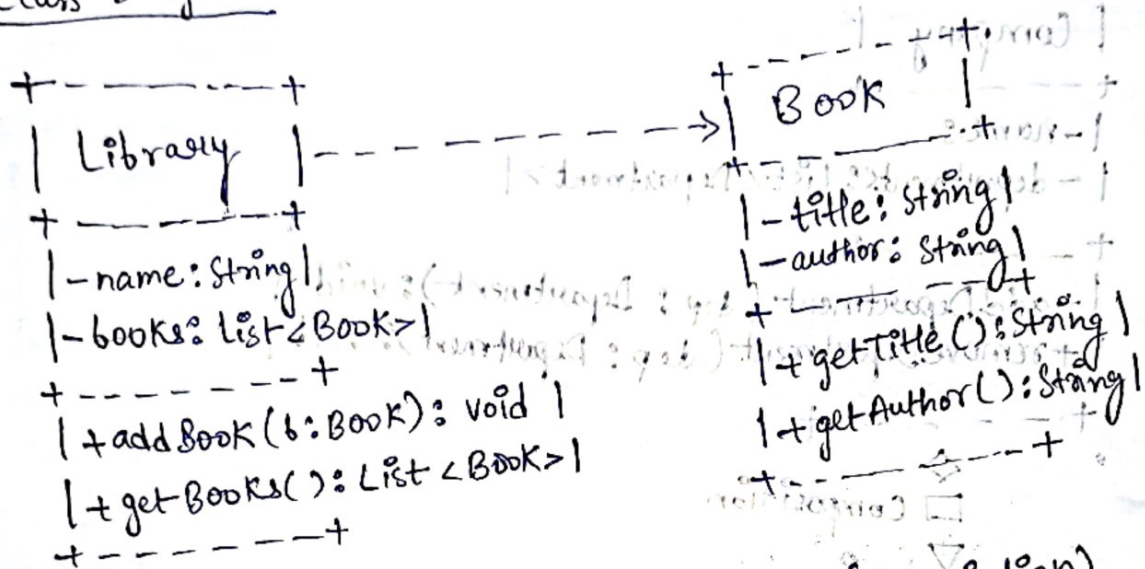


Assisted Problems

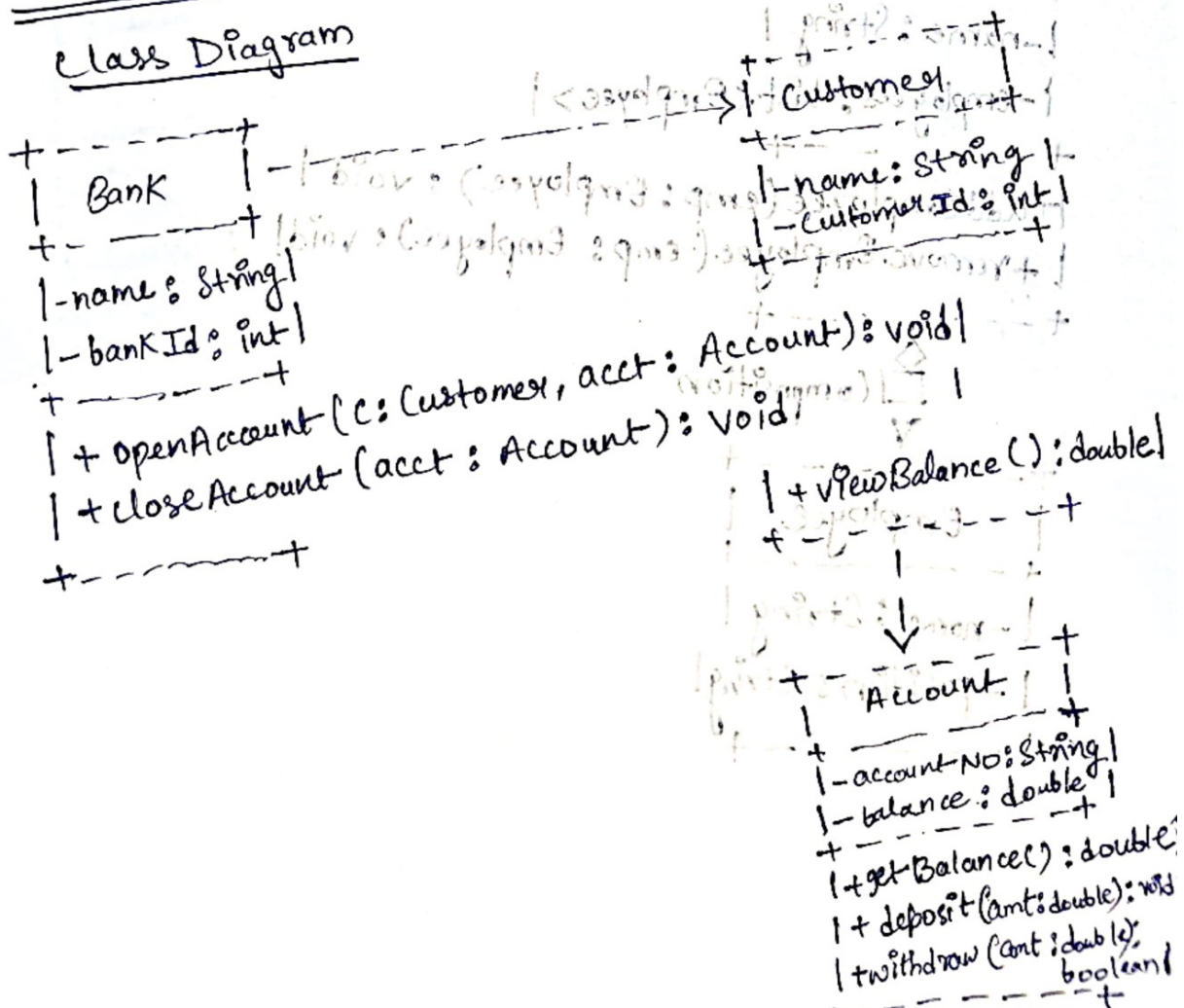
Problem 1: Library and Books (Aggregation)

Class Diagram



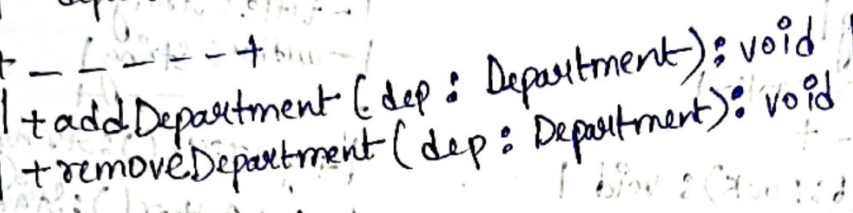
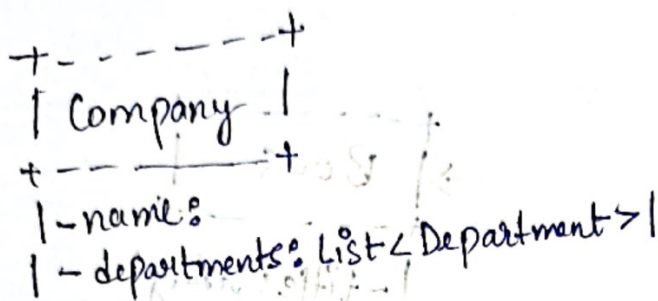
Problem 2: Bank and Account Holders (Association)

Class Diagram

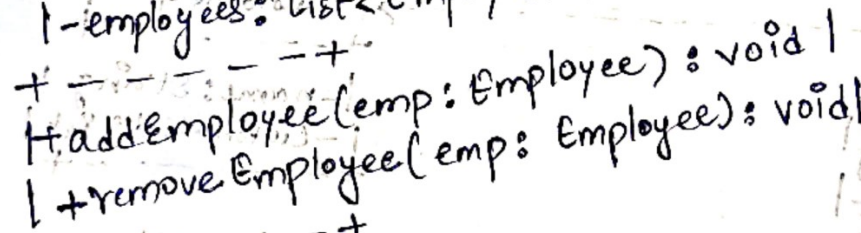
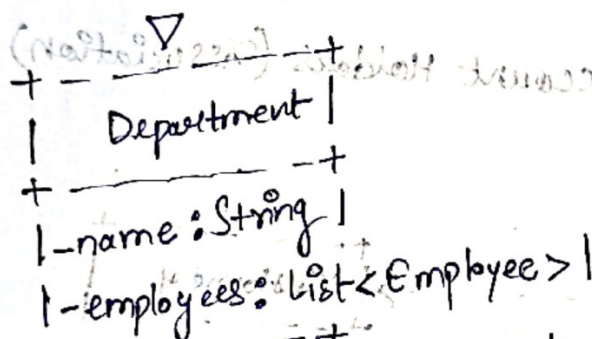


Problem 3: Company & Departments (composition)

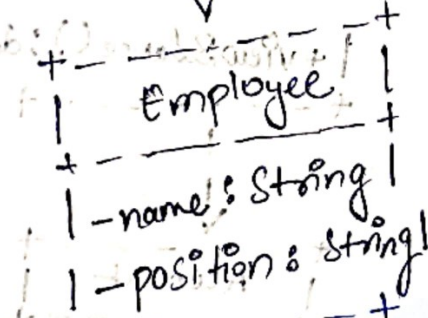
Class Diagram



Composition



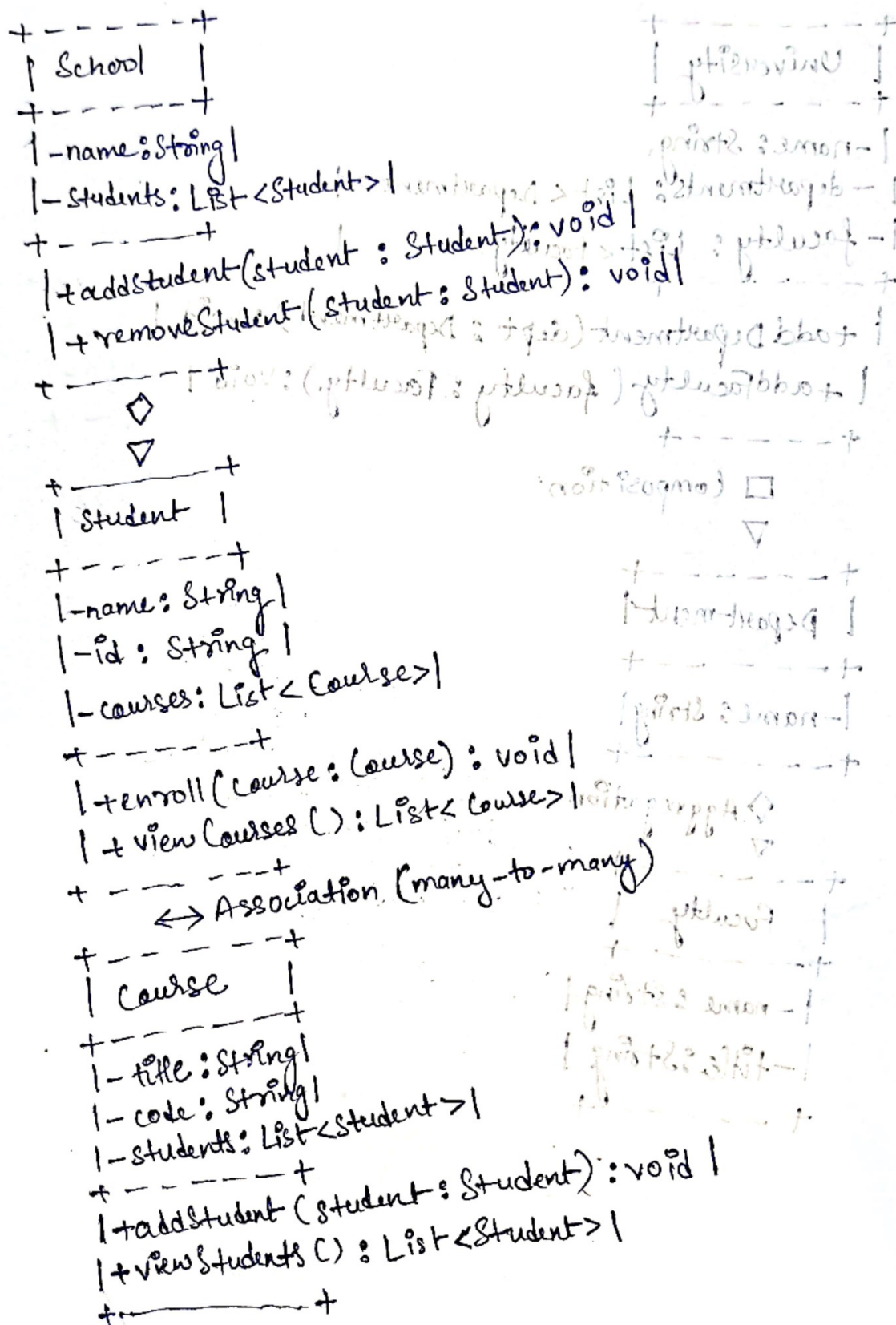
Composition



Self - Problems

Problem 1: School & Students with Courses (Association and Aggregation)

Class Diagram



Problem 2: University with Faculties & Departments (Composition and Aggregation)

Class Diagram

```

+-----+
| University |
+-----+

```

```

|-name: String

```

```

|-departments: List<Department>

```

```

|-faculty: List<Faculty>

```

```

+addDepartment(dept: Department): void

```

```

+addFaculty(faculty: Faculty): void

```

□ Composition

▽

```

+-----+
| Department |
+-----+

```

```

|-name: String

```

```

+-----+

```

◇ Aggregation

▽

```

+-----+
| Faculty |
+-----+

```

```

|-name: String

```

```

|-title: String

```

```

+-----+

```

Problem 3: Hospital, Doctors, and Patients (Association and Communication)

Class Diagram

```
+-----+
| Hospital |
+-----+
```

```
-name: String
```

```
-doctors: List<Doctor>
```

```
-patients: List<Patient>
```

```
+-----+
```

```
+addDoctor(doc: Doctor): void
```

```
+addPatient(pat: Patient): void
```

```
+-----+
```

```
+-----+
| Doctor |
+-----+
```

```
-name: String
```

```
-specialty: String
```

```
-patients: List<Patient>
```

```
+-----+
```

```
+Consult(patient: Patient): void
```

```
+-----+
```

↔ Association (many-to-many)

```
+-----+
| Patient |
+-----+
```

```
-name: String
```

```
-age: int
```

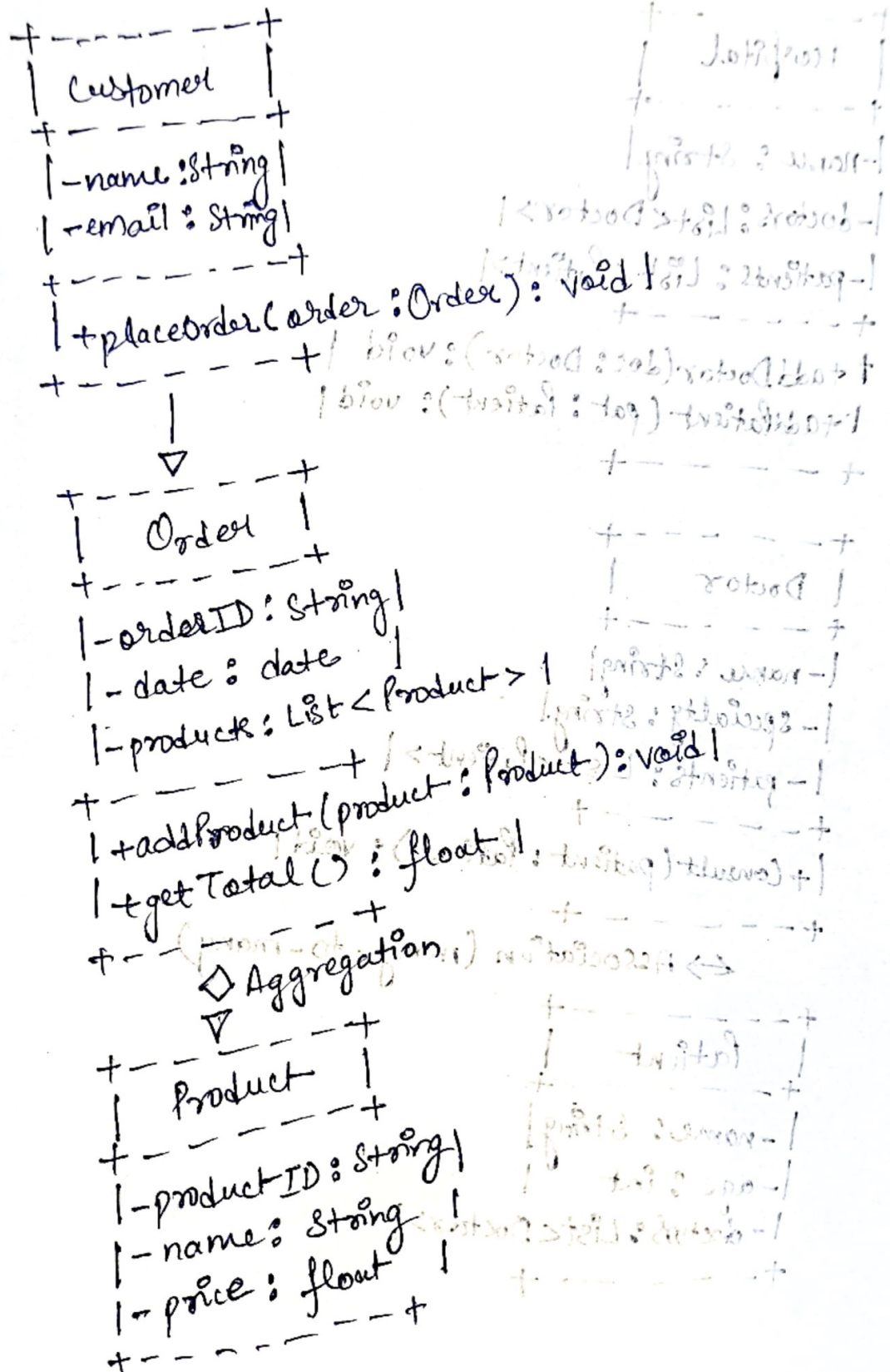
```
-doctors: List<Doctor>
```

```
+-----+
```



Problem 4: E-Commerce Platform with Orders, Customers and Products

Class Diagram



Problem 5: University Management System

Class Diagram

```
+-----+
| Student |
+-----+
|-StudentID: String|
|-name: String|
|-Courses: List<Course>|
+-----+
|+enrollCourse (course: Course): void|
|+viewCourse(): List<Course>|
+-----+
↔ Association (many-to-many)
```

```
+-----+
| Course |
+-----+
|-courseID: String|
|-title: String|
|-professor: Professor|
|-Students: List<Student>|
+-----+
◇ Aggregation
▽
```

```
+-----+
| Professor |
+-----+
|-professorID: String|
|-name: String|
|-courses: List<Course>|
+-----+
|+assignCourse (course: Course): void|
|+viewCourse(): List<Course>|
+-----+
```