

# IndusTree - Factory Management Platform

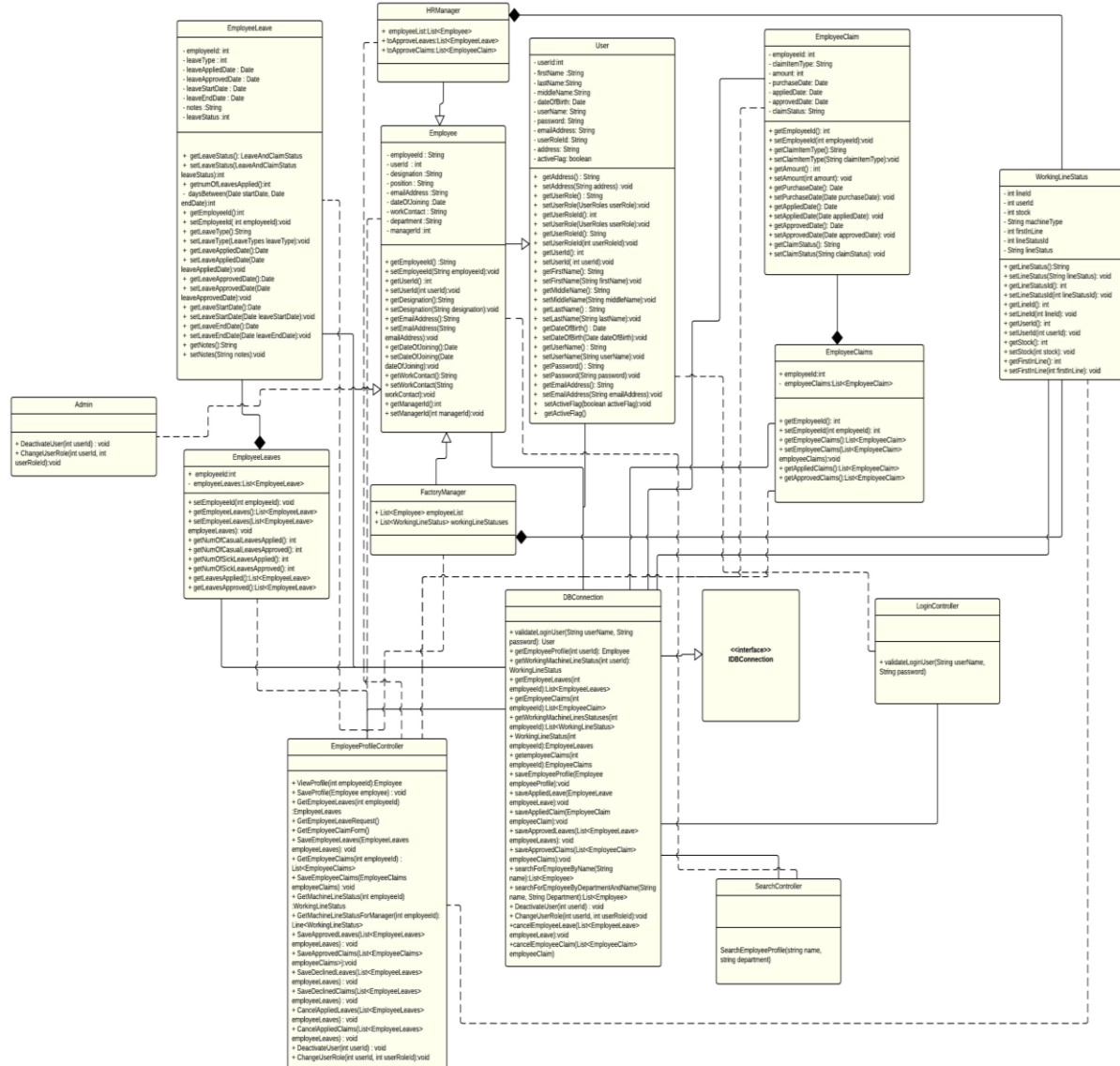
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**Title:** IndusTree (Factory Management Platform)

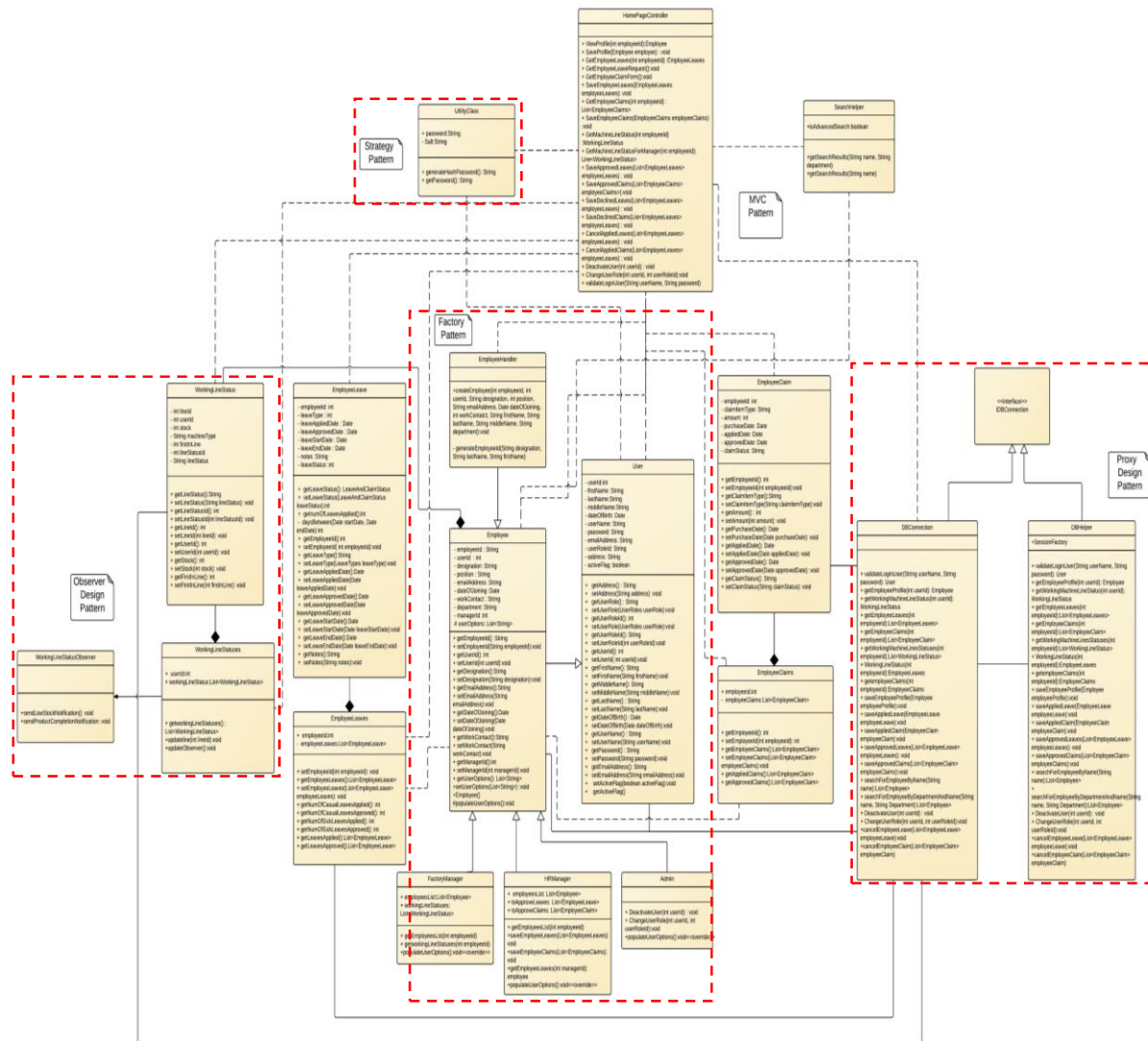
### Project Description:

A platform to aid in the management of the daily workings of a factory. It enables a centralized management system of tasks such as tracking machine stock levels. It also provides a management system for the Human Resources department.

### Class diagram prior to refactoring



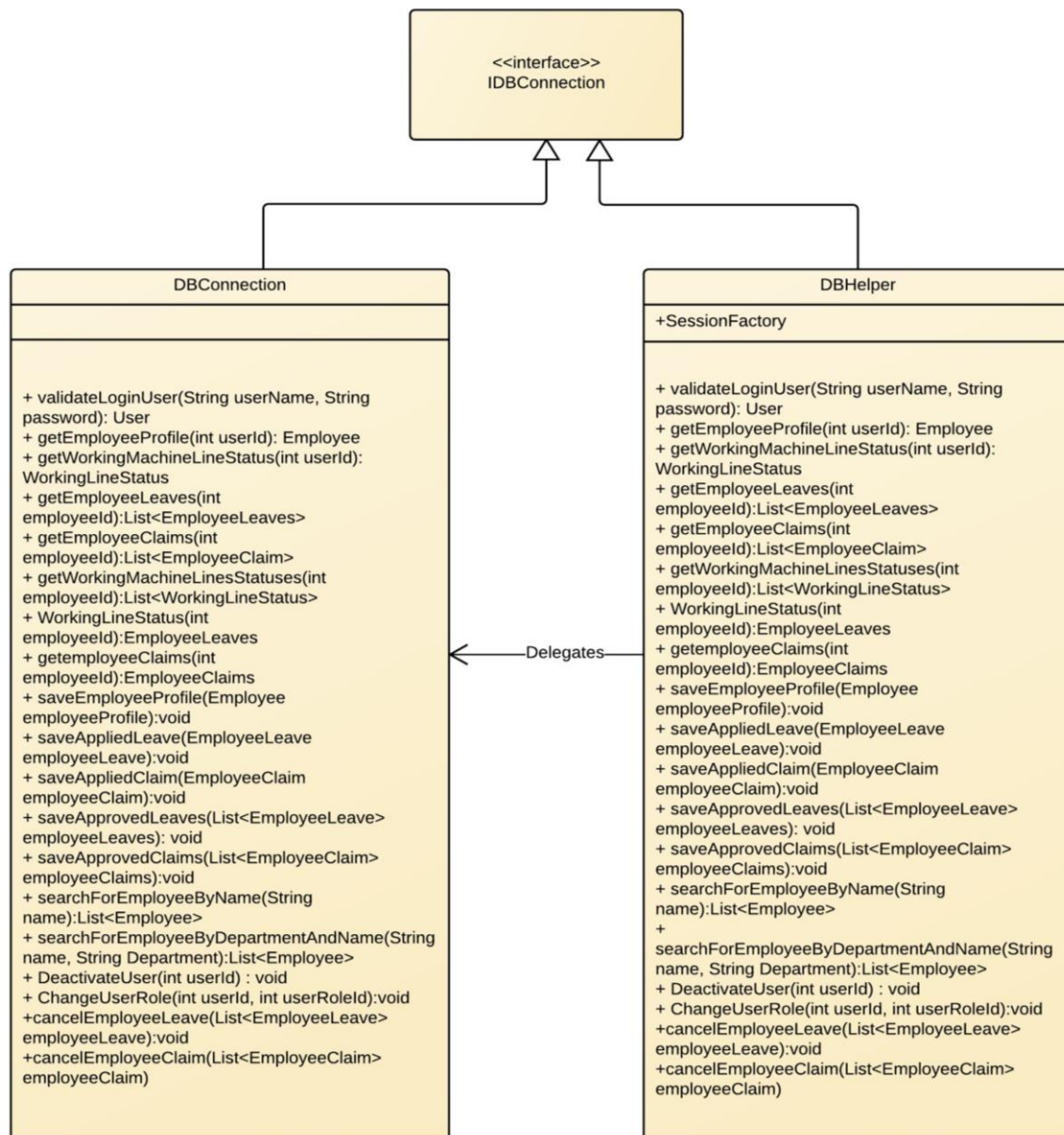
### Class diagram after refactoring



# Design Patterns

## Proxy Pattern

The application connects to the database using a proxy class called DBHelper and the actual implementation is hidden in the DBConnection class. These classes implement the interface IDbConnection where all the method signatures are declared.



## Strategy Design Pattern

The Salt and Hash method have been implemented to aid in securing user's passwords. Additional data is added to the password and then hashed to encrypt the passwords.

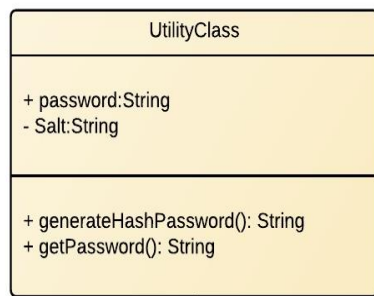
```
package industree.common;

import org.springframework.util.DigestUtils;

public class PasswordUtility {
    public String password;
    private String salt="riomhaire";

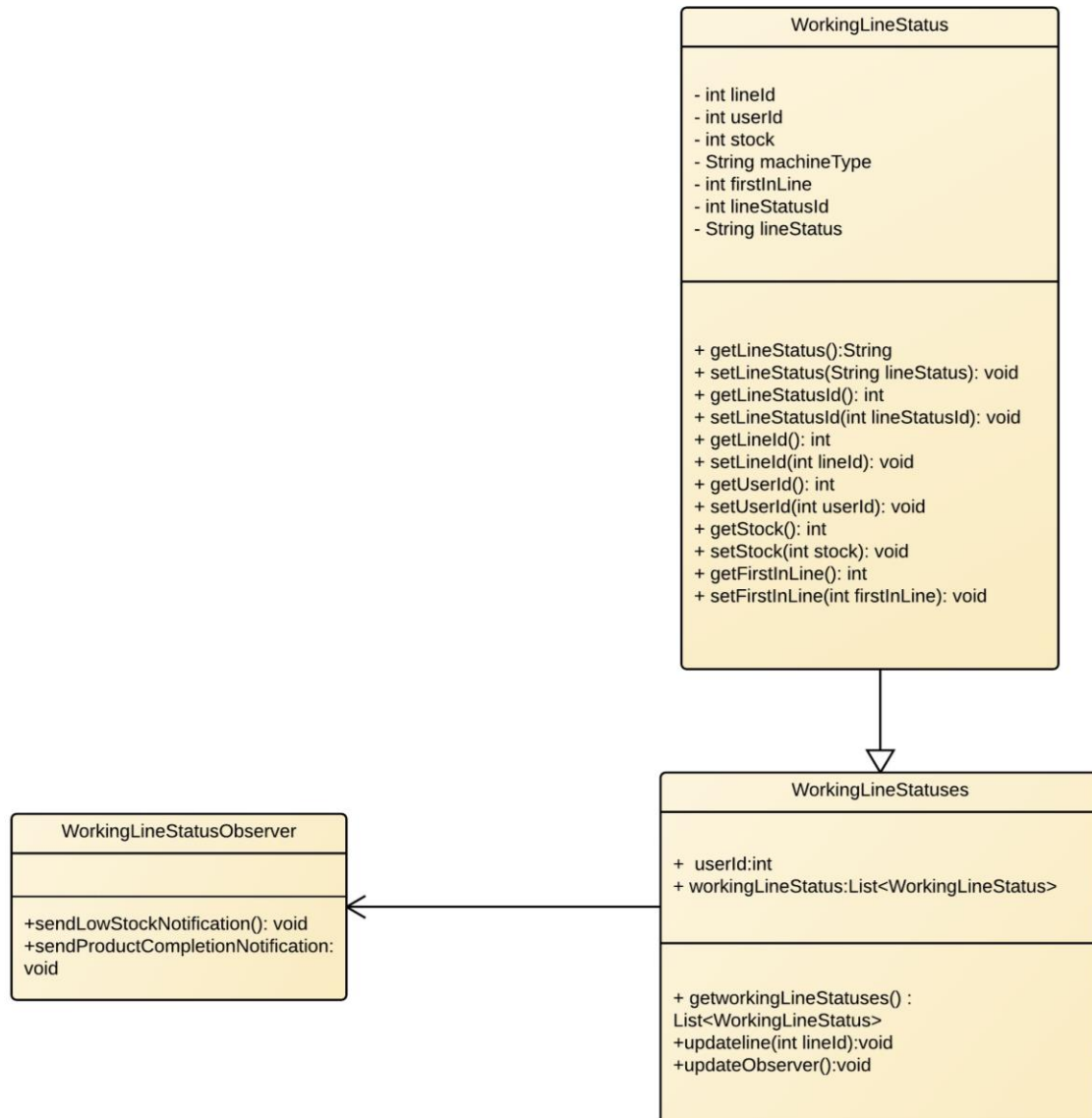
    public String getPassword()
    {
        return this.password;
    }

    public String generateHashPassword()
    {
        String str=this.password+salt;
        return DigestUtils.md5Digest(str.getBytes()).toString();
    }
}
```



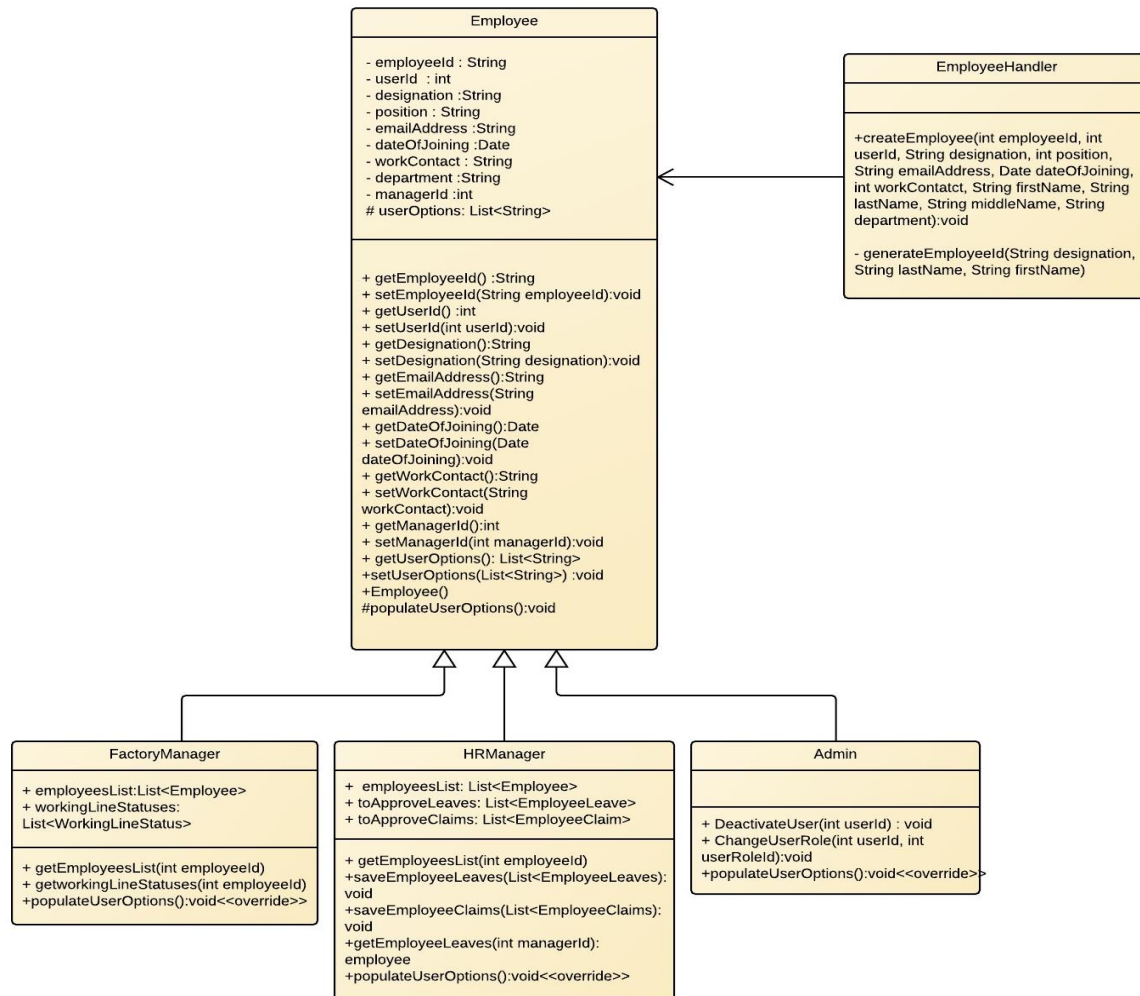
## Observer Pattern

For all the machine lines in the manufacturing company, the application displays real-time stock. This gets updated every five minutes. When the stock is low, the Factory Manager is notified, enabling him to order further stock. The implemented Subscriber class then sends a notification to the Factory Manager.



## Factory Design Pattern

In the application, employees of every designation are provided with their own specific functionalities. The Employee class specifies the generic behavior common to all employees, and the FactoryManager, HRManager and Admin classes specify the behavior of the employees based on their specific requirements. The EmployeeHandler class is used to create employee objects based on the designation.





## MVC Design Pattern

MVC design pattern is made up of the Model responsible for handling the data, the Controller responsible for responding to the user input and performing the data operations on the Model objects, and the View is responsible for the presentation of the data.

In the IndusTree application,

1. Model contains the java bean classes
2. Controller is the HomePageController
3. Views are the jsp files

