CLOUD NATIVE PROJECT

PRESENTATION

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INTRODUCTION

- Hello, I’m Dom, and welcome to my presentation.

- Today I will discuss the development of my second project (the Cloud Native Project), exploring my thought processes and how I produced the final product.

A BRIEF OVERVIEW

- During this presentation, we will cover several areas:
  - Planning - Including why I have chosen this topic, my approach to this project, the tools I used to design my approach and any diagrams that may have helped.
  - Technologies - I will present any coding languages (e.g Java) or other relevant software (e.g Jira) and explain how I used them to achieve my end goal.
  - Demo - I will demonstrate my project and explain how it works.
  - Summary - I will present my reflection on the project, taking into consideration what succeeded, what failed and how I can improve next time, among other areas.
  - Questions - The floor will be opened up for questions at the end of the presentation.

PLANNING

- I decided to create a program that mimicked the functions of a shopping list, mostly because this program would prove useful to anyone in real-world situations. There is also potential for this code to be adapted to create other software, such as a notes system or a To-Do list application.

- My first action after deciding on what I would make for my project was to create a Jira board. Initially, this was a brainstorming tool that I could abstract or include information from in my project board.

- In addition to this, I created two separate GitHub repositories. This was mostly to ensure I could separate the elements of my program into organised sets of front end and back end code, thus minimising confusion and making it easier to correct any mistakes/update my code.

- Diagrams overleaf.

PLANNING - ERD DIAGRAM

	itemId	itemName	itemPrice	aisleNumber
PK	1	Chicken	6.99	7
	2	Cheese	2.99	2
	3	Chocolate	2.49	10
	4	Fighter Jet	99,999,999.99	12

PLANNING - RISK ASSESSMENT

	Negligible	Minor	Major	Hazardous	Catastrophic	
Very Unlikely	Low	Low	Low mediur	Medium	Medium	
Unlikely	Low	Low Medium	Low mediur	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 hig	High	High	
Risk	Statement	Response		Likelihood	Impact	Risk Level
Injury to back or arms due to stress and/or poor adjustments	As a result of long periods of sitting at a computer screen, there is a possibility of muscle straining in certain parts of my body that will be under stress while seated. This could include my lower back (if	I have done my best to ensure that my setup is accommodating of these potential issues. I have invested in a new		Medium	Potentially long-term problems that could impede computer use, as well as my day to day life.	
Potential for eye strain	Using a computer for extended periods of time can negatively affect vision if the situation is not properly managed. Eyes can become strained if they are not regularly rested.	I have scheduled a timetable for the week, giving myself mandatory breaks for exercise and rest.		Low Medium	Loss of sleep could be an issue, as well as further loss of sight (mine is already poor so I'm taking extra care here).	
Wi-Fi outage	With the imminent arrival of Storm Arwen, there is a fair likelihood that Wi-Fi service is interrupted, potentially multiple times a day.	Use an ethernet cable to salvage at least some sort of network capability.		Medium	Issues uploading to GitHub or interacting with trainers	
Power Outage	Storm Arwen could interrupt power lines, potentially on a long term basis.	Find some way to tell trainer, investigate any possible means of reconnection, maybe portable power.		Low Medium	Unable to use devices and therefore unable to progress my project	
Unexpected illness	Colder temperatures, combined with rising COVID cases, could lead to a chance illness.	Consult trainer. Work around the issue. Take regular breaks.		Low	Ability to work fluently and quickly could be impeded, affecting overall progress of the project	
Working from home could produce distractions	I share a house with a younger sibling and 2 parents, as well as an older brother who occasionally returns from university. There is a possibility of distraction from any one of them	Let family members know when I'm unavailable/establish times I am able to participate in activities		High	Slower progress overall. Potential inability to properly organise my time effectively	
Potential for programs to crash and I lose my data	My current laptop is old, and possesses only 4GB of RAM. It struggles to run heavy duty programs such as IDEs or multiple browser tabs. The problem is compounded when these apps are open in parallel. This could lead to a crash and the subsequent loss of unsaved data.	Inform trainer. Salvage any remaining code from previous file and restart process.		Medium High	A loss of data could affect my overall product at the end of the week	
Emergency situations arising	There is a possibility of random emergency situations arising at any given time that could take me away from my project.	Inform trainer.		Low	Potential for serious delays to project development.	
GitHub repo compromisation	My GitHub repos have a tendency to become erroneous and as a result become unusable.	Inform trainer. Create new repo. Salvage any files from the old repo.		Medium High	Valuable time consumed and potential loss of files (this would be rare.)	
Trainers too busy to help	Should I encounter an issue that I can't fix alone, I will need to contact the trainer for assistance. They may not be available, however.	Wait for trainer. Proactively look on the web for a solution.		High	Impact is dependent on whether or not I find a solution on the web. If I don't, my progress will be severely delayed.	

TECHNOLOGIES

- This project involves creating a front end website-style user interface that can interact with an SQL database table, via a Java program that can receive and then forward information both to and from the GUI.

- As stated above, I will be using Java and SQL. The creation of this program also requires JavaScript, HTML and CSS.

- I will be using Jira to manage my project workflow. The project scope specifies a kanban board, which is what I will use.

- I will also be using GitHub, making use of the feature branch model to upload, store and organise my code and documentation.

- The Java program will be created with Spring, which is a tool for creating Java-written web applications. This also incorporates Maven.

TECHNOLOGIES - WHY USE THEM?

- Technologies I have used that I have used before: Java, SQL.
- Technologies I have used that are new to me: JavaScript, HTML, CSS (+ Bootstrap).
- Java (Eclipse) - Will allow me to create a bridge between the UI and the database.
- SQL (MySQL Workbench) - Lets me create a database to store information inputted on the UI.
- JavaScript (VSCode) - Will establish the initial connection between the HTML document and the Java files.
- HTML (VSCode) - Gives me the necessary platform to build a website interface to accept user inputs.
- CSS (VSCode) - Will allow me to style said User Interface (with the help of Bootstrap).

TESTING

```
@Test
void testGetAllItems() throws Exception {
    Shopping testItem = new Shopping(2, "Chicken", 6.99, 7);
    String testItemAsJSON = this.mapper.writeValueAsString(List.of(testItem));
    RequestBuilder req = get("/getAll").contentType(MediaType.APPLICATION_JSON);

    ResultMatcher checkStatus = status().isOk();
    ResultMatcher checkBody = content().json(testItemAsJSON);

    this.mvc.perform(req).andExpect(checkStatus).andExpect(checkBody);
}
```

```
@Test
void testCreateItem() throws Exception {
    Shopping testItem = new Shopping("Cheese", 2.99, 4);
    String testItemAsJSON = this.mapper.writeValueAsString(testItem);
    RequestBuilder req = post("/create").content(testItemAsJSON).contentType(MediaType.APPLICATION_JSON);

    Shopping testCreatedItem = new Shopping(1, "Cheese", 2.99, 4);
    String testCreatedItemAsJSON = this.mapper.writeValueAsString(testCreatedItem);
    ResultMatcher checkStatus = status().isCreated();
    ResultMatcher checkBody = content().json(testCreatedItemAsJSON);

    this.mvc.perform(req).andExpect(checkStatus).andExpect(checkBody);
}
```

TESTING DATA

ProjectBackEnd	76.1 %	388	122	510
src/main/java	68.8 %	137	62	199
com.example.demo.service	47.9 %	35	38	73
ShoppingServiceDB.java	47.9 %	35	38	73
com.example.demo.web	68.3 %	41	19	60
ShoppingController.java	68.3 %	41	19	60
com.example.demo	37.5 %	3	5	8
ProjectBackEndApplication.java	37.5 %	3	5	8
com.example.demo.domain	100.0 %	58	0	58
Shopping.java	100.0 %	58	0	58
src/test/java	80.7 %	251	60	311
com.example.demo	80.7 %	251	60	311
ShoppingTests.java	80.5 %	247	60	307
ProjectBackEndApplicationTests.java	100.0 %	4	0	4

DEMO

- I shall now demonstrate my application.

SPRINT REVIEW

- I feel like this project went much better for me, in comparison to my IMS project.

- I feel like I am starting to understand the technologies I am using. This is of special importance to me, as I am new to the vast majority of these technologies and have had to mostly rely on help from trainers and colleagues to date.

- I managed my time much better too. I was more realistic and disciplined when it came to allocating time slots for different areas, and as a result was able to finish the project in plenty of time. My experience of the IMS project definitely helped here.

- I am also happy with how my GitHub was managed. My previous project was disorganised, and didn't incorporate the feature branch model as the scope required. This time, however, I was using feature branches with a lot more confidence that I have previously.

- My choice to upgrade my computer has also helped an awful lot. I no longer experience slow loading times (I HIGHLY recommend the M1 MacBook Pro) and I can count on the near certainty that my computer won't crash. However, I have been pushing to GitHub a lot more to ensure I have a backup of my files.

SPRINT RETROSPECTIVE

- Here I will explore what I would change about the project, had I had more time or the foresight.

- Had I had more time, I would have definitely created a UML Diagram. However, given that this was not a part of Project Scope, I decided against creating one and instead focused on completing my application up to the standard of the Minimum Viable Product.

- I would also have liked to add more CSS. I opted to use BootStrap for the majority of the styling, only using CSS to centralise certain text elements. Next time, I will definitely try to implement more of my own CSS.

- I also think I should avoid underusing Postman. It's a useful tool that I never really got to properly utilise during development.

- In summary, however, I would say this has been a successful project. It has certainly been a marked improvement over the IMS Project, and a great building block for me.

SUMMARY

- In summary, I am fairly happy with how this week has gone. I feel like I properly represented my talents and, most importantly, produced a working application in line with Project Scope.

- My code was error-free, and I was able to establish a sustainable connection to my database table. This was an improvement over my previous effort, as I hadn’t achieved this on my previous project. My GitHub was also organised, as I wanted it to be.

- I didn’t experience a vast array of issues during development. However, I overcame each one (I required help with some, but I expected as much). I have done pretty well in my opinion.

- This project has emphasised to me the importance of time organisation and also how effective planning is in order to achieve a goal. These are lessons that will not be lost on me going forward. I have completed this project feeling more prepared for what lies ahead.

QUESTIONS

Thank you for listening.