* Backend use springboot framework and frontend with react framework
* Deisgn Procedure
* User story: functions to realize
* Multilayers: mainly three java classes represent three layers

spring data IPA: Java persistent API, map java classes to database tables

spring IOC: inversion of control and dependency, dependency injection, loose coupling code between dependencies

spring MVC: model/view controller, a java framework used to develop web applications (most important)

* How to use JPA? Why to use JPA?

How: define @entity, define @repository, extends JpaREpository<>, there’s a few methods spring can generate automatically, such as findAll(), save(), findByID(), deleteByID(), if it can’t be generated automatically, we could generate by ourselves.

Why: without using DDL and DML such as SQL, very minimum code to have data access ready

* Service layer: use interface and then class implements interface, low-coupling code, solid principle easier to extend

@service, @autowired autowires the bean by its matching data type (auto dedpendency injection)

* Controller layer: RestController: controller and responsebody, by default treated the requestmapping with responsebody

Autowire the productService and use the methods defined in service layer in advance to launch the CRUD functions

Define API: contains pathVariable, and the noun need to use plural(复数)

* Junit Test:

Mockito: used to mock interface so a dummy functionality can be added to a mock interface that can be used in unit testing

* Also do multi-layer, separate the service layer and presentation layer
* Ui framework: boostrap, also use other three framework: axios – execute REST APIs; react-router-dom – do the routing between pages; formik – create forms
* ListProductComponent:

componentDidMount: will be called as soon as a component is mounted

filterList: initialProducts and products

add and update: navigate to the productComponent containing details

render(): what to be displayed

* productComponent

id==-1, add; else update

validate rules

biggest problem: decouple code

improvement in future: more database, relationship