**Practice Task 1**

Create a Spring Boot project named practice-test.

Include the following dependencies:

* Web
* Validation
* Thymeleaf
* Devtools
* Redis
* Redis-Client
* JSON-P

Create an empty github repo and link you project to github.

Create the relevant folders as follows to organise your code:

* Controller
* RestController
* Configuration
* Model
* Service
* Repo
* Utils

Configure your application runs on port 3000.

**Practice Task 2**

Using the CommandLineRunner, load the following data found in todo.txt as a List or Map object to Redis with the help of JSON-P library.

**Practice Task 3**

Create the following model with Spring Validation.

Todo

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute | Data Type | Validation | Remarks |
| id | String | Required  Maximum length = 50 | ID should be generated using UUID |
| name | String | Required  Min length = 10  Max length = 50 |  |
| description | String | Max length = 255 |  |
| Due date | Date | Date must be equals to or greater than today | Date should be stored as ephochmilliseconds in Redis. |
| priority | String |  | Low/medium/hight |
| Status | String |  | Pending/Started/Progress/Completed |
| createdAt | Date |  | Date of creation  (Date should be stored as ephochmilliseconds in Redis.) |
| updatedAt | Date |  | Updated Date each time record is updated  (Date should be stored as ephochmilliseconds in Redis.) |

**Practice Task 4**

Create a page listing.html to display the list of ToDo tasks loaded in Practice Task 2.

The page should allow you to filter records based on the Status: Pending/Started/Progress/Completed.

**Practice Task 5**

Create a page add.html to allow creation of new ToDo task using the Model created in Practice Task 3.

The page should allow you to create a new ToDo record and put it to the Redis List or Map in Practice Task 2.

**Practice Task 6**

Create a login.html page.

The page should allow user to enter their fullname and age.

On submission, the fullname and age information should be stored as a Http session.

User will be redirected to the listing.html page created in Practice Task 4.

Modify the listing.html page to only display if Httpsession are present and valid.

If Httpsession are not present or session invalidated, redirect to a custom error page refused.html. (You will define the content of refused.html page.)

Refused.html page should have a link button to direct user back to login.html page.

**Practice Task 7**

Modify your listing.html page to include:

* Deletion of Todo record
* Update of Todo record

**Practice Task 8**

On login, put in addition logic as follows:

* If user age is below 10, redirect to a underage.html page. (underage.html page should have a link button to direct user back to login.html page.)
* If user age is above 10, proceed to display listing.html page created in Practice Task 4.

**Practice Task 9**

Test and run your application. Ensure that your program is working locally.

Dockerise your application using single stage dock Dockerfile.

Dockerise your application using multi-stage docker Dockerfile.

Setup your railway environment.

1. Redis Service
2. Empty Service

Deploy your solution to railway.

**Practice Task 10**

1. Download the products.json file from <https://github.com/darryl1975/resources>.
2. Put the file in resources folder of your project.
3. Load the data to a Redis Map.

**Practice Task 11**

1. Write a page to diplay the list of products.
2. Include a “Buy” button for each product item.
3. If user clicks “Buy”, the “Buy” attribute of the product record will increment by 1.
4. If the “Buy” attribute quantity is equals to the “stock” attribute quantity, user will not be able to buy.
5. If user is not able to buy, it will be directed to a page display the message “Product is currently unavailable. You are not able to buy it. On the page, there will be a “Next” button to direct user back to the product listing page.
6. If user successfully bought the product (“buy” attribute counter increments by 1), user will be directed to a page showing the product details of the bought item. On the page, there will be a “Next” button to direct user back to the product listing page.

**Practice Task 12**

Repeat **Practice Task 9**.