Class Exercise:

GC

You are tasked with creating a class called GarbageBin that simulates a garbage bin in a residential area. The GarbageBin class should have the following functionalities:

1. Initialize the GarbageBin object with a capacity (maximum number of items it can hold) and an empty list to store the items.
2. Implement a method called add\_item(item) that adds a new item to the garbage bin. The method should check if the bin is already full. If it is full, print a message indicating that the bin is full and the item cannot be added. Otherwise, add the item to the bin.
3. Implement a method called empty\_bin() that removes all the items from the bin.
4. Implement a method called print\_contents() that prints the list of items currently in the bin.
5. Implement the \_\_del\_\_() method to display a message when the garbage bin object is being deleted by the garbage collector.

import gc

class GarbageBin:

    def \_\_init\_\_(self, capacity):

# Your code here

    def add\_item(self, item):

# Your code here

    def empty\_bin(self):

# Your code here

    def print\_contents(self):

# Your code here

    def \_\_del\_\_(self):

# Your code here

# Testing the GarbageBin class

bin1 = GarbageBin(5)

bin1.add\_item("Banana peel")

bin1.add\_item("Plastic bottle")

bin1.add\_item("Food wrapper")

bin1.print\_contents()

bin1.add\_item("Crisp packet")

bin1.add\_item("Paper cup")

bin1.print\_contents()

bin1.empty\_bin()

bin1.print\_contents()

# Deleting the object manually to trigger \_\_del\_\_()

del bin1

# Forcing garbage collection

gc.collect()

Expected output:

Added 'Banana peel' to the garbage bin.

Added 'Plastic bottle' to the garbage bin.

Added 'Food wrapper' to the garbage bin.

Items in the garbage bin:

Banana peel

Plastic bottle

Food wrapper

Added 'Crisp packet' to the garbage bin.

Added 'Paper cup' to the garbage bin.

Items in the garbage bin:

Banana peel

Plastic bottle

Food wrapper

Crisp packet

Paper cup

The garbage bin has been emptied.

Items in the garbage bin:

The garbage bin object is being deleted by the garbage collector.