i < 5:
        print(i)
        i += 1

loop_example()
```

Output:

```
0
1
2
3
4
```

Task 6: (Unpacking Error – Wrong Variables)

Code:

```
a, b, c = (1, 2, 3)
print(a,b,c)
```

Output:

```
1 2 3
```

Task 7: (Mixed Indentation – Tabs vs Spaces)

Code:

```
def func():
    x = 5
    y = 10
    return x+y
func()
```

Output:

Task 8: (Import Error – Wrong Module Usage)

Code:

```
import math
print(math.sqrt(16))
```

Output:

```
4.0
```

Task 9: (Unreachable Code – Return Inside Loop)

Code:

```
def total(numbers):
    result = 0
    for n in numbers:
        result += n
    return result
print(total([1,2,3]))
```

Output:

```
6
```

Task 10: (Name Error – Undefined Variable)

Code:

```
def calculate_area(length, width):
    return length * width
print(calculate_area(5, 10))
```

Output:

```
50
```

Task 11: (Type Error – Mixing Data Types Incorrectly)

Code:

```
def add_values():
    return 5 + int("10")
print(add_values())
```

Output:

```
15
```

Task 12: (Type Error – String + List Concatenation)

Code:

```
def combine():
    return "Numbers: " + str([1, 2, 3])
print(combine())
```

Output:

```
Numbers: [1, 2, 3]
```

Task 13: (Type Error – Multiplying String by Float)

Code:

```
def repeat_text():
    return "Hello" * int(2.5)
print(repeat_text())
```

Output:

```
HelloHello
```

Task 14: (Type Error – Adding None to Integer)

Code:

```
def new_func():
    def compute():
        value = 0
        return value + 10

    print(compute())

new_func()
```

Output:

```
10
```

Task 15: (Type Error – Input Treated as String Instead of Number)

Code:

```
def sum_two_numbers():
    a = int(input("Enter first number: "))
    b = int(input("Enter second number: "))
    return a + b

print(sum_two_numbers())
```

Output:

```
Enter first number: 10
Enter second number: 23
33
```