

Practice: Code Quality

Q1. Code Review

It is common practice in industry that before someone's code gets merged into the main repository, one or two other engineers on the team (often more senior engineers) have to review the code. This is known as a Code Review.

Pretend that you are doing a Code Review of the following program for a co-worker. For each of the Code Smells listed below, provide examples that you see in their code and briefly describe the problem could be fixed.

```
python
class Inventory:
    def __init__(self):
        self.items = {}

    def add_item(self, i, quantity):
        if i in self.items:
            self.items[i] += quantity
        else:
            self.items[i] = quantity

    def remove_item(self, i, quantity):
        if i in self.items:
            if self.items[i] >= quantity:
                self.items[i] -= quantity
                if self.items[i] == 0:
                    del self.items[i]
            else:
                print("Error: Not enough quantity to remove.")
        else:
            print("Error: Item not found in inventory.")

    def view_inventory(self):
        if not self.items:
            print("Inventory is empty.")
        else:
            print("Inventory:")
            for item, quantity in self.items.items():
                print(f"{item}: {quantity} in stock")

def main():
    my_inventory = Inventory()

    while True:
        print("\nInventory Management System")
        print("1. Add Item")
        print("2. Remove Item")
        print("3. View Inventory")
        print("4. Quit")
        choice = input("Enter your choice: ")

        if choice == "1":
            item = input("Enter the item name: ")
            quantity = int(input("Enter the quantity to add: "))
            my_inventory.add_item(item, quantity)
            print(f"{quantity} {item}(s) added to the inventory.")

        elif choice == "2":
            item = input("Enter the item name: ")
            quantity = int(input("Enter the quantity to remove: "))
            my_inventory.remove_item(item, quantity)
```

```
elif choice == "3":
    my_inventory.view_inventory()

elif choice == "4":
    print("Goodbye!")
    break

else:
    print("Invalid choice. Please select a valid option.")

if __name__ == "__main__":
    main()
```

Q1.1. Don't Repeat Yourself

Q1.2. Comments Where Needed

Q1.3. Avoid Magic Numbers

Q1.4. Use Good Names

Q1.5. Don't Use Global Variables

Q1.6. Methods Should Return Results, not Print Them