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Part 2:

- Classes:

1. Guitar:

- Fields: serialNumber, price, builder, model, backWood, topWood

- Methods: createSound

2. Inventory:

- Fields: list of guitars

- Methods: addGuitar, searchBySerialNumber

-UML:

Guitar

-serialNumber: String
-price: Double
-builder: String
-model: String
-backWood: String
-topWood: String
+createSound(): void

Inventory

-guitars: List<Guitar>

+addGuitar(guitar: Guitar): void +searchBySerialNumber

(serialNumber: String): Guitar

Part 4:

- Static heap, the class objects and static variables are stored.
- Stack, the method calls, local variables, and object references are stored.
- Dynamic heap, the objects are stored.
- The objects in the program are obj1 and obj2.
- The state of obj1 is empty values for all fields.
- The state of obj2 is the values assigned during its constructor.
- No. Because obj1's fields are private and we can access all fields of obj1 in its class.