TO-DO LIST PROJECT

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MVP Objectives

- To create an OOP-based application using supporting tools, methodologies and technologies that encapsulate all core modules covered during training.
- Create a full-stack web application following the enterprise architecture model:
- An application back-end developed using Java (Spring Boot framework).
- A test suite utilizing JUnit and Mockito for integration and unit tests of the back-end as well as Selenium for automated front-end tests
- A managed MySQL database hosted locally or within a cloud provider examined during Cloud Fundamentals module.
- A front-end developed using JavaScript, HTML and CSS.
- 80% test coverage

Developer Journey

- **Version Control System**: Git
- **Source Code Management**: GitHub
- **Kanban Board**: Jira
- **Database Management System**: MySQL Server 5.7+ (local or GCP instance)
- **Back-End Programming Language**: Java (through Springboot)
- **Build Tool**: Maven
- **Unit Testing**: Junit
- **Integration Testing:** MockMVC
- **Front-End:** HTML, CSS and JavaScript

Risk Assessment

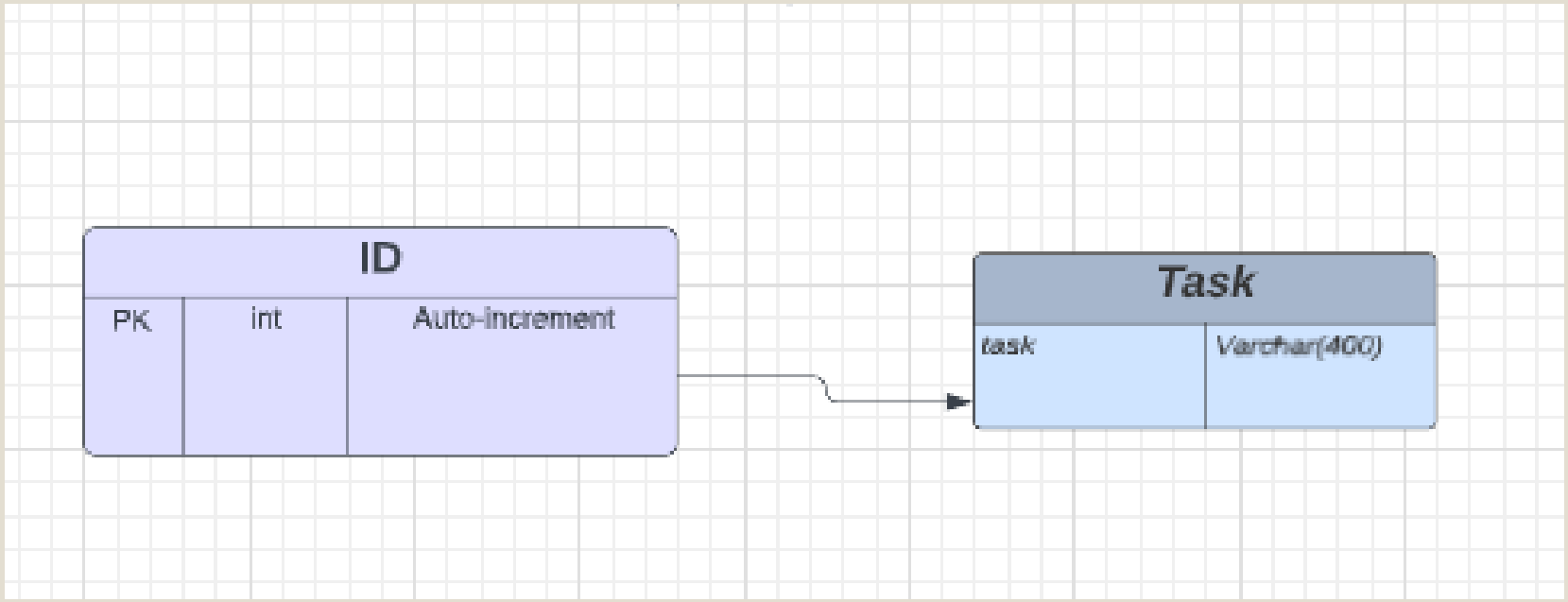
	Negligible	Minor	Moderate	Significant	Severe
Very unlikely	Low	Low	Low Medium	Medium	Medium
Unlikely	Low	Low Medium	Low Medium	Medium	Medium High
Moderate	Low	Low Medium	Medium	Medium High	Medium High
Likely	Low	Low Medium	Medium	Medium High	High
Very Likely	Low Medium	Medium	Medium High	High	High

Risk	Description	Response to avoid or fix	Likelihood	Impact	Risk Level
Device malfunction	If the device I'm working on stops working or faces any issues, this could mean I can't use it to continue my project.	Regularly run device check-ups to ensure it is working fine.	Very unlikely	Severe	Medium
Lose my work	I could lose all my work which would affect the completion of the project in time.	Regularly save and check on my work and create backup copies.	Very unlikely	Severe	Medium
Poor/loss of internet connection	Poor internet connection could slow down and hinder the progress of the project. Loss of internet connection would mean that GitHub can't be accessed, and I won't be able to contact my cohort on teams.	Ensure my internet provider is strong.	Unlikely	Severe	Medium high
GitHub servers being down	This would mean I am unable to access my remote work to complete my project.	Frequently check up on the GitHub server status to check it is running as normal and immediately inform my trainer if there are any issues.	Very unlikely	Severe	Medium
Health issues	Working for long periods of time in front of the screen can pose a range of health risks, such as back problem, wrist aches, eye strain, etc.	Schedule in regular breaks, that includes walking around and not looking at a screen. Also ensure I am well rested before starting work.	Moderate	Minor	Low medium
Project trainer not being available	Due to illness or being busy with helping others, which could limit the support I get on my work.	Inform the mentor that I need support and to get back to me when he is available. In the meantime, I can work on other work so that I am not wasting any time wating.	Moderate	Minor	Low medium
Being severely unwell or injured	I could fall ill or injure myself which could stop me from being able to finish the project in time.	Be careful when carrying out any injury prone activities such as exercise and take extra precautions to avoid falling ill.	Moderate	Significant	Medium high
Merge conflicts (Git)	Merge conflicts could occur when merging branches on git which could impact work being pushed onto the remote.	Frequently push work onto the remote and be mindful of which branches I am working on.	Moderate	Moderate	Medium

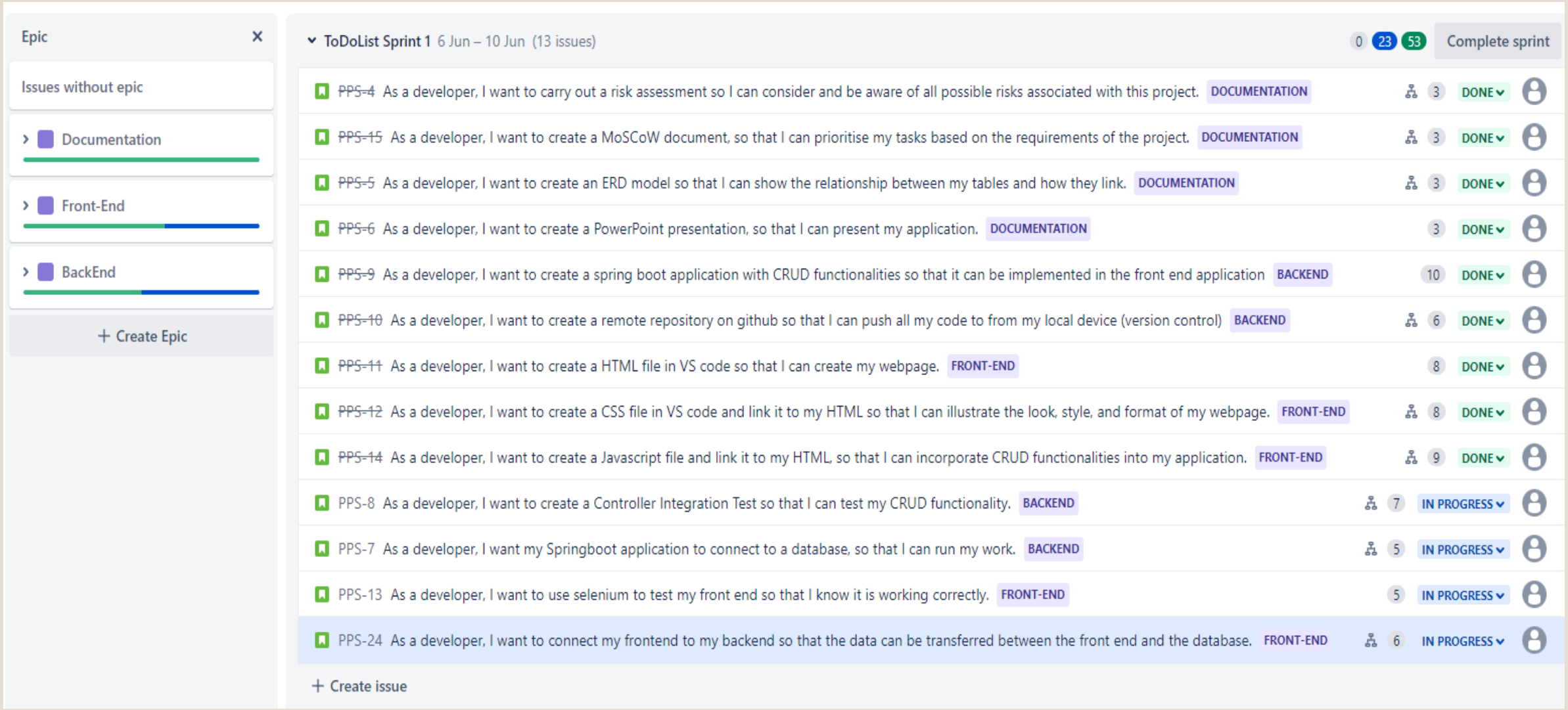
MoSCoW Method Document

Must Have	Should Have	Could Have	Won't Have
CRUD Functionality	80% Test coverage	Multiple webpages within my frontend application.	
Front-End application that users can interact with to send/receive data		User stories from the users point of view rather than just the developer.	
A connected database to receive this data			
A backend using Java (Springboot) that is also connected to the database.			
Use of version control (Git) to push work onto the remote repository.			
Documentation relating to the project. i.e: risk assessment, ERD model, etc.			

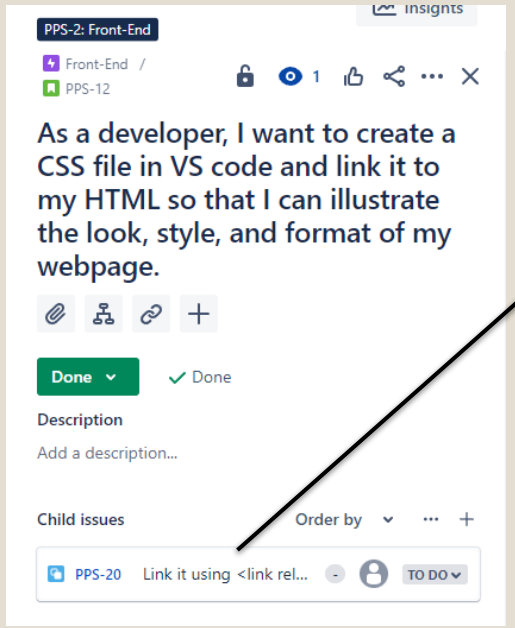
ERD MODEL

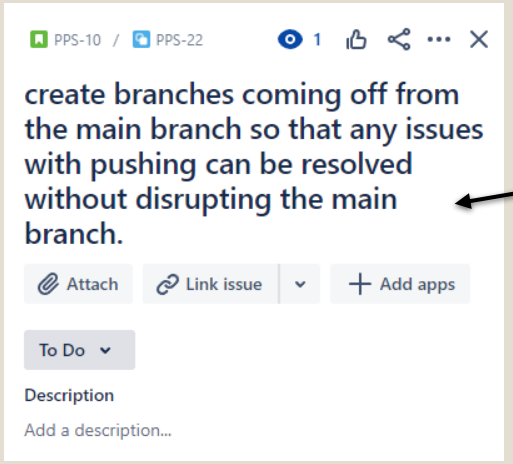


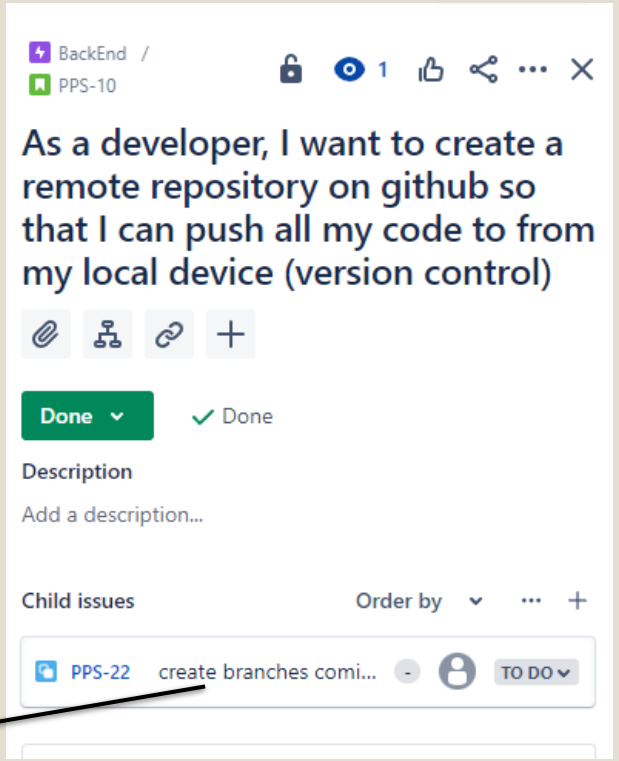
Sprint


Epic
Issues without epic
Documentation
Front-End
BackEnd
+ Create Epic
ToDoList Sprint 1 6 Jun – 10 Jun (13 issues)
0 23 53
Complete sprint
PPS-4 As a developer, I want to carry out a risk assessment so I can consider and be aware of all possible risks associated with this project. DOCUMENTATION 3 DONE
PPS-15 As a developer, I want to create a MoSCoW document, so that I can prioritise my tasks based on the requirements of the project. DOCUMENTATION 3 DONE
PPS-5 As a developer, I want to create an ERD model so that I can show the relationship between my tables and how they link. DOCUMENTATION 3 DONE
PPS-6 As a developer, I want to create a PowerPoint presentation, so that I can present my application. DOCUMENTATION 3 DONE
PPS-9 As a developer, I want to create a spring boot application with CRUD functionalities so that it can be implemented in the front end application BACKEND 10 DONE
PPS-10 As a developer, I want to create a remote repository on github so that I can push all my code to from my local device (version control) BACKEND 6 DONE
PPS-11 As a developer, I want to create a HTML file in VS code so that I can create my webpage. FRONT-END 8 DONE
PPS-12 As a developer, I want to create a CSS file in VS code and link it to my HTML so that I can illustrate the look, style, and format of my webpage. FRONT-END 8 DONE
PPS-14 As a developer, I want to create a Javascript file and link it to my HTML, so that I can incorporate CRUD functionalities into my application. FRONT-END 9 DONE
PPS-8 As a developer, I want to create a Controller Integration Test so that I can test my CRUD functionality. BACKEND 7 IN PROGRESS
PPS-7 As a developer, I want my Springboot application to connect to a database, so that I can run my work. BACKEND 5 IN PROGRESS
PPS-13 As a developer, I want to use selenium to test my front end so that I know it is working correctly. FRONT-END 5 IN PROGRESS
PPS-24 As a developer, I want to connect my frontend to my backend so that the data can be transferred between the front end and the database. FRONT-END 6 IN PROGRESS
+ Create issue

Tasks (Acceptance Criteria)







GitHub

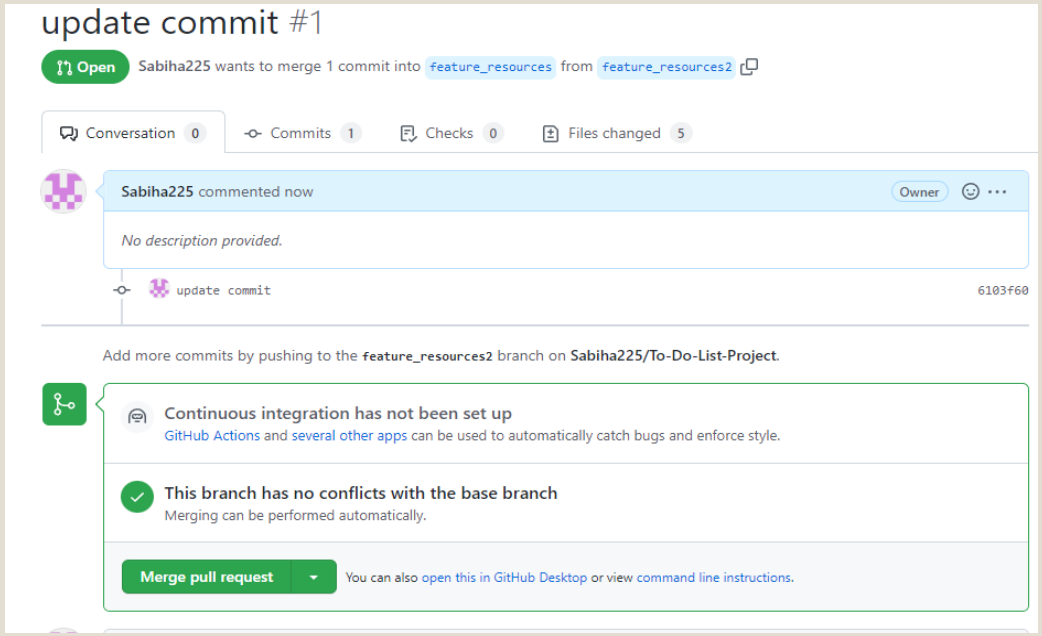
Multiple feature branches

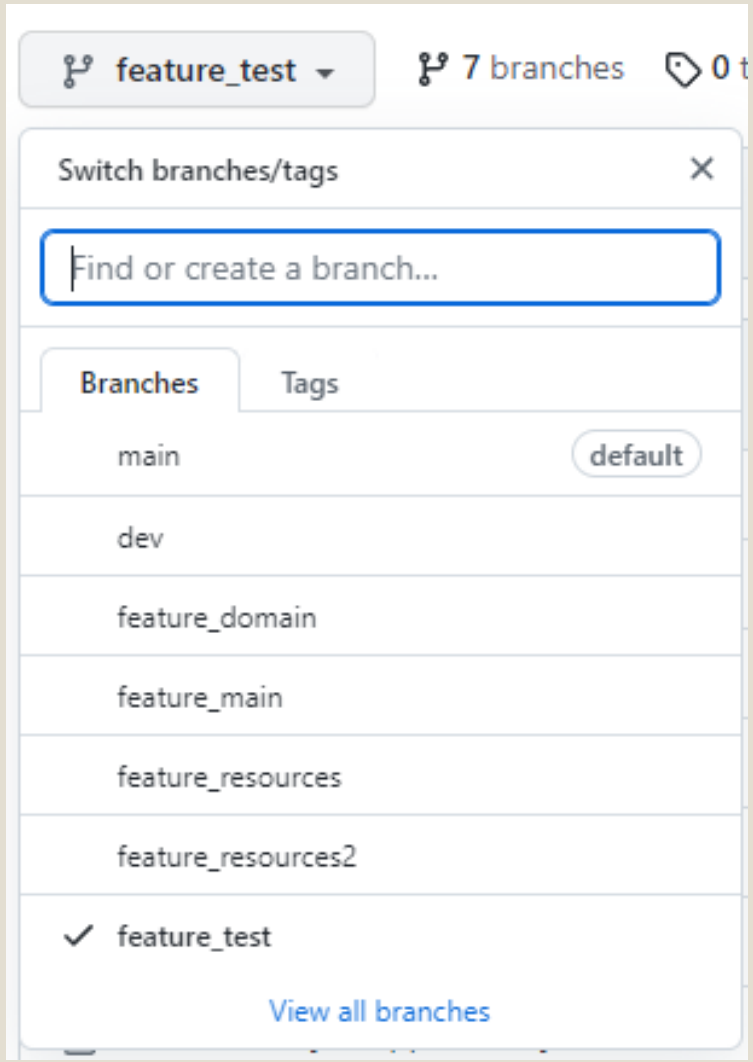
↓

Dev branch

↓

Master





Version Control


```java
public class ToDoListControllerIntegrationTest {

    @Autowired
    private MockMvc mvc;

    @Autowired
    private ObjectMapper mapper;

    @Test
    void testCreate() throws Exception {
        ToDoList testtask = new ToDoList(1, "Finish project");
        String testToDoListAsJSON = this.mapper.writeValueAsString(testtask);
        RequestBuilder req = post("/create").contentType(MediaType.APPLICATION_JSON).content(testToDoListAsJSON);

        ToDoList testCreatedtask = new ToDoList(3, "Buy groceries");
        String testCreatedtaskAsJSON = this.mapper.writeValueAsString(testCreatedtask);
        ResultMatcher checkStatus = status().isCreated();
        ResultMatcher checkBody = content().json(testCreatedtaskAsJSON);

        // this sends the request and then checks the status and the body
        this.mvc.perform(req).andExpect(checkStatus).andExpect(checkBody);
```

Git checkout –b dev

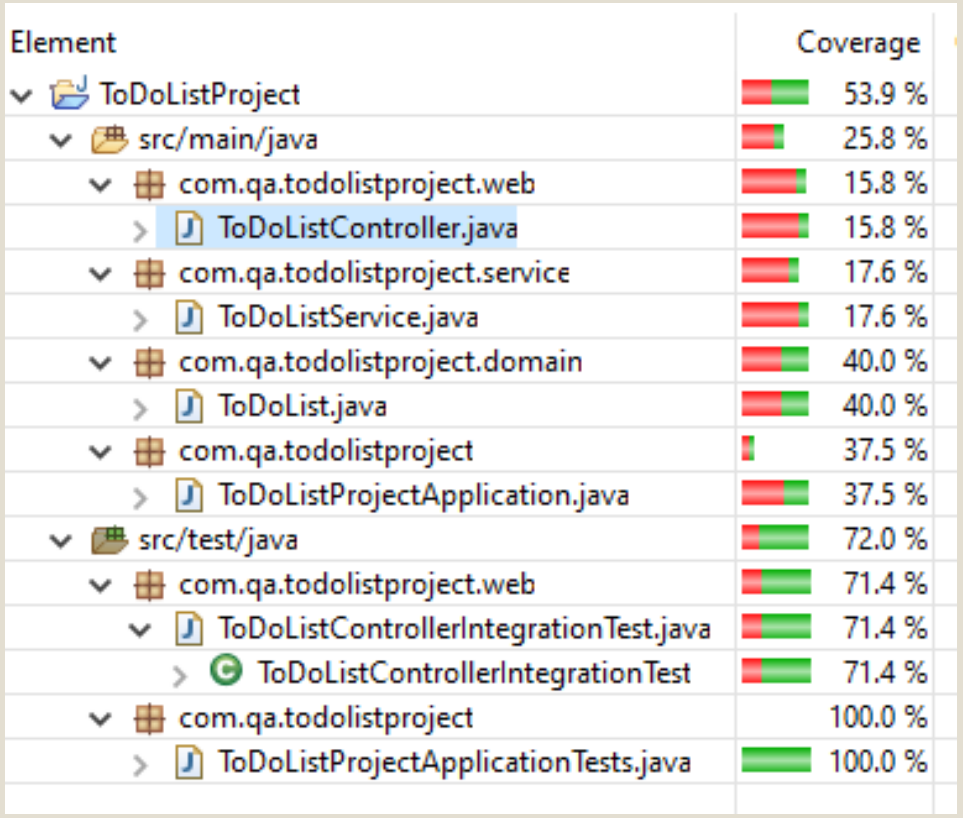
Git checkout –b feature_resources2

Git add .

Git commit –m “commit feature_resources2”

Push that onto GitHub

Test Coverage



Element	Coverage
ToDoListProject	53.9 %
src/main/java	25.8 %
com.qa.todolistproject.web	15.8 %
ToDoListController.java	15.8 %
com.qa.todolistproject.service	17.6 %
ToDoListService.java	17.6 %
com.qa.todolistproject.domain	40.0 %
ToDoList.java	40.0 %
com.qa.todolistproject	37.5 %
ToDoListProjectApplication.java	37.5 %
src/test/java	72.0 %
com.qa.todolistproject.web	71.4 %
ToDoListControllerIntegrationTest.java	71.4 %
ToDoListControllerIntegrationTest	71.4 %
com.qa.todolistproject	100.0 %
ToDoListProjectApplicationTests.java	100.0 %

Testing

Unfortunately, not all my backend testing worked. ☹

FrontEnd Testing (Selenium)

```
3. click on css=input OK
4. type on css=input with value Buy groceries OK
5. sendKeys on css=input with value ${KEY_ENTER} OK
6. click on css=li:nth-child(3) .fas OK
7. click on css=li:nth-child(2) .fas OK
8. click on css=.fa-trash-alt OK
'FrontEnd Test' completed successfully
```

LIVE DEMO

Performance Review

- Whilst I attempted to accomplish all the tasks in my sprint, I was not successful as my integration tests failed and I was unable to directly connect my frontend to my backend.
- Time constraints
- However, I really enjoyed the front-end aspect, of building the webpage and if I had more time I would have liked to add more features.
- I plan to do more independent practice for Java and Springboot so that I can become more confident in it and implement that into my future projects.

Thank You ☺

Any Questions?