

Design of Personal Website

1 The Architecture of system

The framework of this project is based on spring boot, spring MVC and Mybaits. The template engine uses the Thymeleaf. The front of the website uses three technologies: the Javascript, JQuery and Bootstrap. The architecture of the main framework is described in detail below.

1.1 The architecture of spring boot

Spring boot is a module of the spring framework, which is used to easily create independent, production level spring based applications. It is developed on top of the core spring framework. Spring boot follows a layered architecture in which each layer communicates with the layer directly below or above that layer (hierarchy). There are four layers in spring boot. Presentation layer: the presentation layer processes HTTP requests, transforms JSON parameters into objects, authenticates the requests and transfers them to the business layer. In short, it includes the view, the front end. Business layer: the business layer processes all business logic. It consists of service classes and uses services provided by the data access layer. It also performs authorization and validation. Persistence layer: the persistence layer contains all storage logic and transforms business objects and database rows. Database layer: in the database layer, perform CRUD (create, retrieve, update, delete) operations.

The architecture of spring boot diagram are shown in the following figure:

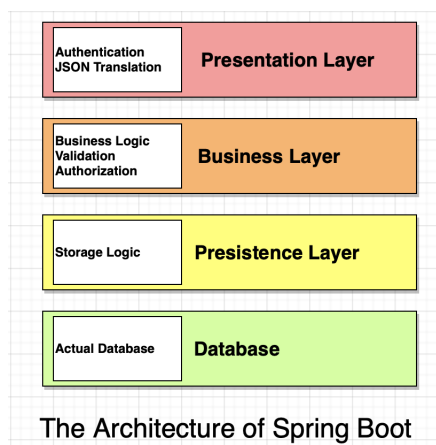


Figure 1: The architecture of spring boot

1.2 The process architecture of spring boot

Spring boot is a module of the spring framework, which is used to easily create independent, production level spring based applications. It is developed on top of the core spring framework. Spring boot follows a layered architecture in which each layer communicates with the layer directly below or above that layer (hierarchy). There are four layers in spring boot. Presentation layer: the presentation layer processes HTTP requests, transforms JSON parameters into objects, authenticates the requests and transfers them to the business layer. In short, it includes the view, the front end. Business layer: the business layer processes all business logic. It consists of service classes and uses services provided by the data access layer. It also performs authorization and validation. Persistence layer: the persistence layer contains all storage logic and transforms business objects and database rows. Database layer: in the database layer, perform CRUD (create, retrieve, update, delete) operations.

The process architecture of spring boot diagram are shown in the following figure:

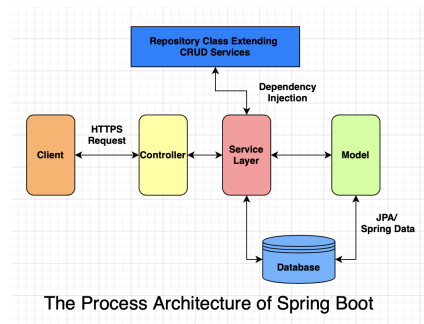


Figure 2: The process architecture of spring boot

1.3 The system architecture of spring mvc

Spring MVC is the implementation of the built-in MVC of spring framework. Spring MVC is a built-in MVC framework of spring. MVC framework, which solves the common problems in Web Development (parameter receiving, file uploading, form validation, internationalization, etc.), and is easy to use and seamlessly integrated with spring. Supports restful style URL requests.

Adopting the structure of loose coupling pluggable components, it has more expandability and flexibility than other MVC frameworks. Before we used spring MVC, we used servlets for web development. But using servlet to develop is relatively complex in accepting request data parameters, data sharing, page Jump and other operations. The bottom layer of spring MVC is servlet, and spring MVC is a deeper encapsulation of servlet. The system architecture of spring mvc diagram are shown in the following figure:

1.4 The architecture of mybaits

Mybatis is an excellent persistence framework that supports customized SQL, stored procedures, and advanced mapping. Mybatis avoids almost all JDBC code and manual setting of parameters and getting result sets. Mybatis can use simple XML

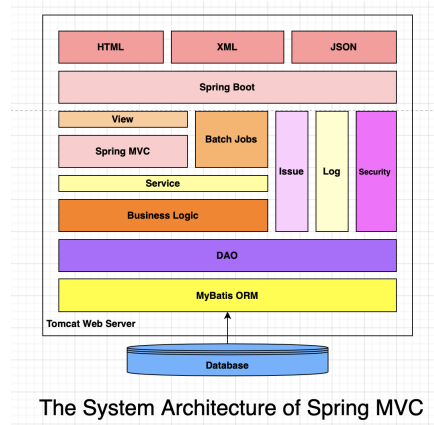


Figure 3: the system architecture of spring mvc

or annotation for configuration and native map to map interface and Java POJOs (plain old Java objects) to records in database. The The architecture of mybaits diagram are shown in the following figure:

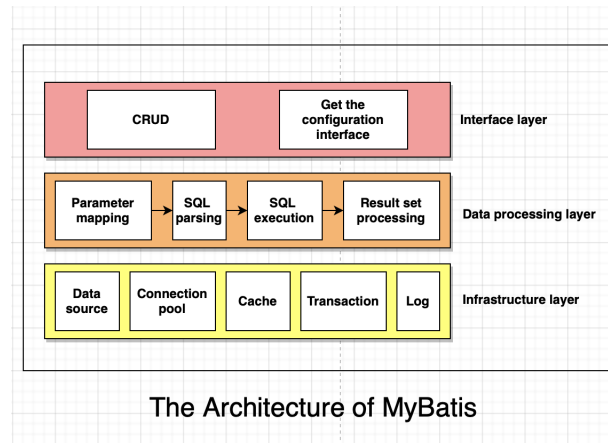


Figure 4: The architecture of mybaits

2 Database design

There are six data tables required for the system, including: user table, Shipins table, Comments table, UserFollow table, UserTopics table, and Topics table. The system E-R diagram is shown in the following figure:

3 Page design

Detailed design is based on the concept of the system structure and the design of the database in the outline design, the specific function of the corresponding module and the design of the page effect, the page effect through the page design.

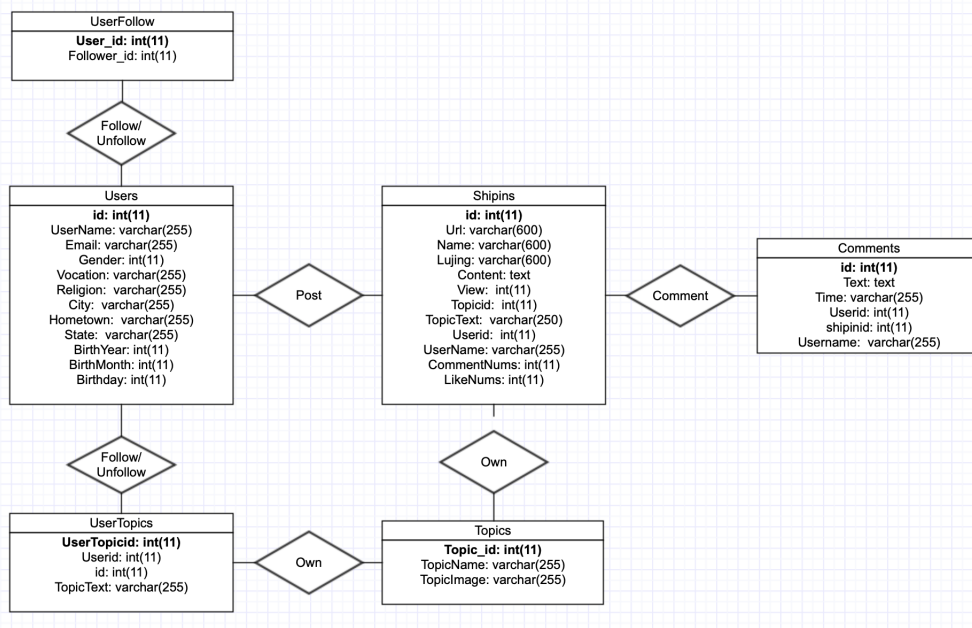




Figure 5: The searching sub-module use case diagram



Login

[中文](#)
[English](#)
[新用户?](#)

Figure 6: The login page diagram



Register

[中文](#)
[English](#)
[新用户?](#)

Figure 7: The register page diagram

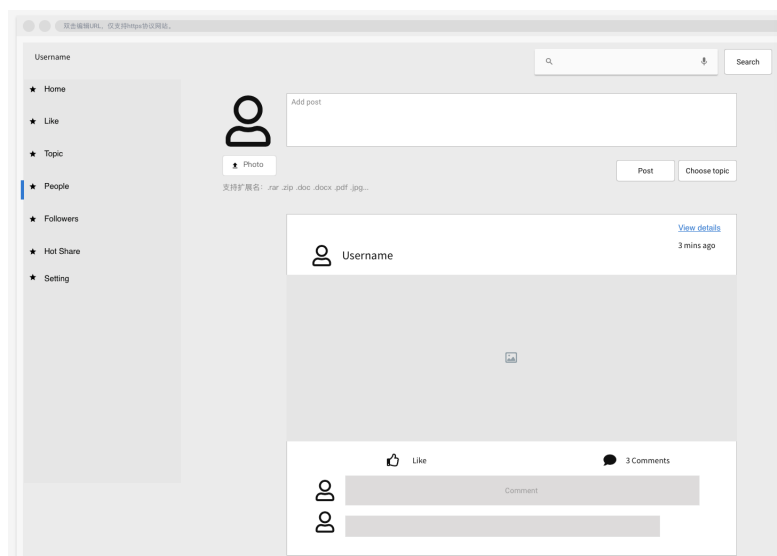


Figure 8: The home page diagram

Figure 9 shows a web form for user settings. The interface includes a sidebar menu on the left with options: Home, Like, Topic, People (selected), Followers, Hot Share, and Setting. The main form area contains the following fields and controls:

- Username:** A search bar with a magnifying glass icon and a 'Search' button.
- Name:** A text input field containing 'aaaaa'.
- Password:** A text input field containing 'aaaaaa'.
- Vocation:** A text input field containing 'Manager'.
- Email:** A text input field containing 'aaaaa@waterloo.ca'.
- Gender:** Two radio buttons labeled 'Male' (selected) and 'Female'.
- Year, Month, Day:** Three separate text input fields containing '1995', '09', and '07' respectively.
- Save:** A button at the bottom of the form.

Figure 9: The setting page diagram

Figure 10 shows a web page for topics. The interface includes a sidebar menu on the left with options: Home, Like, Topic, People (selected), Followers, Hot Share, and Setting. The main content area displays a grid of topic cards, each with an icon, a 'Topic name' label, and a 'Follow' button:

- Heart icon:** Topic name, Follow button.
- Book icon:** Topic name, Follow button.
- Gift icon:** Topic name, Follow button.
- Web Page icon:** Topic name, Follow button.
- Leaf icon:** Topic name, Follow button.

Figure 10: The topic page diagram