

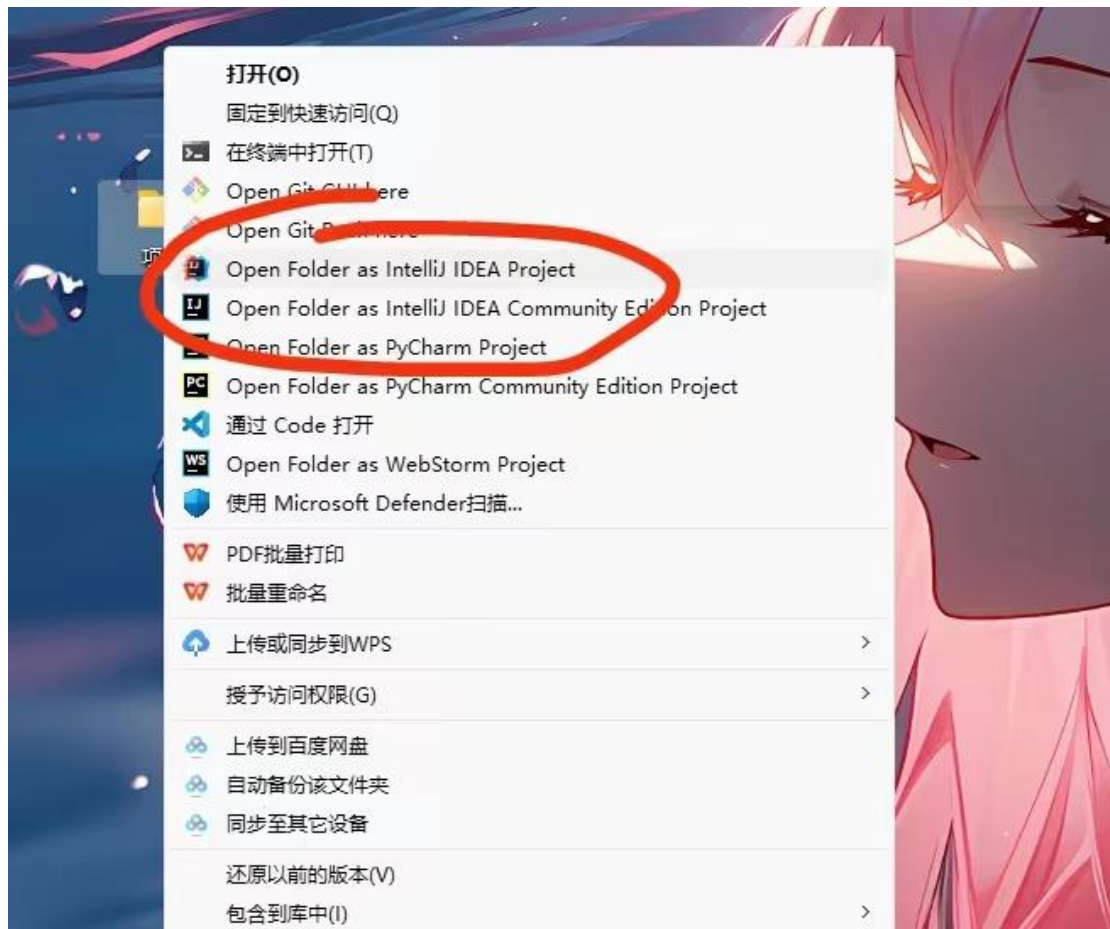
## Software operation manual

### I . Software download and operation:

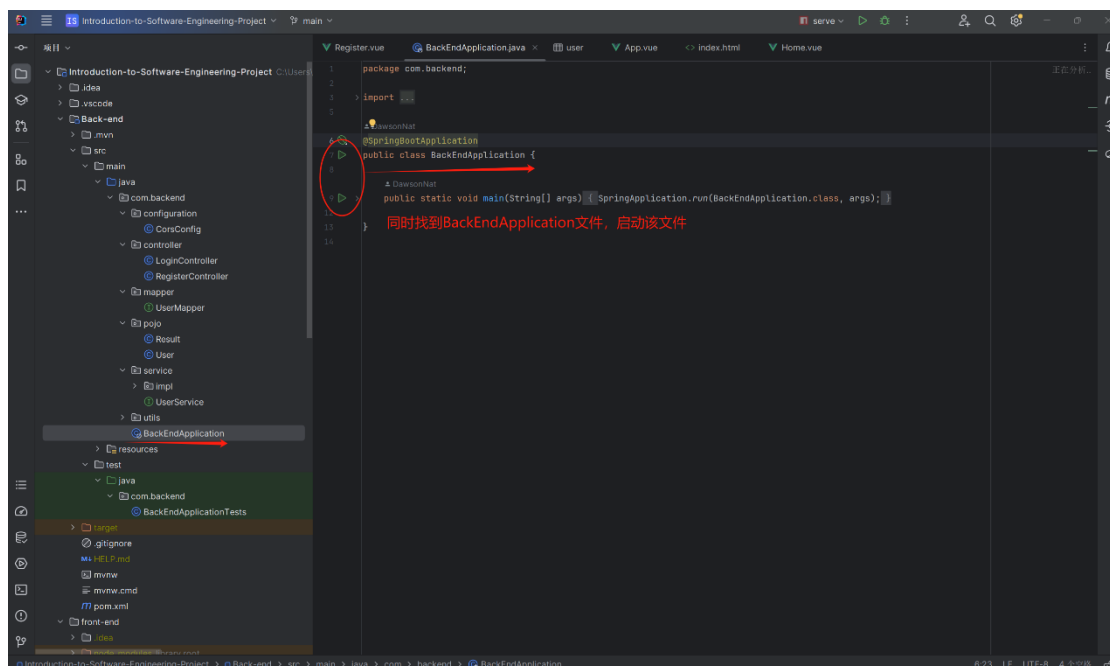
1. When you receive the compressed package of the program, you should first unzip it (as shown below);;



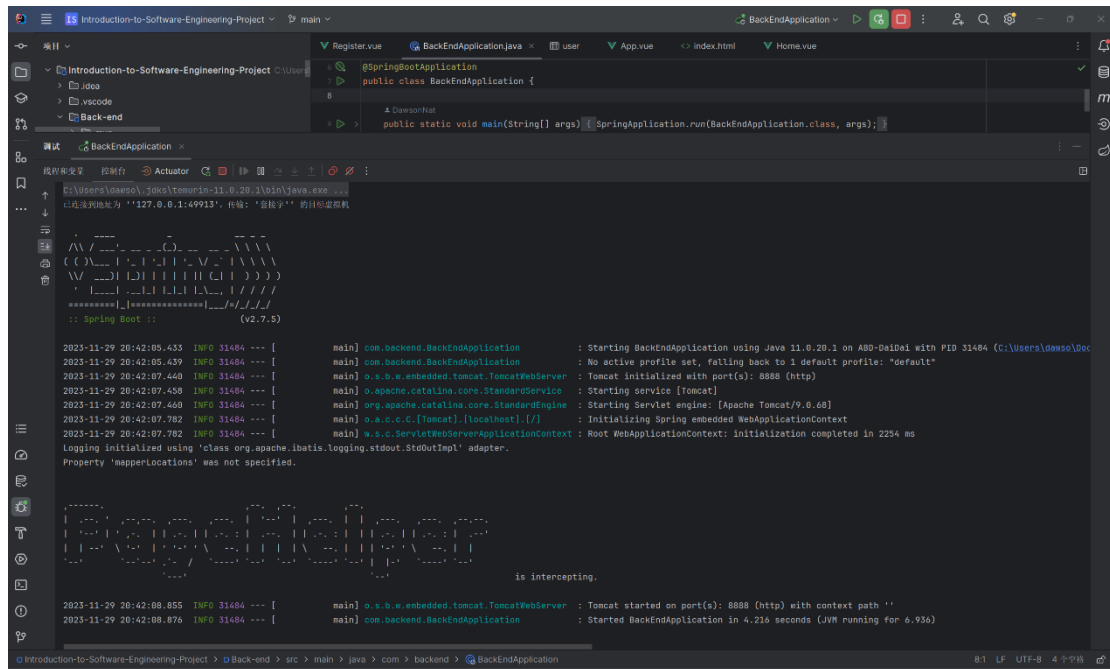
2 After you have unzipped the project, you can run the project through a compiler like idea or vscode (we recommend you to use idea to run the project) (as shown below);



3. After the front-end project starts, locate the BackEndApplication file and start the file



4. If the following information is displayed, the back-end server is successfully started

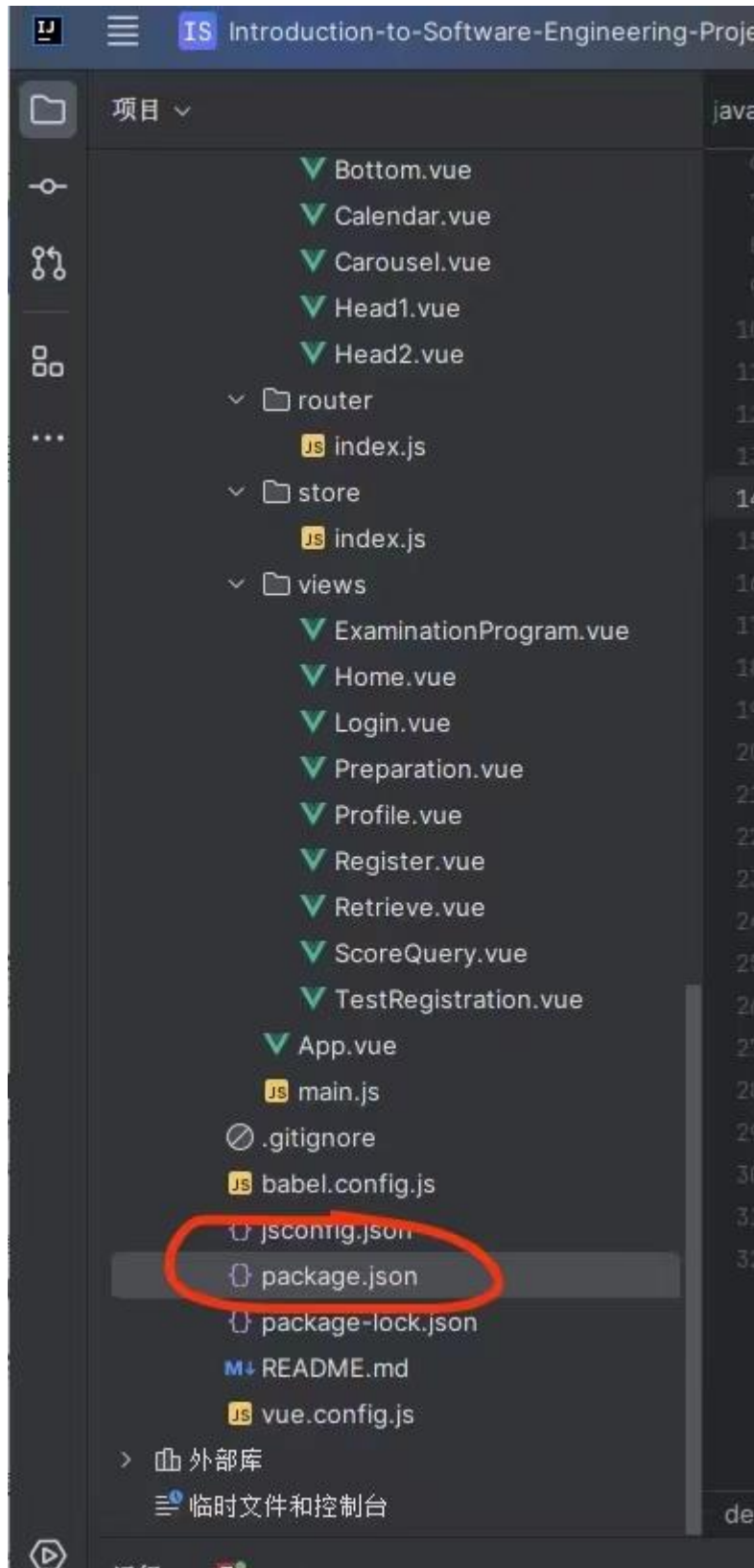


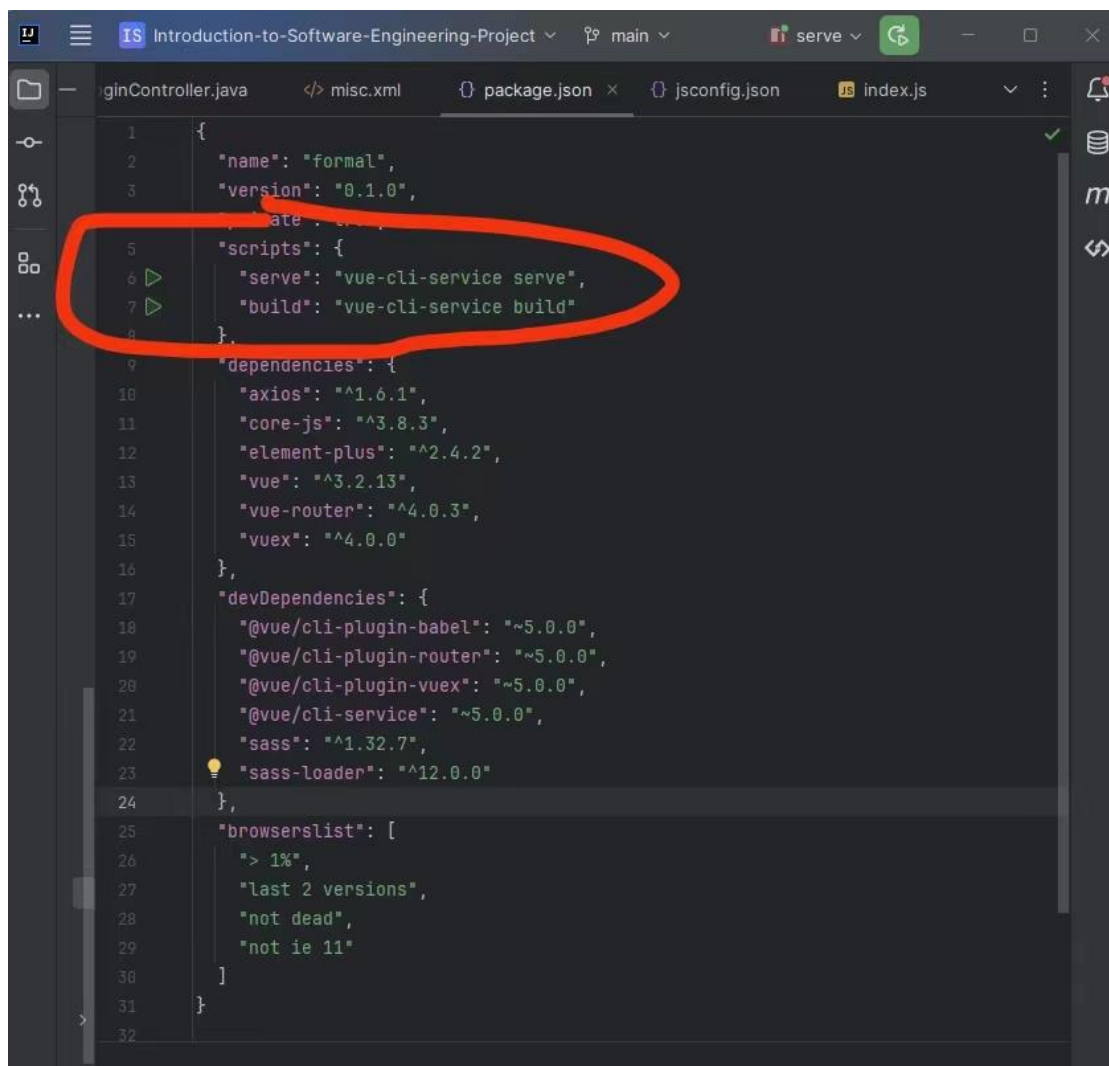
```
Introduction-to-Software-Engineering-Project > main > BackEndApplication
BackEndApplication.java
public class BackEndApplication {
    public static void main(String[] args) { SpringApplication.run(BackEndApplication.class, args); }
}

BackEndApplication
2023-11-29 20:42:05.435 INFO 31484 --- [main] com.backend.BackEndApplication : Starting BackEndApplication using Java 11.0.20.1 on ABO-DaiBei with PID 31484 (C:\Users\daweso\Dec
2023-11-29 20:42:05.439 INFO 31484 --- [main] com.backend.BackEndApplication : No active profile set, falling back to 1 default profile: "default"
2023-11-29 20:42:07.440 INFO 31484 --- [main] o.s.b.e.embedded.tomcat.TomcatWebServer : Tomcat initialized with port(s): 8888 (http)
2023-11-29 20:42:07.458 INFO 31484 --- [main] o.apache.catalina.core.StandardService : Starting service [Tomcat]
2023-11-29 20:42:07.460 INFO 31484 --- [main] org.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/9.0.68]
2023-11-29 20:42:07.782 INFO 31484 --- [main] o.s.c.c.f.TomcatEmbeddedWebServer : Initializing Spring embedded WebApplicationContext
2023-11-29 20:42:07.782 INFO 31484 --- [main] o.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 2254 ms
Logging initialized using 'class org.apache.ibatis.logging.stdout.StdOutImpl' adapter.
Property 'mapperLocations' was not specified.

2023-11-29 20:42:08.855 INFO 31484 --- [main] o.s.b.e.embedded.tomcat.TomcatWebServer : Tomcat started on port(s): 8888 (http) with context path ''
2023-11-29 20:42:08.876 INFO 31484 --- [main] com.backend.BackEndApplication : Started BackEndApplication in 4.216 seconds (JVM running for 6.936)
```

5. After you open the project in your compiler, if your compiler is idea, you can find the package.json file in the left file bar, after entering the package.json file, find the sixth line of code "serve": "vue-cli-service serve", and click the triangle to the left of the change line code to run the program (as shown below);

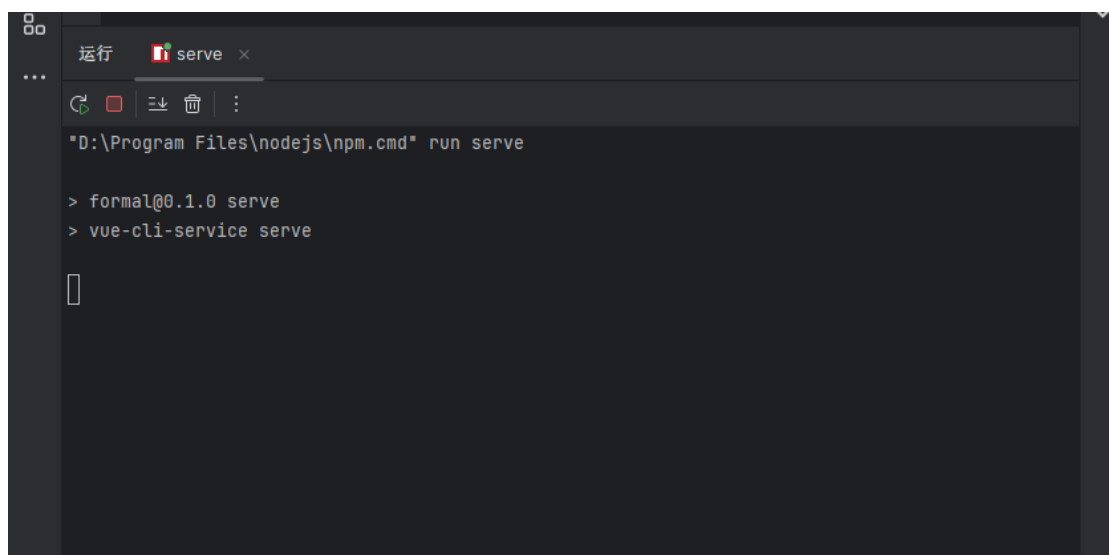




The screenshot shows the VS Code editor with the `package.json` file open. The `scripts` section is highlighted with a red oval. The file content is as follows:

```
1 {
2   "name": "formal",
3   "version": "0.1.0",
4   "description": "",
5   "scripts": {
6     "serve": "vue-cli-service serve",
7     "build": "vue-cli-service build"
8   },
9   "dependencies": {
10    "axios": "^1.6.1",
11    "core-js": "^3.8.3",
12    "element-plus": "^2.4.2",
13    "vue": "^3.2.13",
14    "vue-router": "^4.0.3",
15    "vuex": "^4.0.0"
16  },
17  "devDependencies": {
18    "@vue/cli-plugin-babel": "~5.0.0",
19    "@vue/cli-plugin-router": "~5.0.0",
20    "@vue/cli-plugin-vuex": "~5.0.0",
21    "@vue/cli-service": "~5.0.0",
22    "sass": "^1.32.7",
23    "sass-loader": "^12.0.0"
24  },
25  "browserslist": [
26    "> 1%",
27    "last 2 versions",
28    "not dead",
29    "not ie 11"
30  ]
31 }
32
```

6. If your compiler does not have the above functions, then open the terminal, jump to the `nodejs\npm.cmd` directory and run the "run serve" command (as shown below);



The screenshot shows the VS Code terminal with the command `run serve` executed. The terminal output is as follows:

```
运行 serve x
D:\Program Files\nodejs\npm.cmd run serve

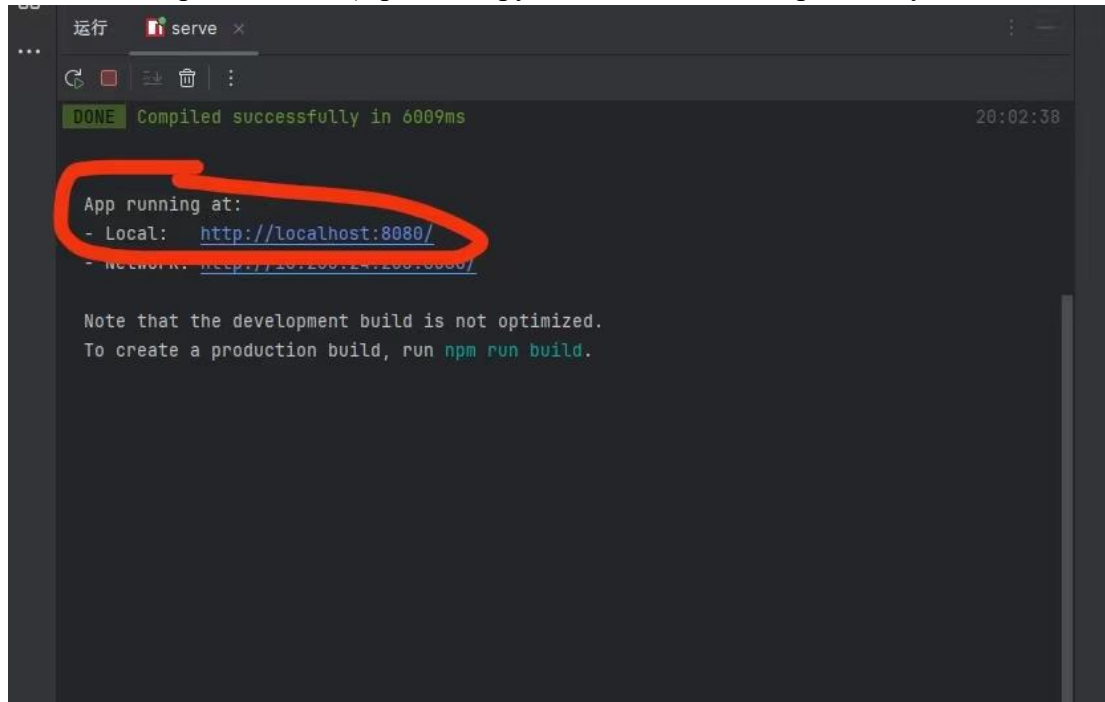
> formal@0.1.0 serve
> vue-cli-service serve


```

7. This process may require you to wait for some time, if the first time can not successfully open the website, please stop the program and run again;

8. Perhaps your computer also needs to configure some other files, please configure the specific files according to the error message;

9. When you run successfully, your console will pop up the following message (as shown in the picture below), please copy the local URL and open it in your browser;



```
运行 serve x
DONE Compiled successfully in 6009ms 20:02:38

App running at:
- Local: http://localhost:8080/
- Network: http://192.168.124.120:8080/

Note that the development build is not optimized.
To create a production build, run npm run build.
```

10. If all goes well, you will successfully open the website and see this page (as shown below);



## **Website function**

### **1. About Function**

Our website has the basic function like usual website, such as search function, login function and registration function. In addition, we have some additional function which act as a complementary function. For example, some components are used to help user get information clearly. These will be described in detail below.

### **2. Search Function**

Search Function provide an easy way for user to find the information they want. It helps user get useful information quickly and directionally. Our search function implements the search of various information within the website and lists them in the search interface. On the left side of the search interface, we will list the information about the examination program which includes the keyword user input. Similarly, we will list the preparation scheme on the right side. Other information can be accessed by accessing the examination program. Therefore, we ignore to show their sections in the search screen. This decision can make our website more concise and readable. Of course, if user have the necessity, we can put other sections too. It just requires us to redesign the layout.

In the current stage, our search function is implemented only on the front end. We create a search-box element and set it in each interface so that users can input the keyword whenever they need. After users entering the keywords, they need to click the search button. Then the search method is called, it firstly jumps to the search interface by routing. At the same time, the keyword will be written to routing as a parameter by query statement. In the search interface, it contains all the information provided by the front end. Secondly, our search-box element will get the keyword as value by routing. Then the value will be compared to each information. If the information contains the keyword, it will be displayed. If not, it will not be displayed.

Our website is in a development stage, we do not have very large information support. Therefore, we decided to implement this function only on the front end. Furtherly, if we have more information than a certain amount in the future, we will choose to implement this function on both front end and back end. That means we need to introduce a database to store all information and filter them through the back end and return them.

### **3.Login Function**

Login function makes sure that every user can access their own account, which ensures users carry out personalized operations on our website. For example, every user has their own idea to take different tests, this reason makes that they have different necessity about information. So, we need to use user account to differentiate each user. With login function, we can save the user's operation such as notes and collections when users sign out. Of course, when user login their account next time, we can show back what has been saved to users.

This function is implemented by both front end and back end. We have a login button on the homepage, users can access login page by clicking it. What users should do is to enter their username and password. When user clicks to login, the username and password will be sent to the database which managed by back end. Then back end will check whether the username exists. If exists, it will check whether the password is correct. If username and password match, our website will jump back to the homepage. That means user login successfully. Otherwise, it will pop up a window reminding user that the login failed. There is another case that user has no account. In this case, it will remind user that the username does not exist.

#### 4. Registration Function

Registration function is to help users open their own account so that they can use the function on the website conveniently. This function is related to the login function. It is the basis of the login function.

This function is implemented by both front end and back end too. We have a registration button on the homepage, users can access registration page by clicking it. User needs to create a username first. There are no restrictions on username. Then user should enter the password they want. In next stage, user must enter the password they set once again. Only these two passwords are same, user can successfully register an account. If not, it will pop up a window reminding user that the password is inconsistent with the specified password. These steps are implemented by front end. When user registers an account successfully, the information of this account will be uploaded to the back end and be saved.

#### 5. Personal Data Collection Function

In order to manage user account better, we need to obtain the personal information of each account user. So, personal data collection function is a best choice. We set a portal on the homepage, user can click it and enter their personal data, such as e-mail, phone number and so on. This function can help us provide more services to users. For example, we can help users find back their account password by confirming the personal information when users forget their password.

Personal data collection function is simple. We provide a form in the personal information interface. User just needs to enter their information and confirm them. Then the form will be sent to the back end and be saved. Of course, each account can only correspond to one personal information form.

#### 6. Carousel Element

Carousel Element is to show some important information to users. It is set on the homepage of the website so that users can notice it easily. This element can show the information we provide by switching different views. This element has the advantage that enable to show as much information as possible without taking up too much space. So, it can ensure that we provide a lot of information while ensuring that the page is concise and beautiful.

This element is very simple, this element can be accessed on the Element-plus



website. So, we just need to download it and then import it. Of course, the contents should be provided and modify by us.

## 7. Calendar Element

Calendar Element is to show the date to users, it can help users arrange their time more accurately. This element is set on the home page of the website too, it is also an additional function. Because of its large size, we add another element that can fold and expand the contents. When users need, they can expand the calendar and operate it. If not need, they can fold it so that they can browse the homepage for other content comfortably.

In current stage, this calendar element can only be read and be marked when users select a certain date. In subsequent development, we will add more functions to this calendar. For example, user may select a certain date and do some notes on it. Or maybe it can show the number of days from the set date.

## 8. Navigation Element

Navigation is a common part of a website. It can make users know what sections that we provide clearly and jump to other pages rapidly and correctly. Our navigation includes five sections, homepage, examination program, test registration, score query and preparation scheme. This element should make sure that users can jump to other pages in each page, so it is set in each section.

This function is the simplest, we just need to design each page, set its name, and export it. Then we need to set their route and import them in index.js file. After this, each page can be linked to the navigation element. We use route-link statement to implement the page jump. Except for this component, some of our links are use this jump way too. But some button we use method to push the route to implement this function.