Problem statement 1: Write python code

A restaurant keeps a log of (eater_id, foodmenu_id) for all the diners. The eater_id is a unique number for every diner and foodmenu_id is unique for every food item served on the menu. Write a program that reads this log file and returns the top 3 menu items consumed. If you find an eater_id with the same foodmenu_id more than once then show an error.

Expected output:

1. **Code** that can handle the above problem statement
2. **Testcases** (with example log files) that checks the possible conditions and **unit test code to verify those**.
3. Code has to be submitted in your **github repository** (share the repo link).
4. Showcase a **code pattern/construct** that is used (optional, good to have) as part of README.md.

Problem 2: Debug the python code and fix it.

The task of the following code is to build a tree and print it. However, during printing the code goes in an infinite loop.

a) Identify why it goes in infinite loop

b) Provide a fix

```
# Build a Tree

## Why does this code go in an infinite loop?

class Node:
    children = []

    def __init__(self, name, parent=None):
        self.name = name
        self.parent = parent
        if parent is not None:
            parent.children.append(self)

    def __str__(self):
        return self.name
```

```
def printer(root, level=0):
    print("  "*level + "|-", root.name)
    for node in root.children:
        printer(node, level+1)

if __name__ == "__main__":
    root = Node("Root")
    node1 = Node("1",root)
    node11 = Node("1.1", node1)
    node12 = Node("1.2", node1)
    node13 = Node("1.3", node1)
    node14 = Node("1.4", node1)
    node15 = Node("1.5", node1)
    node2 = Node("2",root)
    node21 = Node("2.1", node2)
    node22 = Node("2.2", node2)
    node23 = Node("2.3", node2)
    node24 = Node("2.4", node2)
    node25 = Node("2.5", node2)

    printer(root)
```