# AI ASSISTED CODING

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**BATCH – 03** **06 – 02 – 2026**

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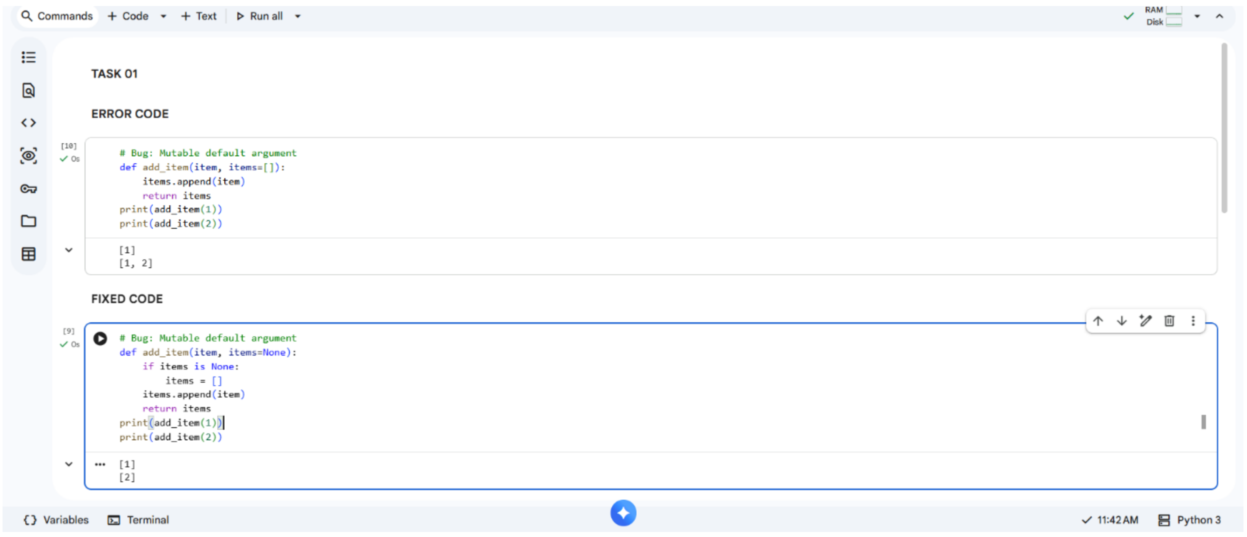
## ASSIGNMENT – 7.5

**Lab – 07 :** Error Debugging with AI : Systematic Approaches to finding and fixing bugs.

**Task – 01 :** Mutable Default Argument – Function Bug.



TASK 01

ERROR CODE

```
# Bug: Mutable default argument
def add_item(item, items=[]):
    items.append(item)
    return items
print(add_item(1))
print(add_item(2))
```

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

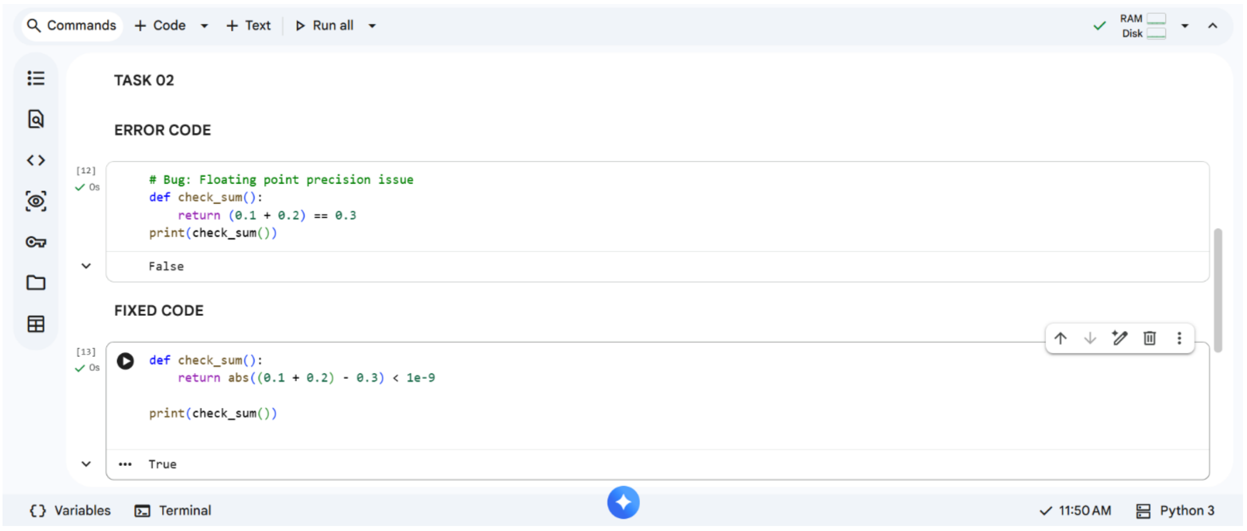
FIXED CODE

```
# Bug: 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))
```

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

**Explanation :** The above error occurs because the above list items are created only once and it is Reused.

**Task – 02 :** Floating – Point Precision Error.



TASK 02

ERROR CODE

```
# Bug: Floating point precision issue
def check_sum():
    return (0.1 + 0.2) == 0.3
print(check_sum())
```

```
False
```

FIXED CODE

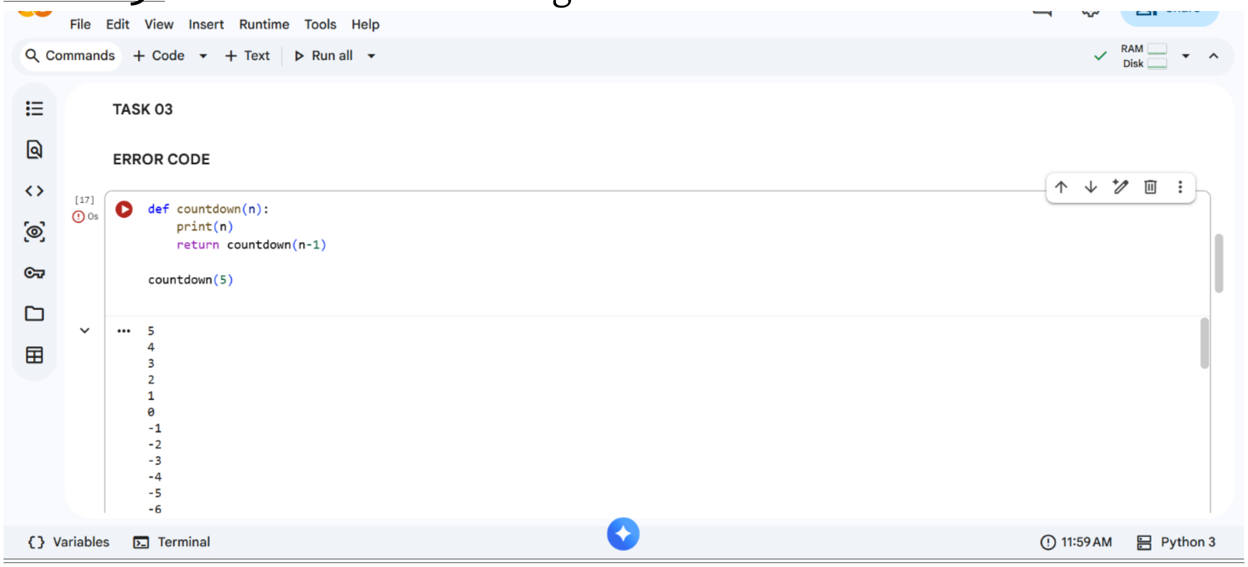
```
def check_sum():
    return abs((0.1 + 0.2) - 0.3) < 1e-9

print(check_sum())
```

```
True
```

**Explanation :** The above error occurs because Float – Point Numbers cannot be Compared Directly. So, it is Fixed Using Tolerance.

**Task – 03 :** Recursion Error – Missing base Case.



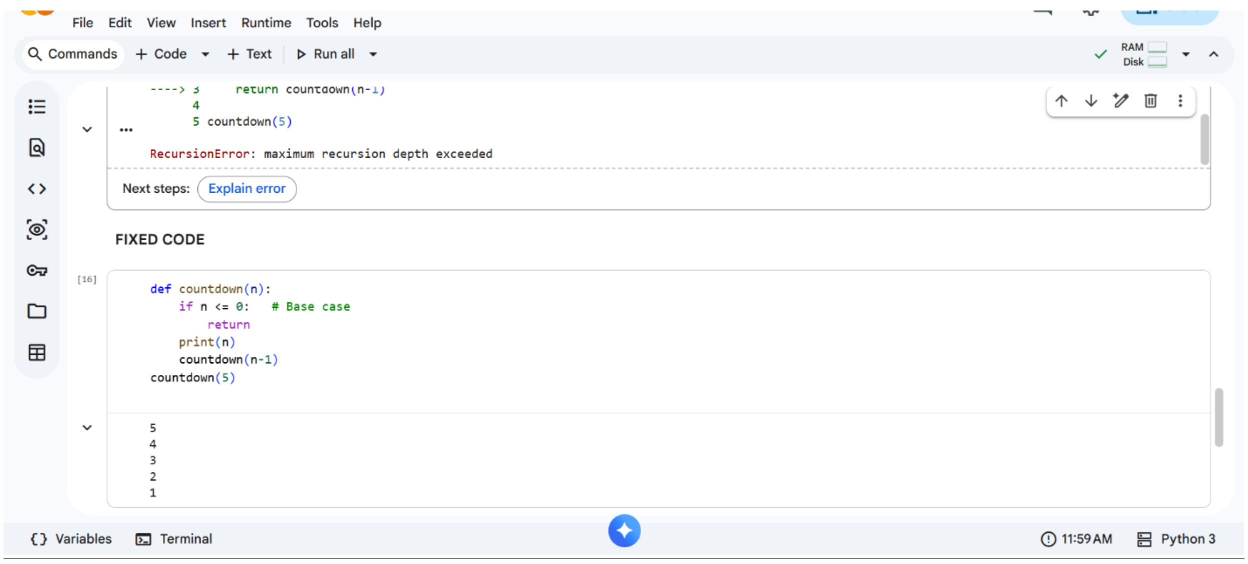
TASK 03

ERROR CODE

```
def countdown(n):
    print(n)
    return countdown(n-1)

countdown(5)
```

```
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
```



```
----> 3     return countdown(n-1)
      4
      5 countdown(5)

RecursionError: maximum recursion depth exceeded
```

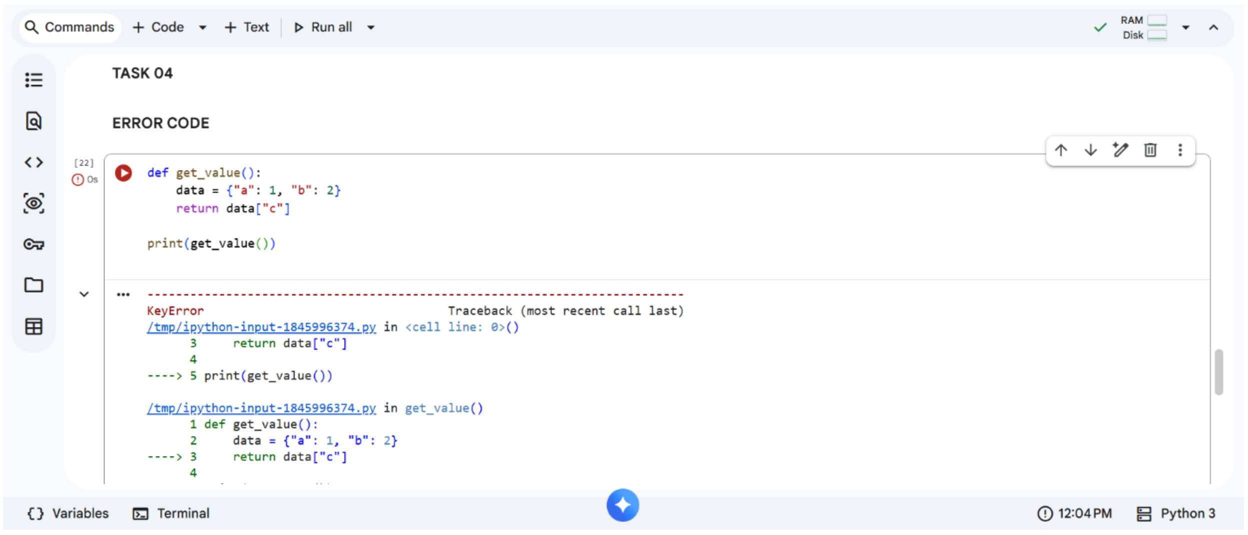
FIXED CODE

[16]
```python
def countdown(n):
    if n <= 0:   # Base case
        return
    print(n)
    countdown(n-1)
countdown(5)
```

```
5
4
3
2
1
```

**Explanation :** The above error occurs because in the error code there is no stopping condition it has infinite loop. So, fixed it using loop condition.

**Task – 04 :** Dictionary key Errors.



TASK 04

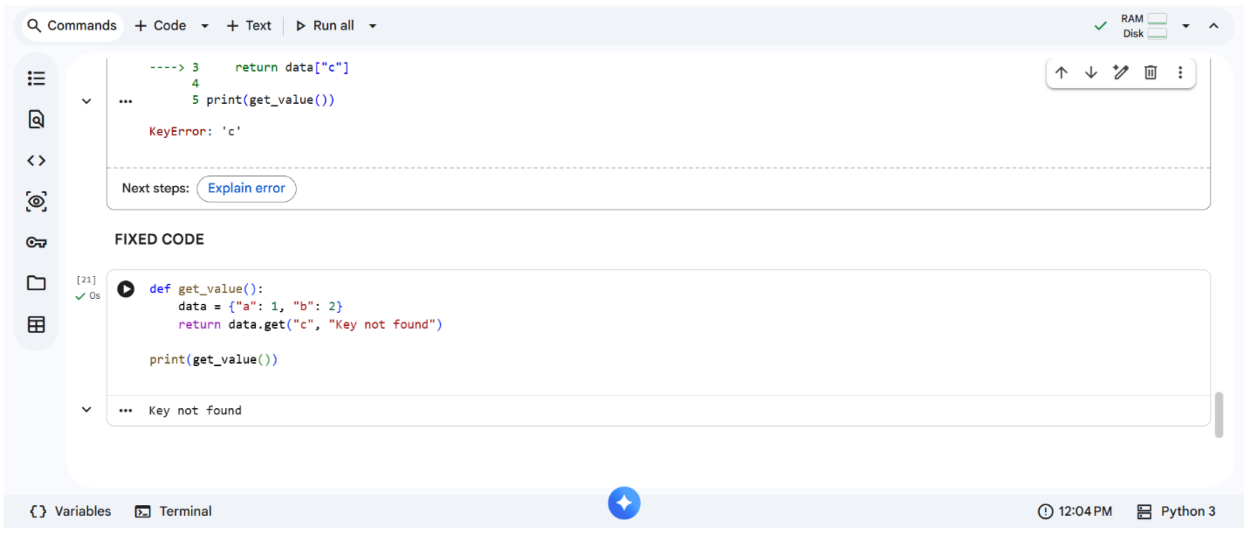
ERROR CODE

[22] 0s
```python
def get_value():
    data = {"a": 1, "b": 2}
    return data["c"]

print(get_value())
```

```
---------------------------------------------------------------------------
KeyError                                  Traceback (most recent call last)
/tmp/ipython-input-1845996374.py in <cell line: 0>()
      3     return data["c"]
      4
----> 5 print(get_value())

/tmp/ipython-input-1845996374.py in get_value()
      1 def get_value():
      2     data = {"a": 1, "b": 2}
----> 3     return data["c"]
      4
```



```
----> 3     return data["c"]
      4
      5 print(get_value())

KeyError: 'c'
```

Next steps: Explain error

FIXED CODE

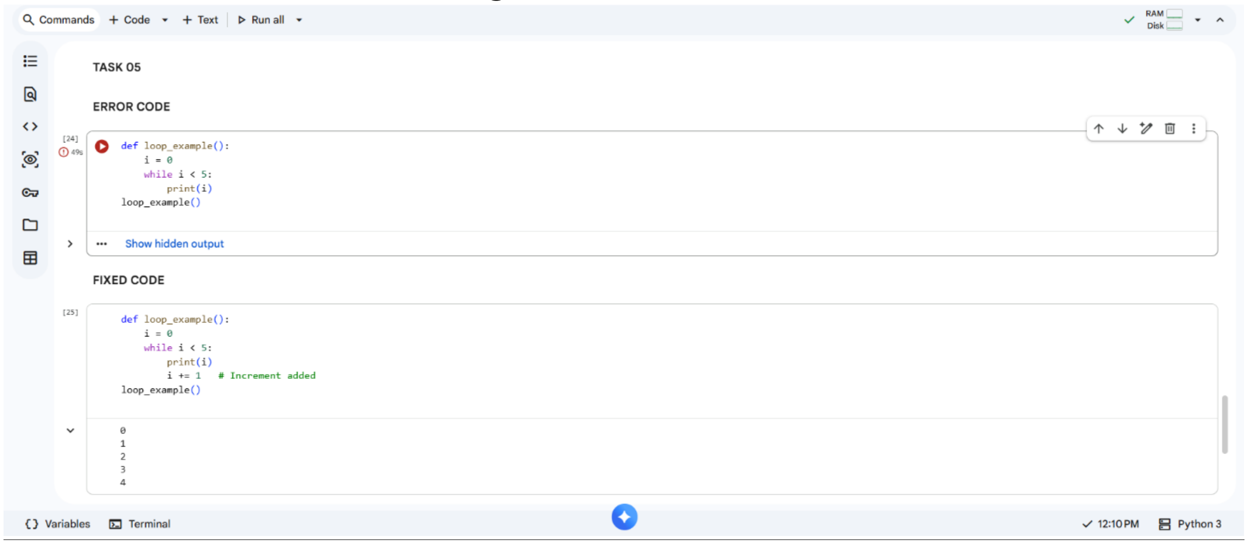
```
def get_value():
    data = {"a": 1, "b": 2}
    return data.get("c", "Key not found")

print(get_value())
```

```
Key not found
```

**<u>Explanation:</u>** The above Error occurs in the above code is key Error because it has accessing the key which is not existed. So, Fixed it using returning None value or Key Not Found Method.

**<u>Task – 05:</u>** Infinite Loop – Wrong Condition.



TASK 05

ERROR CODE

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

Show hidden output

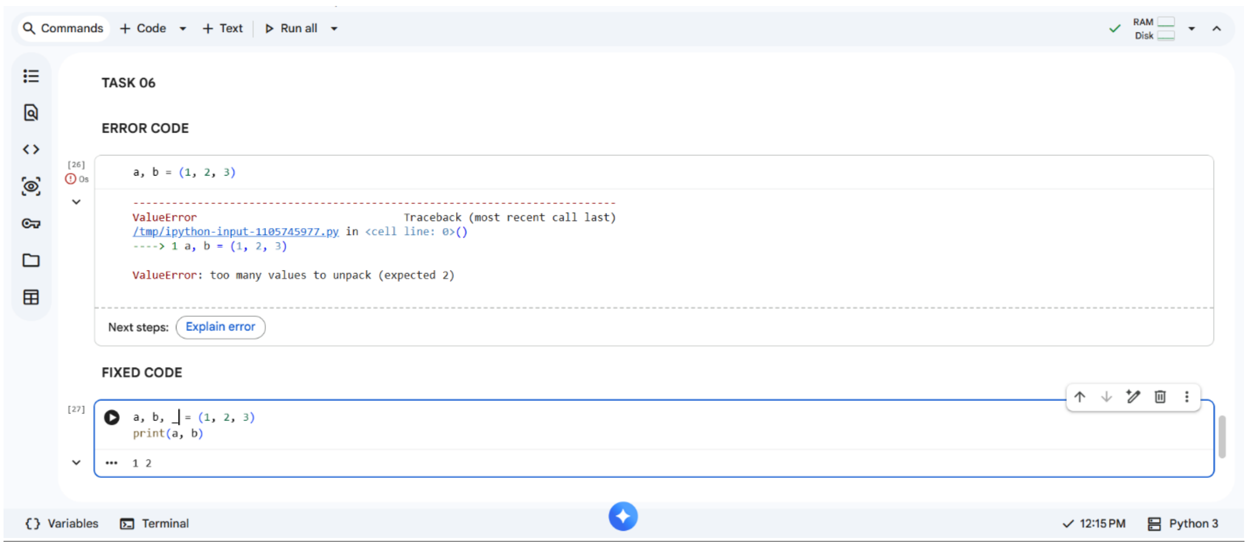
FIXED CODE

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

```
0
1
2
3
4
```

**<u>Explanation:</u>** The above Error occurs in the above code because in the above loop the "I" is never incremented in the loop variable. So, the code is fixed by incrementing the "I" in the loop.

**<u>Task – 06:</u>** Unpacking Error – Wrong variables.



TASK 06

ERROR CODE

```
[26]
a, b = (1, 2, 3)
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
/tmp/ipython-input-1105745977.py in <cell line: 0>()
----> 1 a, b = (1, 2, 3)

ValueError: too many values to unpack (expected 2)
```

Next steps: Explain error

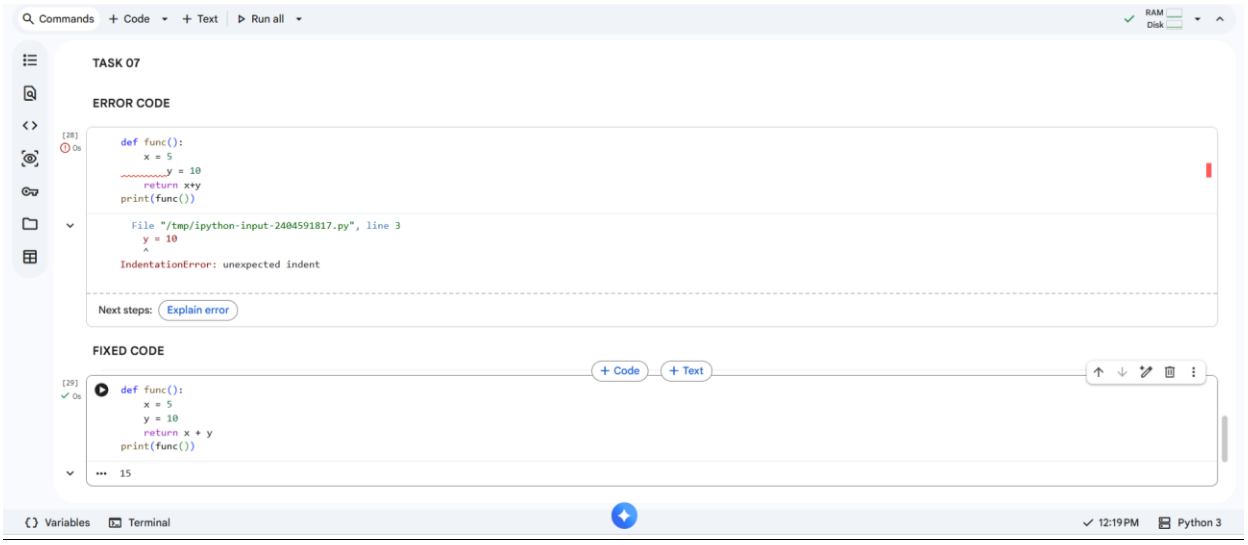
FIXED CODE

```
[27]
a, b, _ = (1, 2, 3)
print(a, b)
```

```
1 2
```

**<u>Explanation:</u>** The above Error occurs in the above code because it has too many values to unpack. So, fixed the above code using packing method.

**<u>Task – 07:</u>** Mixed Indentation – Tabs vs Spaces.



TASK 07

ERROR CODE

```
[28]
def func():
    x = 5
        y = 10
    return x+y
print(func())
```

```
  File "/tmp/ipython-input-2404591817.py", line 3
    y = 10
    ^
IndentationError: unexpected indent
```

Next steps: Explain error

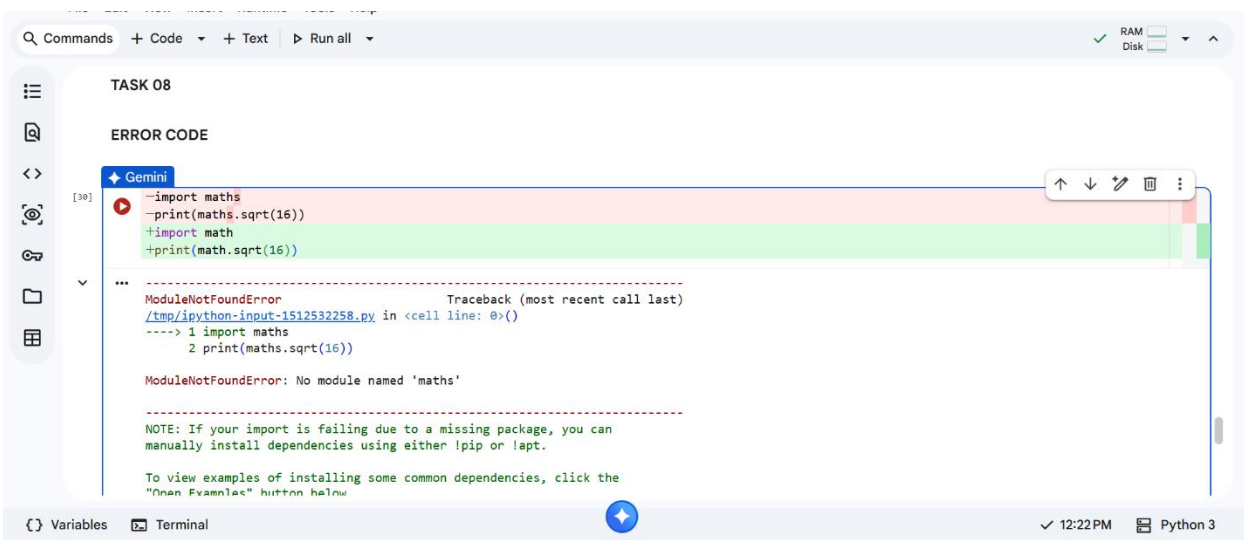
FIXED CODE

```
[29]
def func():
    x = 5
    y = 10
    return x + y
print(func())
```

```
15
```

**<u>Explanation:</u>** The above error occurs in the above code because, python does not allows the mixing tabs and spaces. So, it is fixed by consisting only 4 spaces systematically.

**<u>Task – 08:</u>** Import Error – Wrong Module Usage.



TASK 08

ERROR CODE

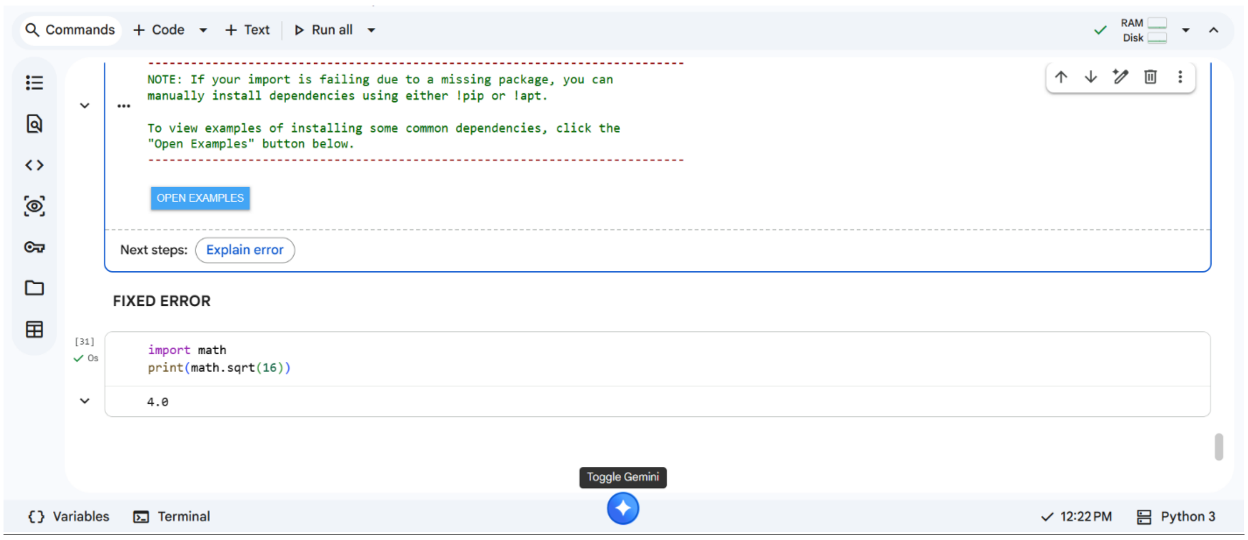
```
[30]
-import maths
-print(maths.sqrt(16))
+import math
+print(math.sqrt(16))
```

```
---------------------------------------------------------------------------
ModuleNotFoundError                       Traceback (most recent call last)
/tmp/ipython-input-1512532258.py in <cell line: 0>()
----> 1 import maths
      2 print(maths.sqrt(16))

ModuleNotFoundError: No module named 'maths'

---------------------------------------------------------------------------
NOTE: If your import is failing due to a missing package, you can
manually install dependencies using either !pip or !apt.

To view examples of installing some common dependencies, click the
"Open Examples" button below.
```



```
---------------------------------------------------------------------------
NOTE: If your import is failing due to a missing package, you can
manually install dependencies using either !pip or !apt.

To view examples of installing some common dependencies, click the
"Open Examples" button below.
---------------------------------------------------------------------------
```

FIXED ERROR

```
[31]
import math
print(math.sqrt(16))

4.0
```

**Explanation:** The above error occurs in the above code because the module name is Incorrect. So, fixed it by renaming the module name correctly.