# Facility Management System Design

# With Spring and Hibernate

**Project 2**

**CS 373/473: Objects, Frameworks, and Patterns (Advanced Object Oriented Programming)**

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**GitHub Repository:**

<https://github.com/snowreen/facility-management>

**Implementation:**

I used JDBC in previous project. To change it into Hibernate ORM, I have created “hibernate.cfg.xml” which has the session factory configuration to connect to MYSQL database and all hibernate mapping file locations.

Hibernate mapping files, \*.hbm.xml, specifies the mapping between Java class and the database table, also has relationships defined between classes.

HibernateMYSQLHelper class is a helper class, which initializes a static final SessionFactory object.

All the DAOs have the methods to query database. For fetching data, I have used mostly HQL.

Now, to have loose coupling in project, I have created interfaces. Then I have added Spring beans inside “resources/META-INF/app-context.xml” and injected dependencies using “setter” methods. For scope, most of them have “prototype” scope.

Then in FacilityClient class, I have created a static object of ApplicationContext by reading app-context.xml from classpath, so that I can get an object of a bean from applicationContext by the bean id.

**How to Run the Project**

Database DDL statements are available inside database.txt (attached with email and also available in Github [https://github.com/snowreen/facility-management](https://github.com/snowreen/facility-management%20)) . You can run it from command line using following command (change path to this file path, mysql server needs to be started before that):

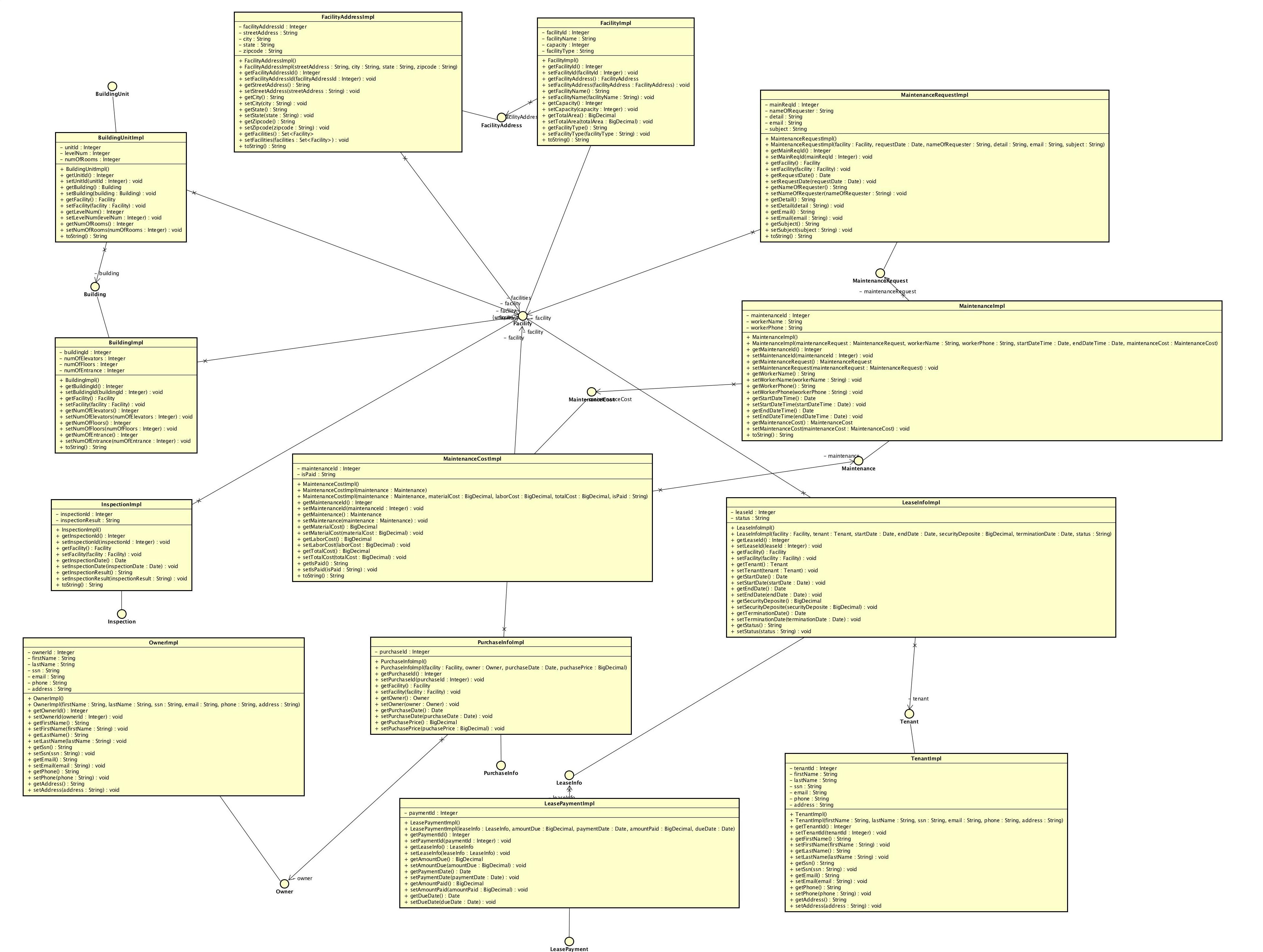
mysql < {path}/database.txt

Please change mysql database username and password according to yours in hibernate.cfg.xml file.

**For Testing**

FacilityClient.java has the main method to test this application.

# UML Diagram



# Database Model

|  |  |  |  |
| --- | --- | --- | --- |
| building |  |  |  |
| building\_id |  |  |  |
| facility\_id |  |  |  |
| num\_of\_elevators |  |  |  |
| num\_of\_floors |  |  |  |
| num\_of\_entrance |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| building\_unit |  |  |  |
| unit\_id |  |  |  |
| facility\_id |  |  |  |
| level\_num |  |  |  |
| num\_of\_rooms |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| tenant |  |  |  |
| tenant\_id |  |  |  |
| first\_name |  |  |  |
| last\_name |  |  |  |
| SSN |  |  |  |
| email |  |  |  |
| phone |  |  |  |
| address |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| facility\_address |  |  |  |
| facility\_address\_id |  |  |  |
| street\_address |  |  |  |
| city |  |  |  |
| state |  |  |  |
| zip |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| maintenance |  |  |  |
| maintenance \_id |  |  |  |
| main\_req\_id |  |  |  |
| worker\_name |  |  |  |
| worker\_phone |  |  |  |
| start\_date |  |  |  |
| end\_date |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| facility |  |  |  |
| facility\_id |  |  |  |
| facility\_name |  |  |  |
| capacity |  |  |  |
| total\_area |  |  |  |
| facility\_type |  |  |  |
| facility\_address\_id |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| inspection |  |  |  |
| inspection \_id |  |  |  |
| inspection \_date |  |  |  |
| inspection\_result |  |  |  |
| facility\_id |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| maintenance\_cost |  |  |  |
| maintenance \_id |  |  |  |
| material\_cost |  |  |  |
| labour\_cost |  |  |  |
| total\_cost |  |  |  |
| is\_paid |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| maintenance\_request |  |  |  |
| main\_req\_id |  |  |  |
| facility\_id |  |  |  |
| request\_date |  |  |  |
| name\_of\_requester |  |  |  |
| detail |  |  |  |
| email |  |  |  |
| subject |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| purchase\_info |  |  |  |
| purchase \_id |  |  |  |
| owner\_id |  |  |  |
| facility\_id |  |  |  |
| purchase\_date |  |  |  |
| purchase\_price |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| owner |  |  |  |
| owner \_id |  |  |  |
| first \_name |  |  |  |
| last\_name |  |  |  |
| email |  |  |  |
| phone |  |  |  |
| address |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| lease\_info |  |  |  |
| lease \_id |  |  |  |
| facility\_id |  |  |  |
| start\_date |  |  |  |
| end\_date |  |  |  |
| tenant\_id |  |  |  |
| security\_deposite |  |  |  |
| termination\_date |  |  |  |
| status |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| lease\_payment |  |  |  |
| payment \_id |  |  |  |
| lease \_id |  |  |  |
| amount\_due |  |  |  |
| payment\_date |  |  |  |
| amount\_paid |  |  |  |
| due\_date |  |  |  |