



# HOBBY WEB APPLICATION PROJECT-QA

A PRESENTATION BY LLOYD LOW

# PROGRAMS/DESIGN METHODOLOGIES USED

**JIRA** – Kanban and Scrum boards for agile project planning.

**GITHUB** – Git GUI for repository and source management.

**MYSQL WORKBENCH** – Database creation and management tool.

**ECLIPSE** – Integrated development environment using Java, an object-oriented programming language.

**MAVEN** – Good practice build tool for Java projects.

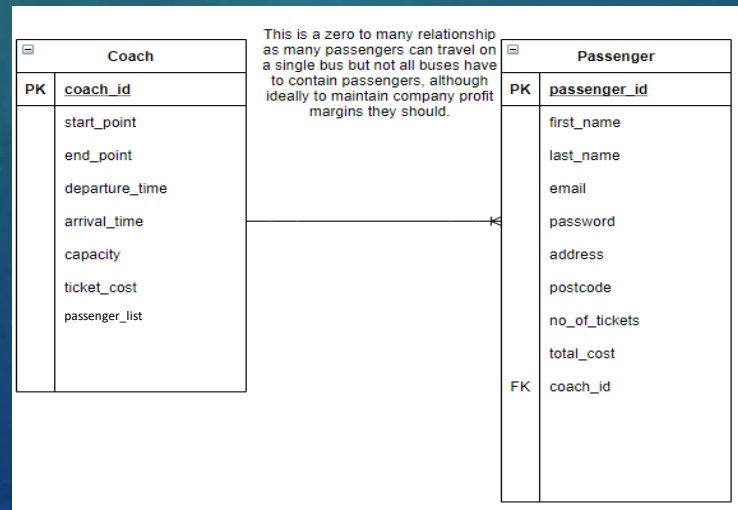
**JUNIT** – Unit testing tool for Java projects.

**MOCKITO** – Extension of JUNIT, used to test methods that call many other methods efficiently.

# MY PRE-PROJECT RISK ASSESSMENT AND ERD BOARD

Project Name	Hobby Web Application (HWA)
Prepared By	Lloyd Low
Date	31-01-21

Problem Area or Activity	Risks Identified	Probability Of Occurance	Impact Intensity	Mitigation Strategy	Additional Measures
Overall Project	Risk of Covid-19	Low	High	Wear a mask when out in public	Observe social distancing and listen to Boris
	Loss of Files/progress - PC critical failure	Low	Extreme	Ensure regular commits and pushes to GitHub	Save often
	Internet outages	Medium	Medium	Ensure a stable internet connection	Connect via ethernet cable where possible
	Bugs Making it through testing	Medium	Medium/High	Ensure thorough testing of code to a high coverage	Manually run through to route out bugs
	Running out of time	Medium	Extreme	Properly utilise Jiras planning functionality to elect time to core issues	Take the approach that barebone yet functional code is better than complex and broken code.



# KANBAN BOARD SETUP

HWA-3 *	Create a project risk assessment to identify the overall risks.	✓ Task	↑ Highest	DONE
HWA-4 *	Create a project entity relationship diagram to properly map the relationship between databases	✓ Task	↑ Highest	DONE
HWA-6 *	Create a Git repository for the project	✓ Task	↑ Highest	DONE
HWA-7 *	Create the Passenger Domain	✓ Task	↑ High	DONE
HWA-9 *	Create a Spring project	✓ Task	↑ Highest	DONE
HWA-12 *	Create the appropriate hierarchy packages	✓ Task	↑ Medium	DONE
HWA-13 *	Set up the application configuration file	✓ Task	↑ Medium	DONE
HWA-14 *	Create Coach Domain	✓ Task	↑ Medium	DONE
HWA-17 *	Create Passenger Domain Transfer Object	✓ Task	↑ Medium	DONE
HWA-19 *	Create Coach Domain Transfer Object	✓ Task	↑ Medium	DONE
HWA-21 *	Create Passenger Repository	✓ Task	↑ Medium	DONE
HWA-23 *	Create Coach Repository	✓ Task	↑ Medium	DONE
HWA-25 *	Create Passenger Controller	✓ Task	↑ Medium	DONE
HWA-27 *	Create Coach Controller	✓ Task	↑ Medium	DONE
HWA-29 *	Create Passenger Service	✓ Task	↑ Medium	DONE
HWA-31 *	Create Coach Service	✓ Task	↑ Medium	DONE
HWA-33 *	Apply the correct parameters to the .properties files to allow for h2 database connections	✓ Task	↑ Medium	DONE
HWA-34 *	add LOMBOK and Swagger to the pom.xml	✓ Task	↑ Medium	DONE
HWA-35 *	Create a data.sql file to prepopulate the database for testing	✓ Task	↑ Medium	DONE
HWA-37 *	Create a login page	✓ Task	↑ Medium	DONE
HWA-41 *	Create any other necessary pages	✓ Task	↑ Medium	DONE
HWA-43 *	Script a working coach search	✓ Task	↑ Medium	DONE
HWA-44 *	Script a working login page	✓ Task	↑ Medium	DONE
HWA-46 *	Add scripts to Index page	✓ Task	↑ Medium	DONE
HWA-47 *	Create a Checkout page/system	✓ Task	↑ Medium	DONE
HWA-48 *	Script a working checkout system	✓ Task	↑ Medium	DONE
HWA-49 *	Create an account management page/set of pages	✓ Task	↑ Medium	DONE
HWA-50 *	Script the account management system	✓ Task	↑ Medium	DONE
HWA-51 *	Create an admin page/set of pages	✓ Task	↑ Medium	DONE
HWA-52 *	Script the admin powers	✓ Task	↑ Medium	DONE



# SPRINT 1: BACK-END BUILDING REVIEW

21/Jan/21 9:00 AM - 22/Jan/21 3:32 PM

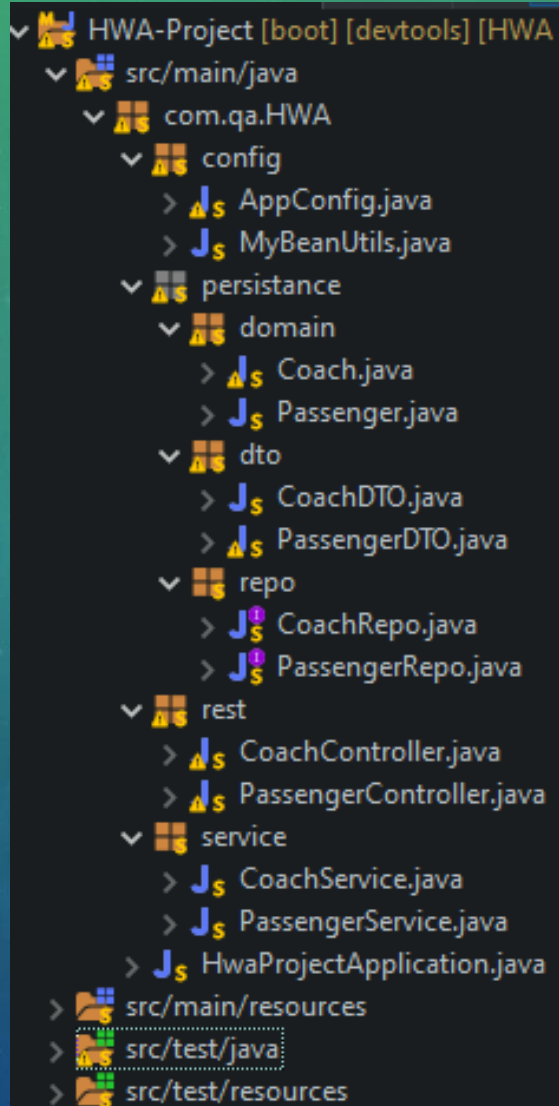
HWA-3 *	Create a project risk assessment to identify the overall risks.	✓ Task	↑ Highest	DONE
HWA-4 *	Create a project entity relationship diagram to properly map the relationship between databases	✓ Task	↑ Highest	DONE
HWA-6 *	Create a Git repository for the project	✓ Task	↑ Highest	DONE
HWA-7 *	Create the Passenger Domain	✓ Task	↑ High	DONE
HWA-9 *	Create a Spring project	✓ Task	↑ Highest	DONE
HWA-12 *	Create the appropriate hierarchy packages	✓ Task	↑ Medium	DONE
HWA-13 *	Set up the application configuration file	✓ Task	↑ Medium	DONE
HWA-14 *	Create Coach Domain	✓ Task	↑ Medium	DONE
HWA-17 *	Create Passenger Domain Transfer Object	✓ Task	↑ Medium	DONE
HWA-19 *	Create Coach Domain Transfer Object	✓ Task	↑ Medium	DONE
HWA-21 *	Create Passenger Repository	✓ Task	↑ Medium	DONE
HWA-23 *	Create Coach Repository	✓ Task	↑ Medium	DONE
HWA-25 *	Create Passenger Controller	✓ Task	↑ Medium	DONE
HWA-27 *	Create Coach Controller	✓ Task	↑ Medium	DONE
HWA-29 *	Create Passenger Service	✓ Task	↑ Medium	DONE
HWA-31 *	Create Coach Service	✓ Task	↑ Medium	DONE
HWA-33 *	Apply the correct parameters to the .properties files to allow for h2 database connections	✓ Task	↑ Medium	DONE
HWA-34 *	add LOMBOK and Swagger to the pom.xml	✓ Task	↑ Medium	DONE
HWA-35 *	Create a data.sql file to prepopulate the database for testing	✓ Task	↑ Medium	DONE

## What went well:

- Completed all issues within timeframe
- Established the framework of the project
- Good assessment of risks
- Good structuring and linking between classes

## What Didn't:

- Spent a fair amount of time deliberating what types certain database columns should take.
- Didn't realise that h2 creates tables and columns in alphabetical order.
- Lack of realisation of the task ahead.



My Application structure after sprint 1.

# SPRINT 2: FRONT-END BUILDING REVIEW

25/Jan/21 9:00 AM - 28/Jan/21 11:54 AM

Completed Issues						<a href="#">View in Issue Navigator</a>
Key	Summary	Issue Type	Priority	Status	Story Points (-)	
<a href="#">HWA-37</a> *	Create a login page	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-41</a> *	Create any other necessary pages	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-43</a> *	Script a working coach search	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-44</a> *	Script a working login page	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-46</a> *	Add scripts to Index page	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-47</a> *	Create a Checkout page/system	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-48</a> *	Script a working checkout system	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-49</a> *	Create an account management page/set of pages	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-50</a> *	Script the account management system	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-51</a> *	Create an admin page/set of pages	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-52</a> *	Script the admin powers	✓ Task	↑ Medium	DONE	-	
Issues Not Completed						<a href="#">View in Issue Navigator</a>
Key	Summary	Issue Type	Priority	Status	Story Points (-)	
<a href="#">HWA-39</a> *	Create a Destinations page	✓ Task	↑ Medium	TO DO	-	
<a href="#">HWA-45</a> *	Script a Coach Timetable	✓ Task	↑ Medium	TO DO	-	

## What went well:

- Created a good base for the website.
- Applied a universal navbar to link between pages.
- Laid out where the CRUD functionality would be demonstrated.

## What Didn't:

- Not all tasks were completed.
- Spent too much time on styling.
- Realised some parts of my vision were unrealistic.



[Home](#) [Timetable](#) [Contact Us](#)

[My Account](#) [Sign-up](#) [Login](#)

The Navbar that sits at the top of all user accessible pages



# SPRINT 3: FRONT-END SCRIPTING REVIEW

28/Jan/21 9:55 AM - 30/Jan/21 6:00 PM

Completed Issues						<a href="#">View in Issue Navigator</a>
Key	Summary	Issue Type	Priority	Status	Story Points (-)	
HWA-37 *	Create a login page	✓ Task	↑ Medium	DONE	-	
HWA-41 *	Create any other necessary pages	✓ Task	↑ Medium	DONE	-	
HWA-43 *	Script a working coach search	✓ Task	↑ Medium	DONE	-	
HWA-44 *	Script a working login page	✓ Task	↑ Medium	DONE	-	
HWA-46 *	Add scripts to Index page	✓ Task	↑ Medium	DONE	-	
HWA-47 *	Create a Checkout page/system	✓ Task	↑ Medium	DONE	-	
HWA-48 *	Script a working checkout system	✓ Task	↑ Medium	DONE	-	
HWA-49 *	Create an account management page/set of pages	✓ Task	↑ Medium	DONE	-	
HWA-50 *	Script the account management system	✓ Task	↑ Medium	DONE	-	
HWA-51 *	Create an admin page/set of pages	✓ Task	↑ Medium	DONE	-	
HWA-52 *	Script the admin powers	✓ Task	↑ Medium	DONE	-	

Issues Not Completed						<a href="#">View in Issue Navigator</a>
Key	Summary	Issue Type	Priority	Status	Story Points (-)	
HWA-39 *	Create a Destinations page	✓ Task	↑ Medium	TO DO	-	
HWA-45 *	Script a Coach Timetable	✓ Task	↑ Medium	TO DO	-	

## What went well:

- Was able to script all the CRUD functionality.
- Make the website look semi-decent.
- Utilise some creative methods to help users navigate the site and increase readability.
- Created all necessary extra webpages.

## What Didn't:

- Added lots of complicated functionality without thinking about the testing time requirement.
- Struggled with linking the front end and backend.
- Ended up scrapping some pages completely.

Contact.html

Index.html

Signup.html

myaccount.html

adminlogin.html

Login.html

Checkout.html

updateaccount.html

updateticket.html

AdminViewAllPass  
engers.html

adminsettings.html

Timetable.html

PurchasePage.html

addcoach.html

updatecoach.html

deletecoach.html

The structure of my website.

**LEGEND:**

**BLACK BOX:** Represents a page that has a navbar and hence has direct access to all the navbar pages (links not shown).

**GREEN BOX:** Represents a page that is only available to an admin and so has no navbar. The only link other than those shown is a return to index available by pressing the logo.

**BLUE ARROW:** Represents a button press that successfully redirects to the target page without the user having to interact further.

**YELLOW ARROW:** Represents a redirect caused by a failure. I.E if a user tries to access their account settings without logging in.

**LILAC ARROW:** Represents a button press that successfully redirects to the target page after user interaction on that page that could fail. I.E filling out a form or logging in.

# SPRINT 4: BACK-END TESTING REVIEW

30/Jan/21 6:00 PM - 31/Jan/21 5:58 PM

Completed Issues						<a href="#">View in Issue Navigator</a>
Key	Summary	Issue Type	Priority	Status	Story Points (-)	
<a href="#">HWA-8 *</a>	Test the Passenger Domain	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-15 *</a>	test the application configuration	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-16 *</a>	Test the Coach Domain	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-18 *</a>	Test Passenger Domain Transfer Object	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-20 *</a>	Test Coach Domain Transfer Object	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-22 *</a>	Test Passenger Repository	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-24 *</a>	Test Coach Repository	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-26 *</a>	Test Passenger Controller	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-28 *</a>	Test Coach Controller	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-30 *</a>	Test Passenger Service	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-32 *</a>	Test Coach Service	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-53 *</a>	Integration testing of Coach service	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-54 *</a>	Integration testing of Passenger service	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-55 *</a>	Integration testing of Passenger controller	✓ Task	↑ Medium	DONE	-	
<a href="#">HWA-56 *</a>	Integration testing of Coach controller	✓ Task	↑ Medium	DONE	-	

## What went well:

- Fully tested the back end.
- Achieved above 80% coverage.
- Fixed any minor bugs with the code.
- Created more robust and varied constructors to deal with the one-to-many relationship

## What Didn't:

- Had some issues with equalsverifier() as I had not properly read up on how it worked

16 `Coach newCO = new Coach ("London","Cardiff","10:00","14:00",55,12.00f);`  
 17

Problems Javadoc Declaration Console Coverage

Element	Coverage	Covered Instructions	Missed Instructions	Total Instructions
▼ HWA-Project	94.4 %	5,142	303	5,445
▼ src/main/java	85.8 %	1,800	299	2,099
▼ com.qa.HWA.persistance.dto	83.3 %	766	154	920
> PassengerDTO.java	82.9 %	412	85	497
> CoachDTO.java	83.7 %	354	69	423
▼ com.qa.HWA.persistance.domain	84.9 %	715	127	842
> Passenger.java	83.1 %	399	81	480
> Coach.java	87.3 %	316	46	362
> com.qa.HWA	14.3 %	3	18	21
▼ com.qa.HWA.config	100.0 %	58	0	58
> AppConfig.java	100.0 %	9	0	9
> MyBeanUtils.java	100.0 %	49	0	49
▼ com.qa.HWA.rest	100.0 %	100	0	100
> CoachController.java	100.0 %	50	0	50
> PassengerController.java	100.0 %	50	0	50
▼ com.qa.HWA.service	100.0 %	158	0	158
> CoachService.java	100.0 %	79	0	79
> PassengerService.java	100.0 %	79	0	79
> src/test/java	99.9 %	3,342	4	3,346

Coverage report for the backend.



# SPRINT 5: FRONT-END TESTING REVIEW

31/Jan/21 6:06 PM - 31/Jan/21 11:25 PM

Completed Issues						<a href="#">View in Issue Navigator</a>
Key	Summary	Issue Type	Priority	Status	Story Points (-)	
<a href="#">HWA-45</a>	Script a Coach Timetable	Task	Medium	DONE	-	
<a href="#">HWA-57</a>	As a user I want to be able to register so that I can access other features	Story	Medium	DONE	-	
<a href="#">HWA-58</a>	As a user I want to be able to log in so that I can access more features	Story	Medium	DONE	-	
<a href="#">HWA-59</a>	As a user I want to be able to see all coaches so that I can choose which one to take	Story	Medium	DONE	-	
<a href="#">HWA-60</a>	As a user I want to be able to purchase tickets so that I can travel	Story	Medium	DONE	-	
Issues Not Completed						<a href="#">View in Issue Navigator</a>
Key	Summary	Issue Type	Priority	Status	Story Points (-)	
<a href="#">HWA-61</a>	As a user I want to be able to update my personal details so I can stay up to date	Story	Medium	TO DO	-	
<a href="#">HWA-62</a>	As a user I want to be able to update my ticket details so that I can alter the amount of tickets I bought	Story	Medium	TO DO	-	
<a href="#">HWA-63</a>	As a user I want to be able to delete my account so that I am not registered when I dont want to use the service anymore	Story	Medium	TO DO	-	
<a href="#">HWA-64</a>	As a user I want to be able to log out at the end of my browsing session	Story	Medium	TO DO	-	
<a href="#">HWA-65</a>	As a user I want to be able to contact someone if I have difficulties so that they can be resolved	Story	Medium	TO DO	-	
<a href="#">HWA-66</a>	As an admin I want to be able to add new routes to increase profits	Story	Medium	TO DO	-	
<a href="#">HWA-67</a>	As an admin I want to be able to update routes so that I can correct mistakes or account for delays	Story	Medium	TO DO	-	
<a href="#">HWA-68</a>	As an admin I want to be able to delete routes so that I can keep the timetable up to date.	Story	Medium	TO DO	-	
<a href="#">HWA-69</a>	As an admin I want to be able to view all passengers so that I can see which coaches are popular	Story	Medium	TO DO	-	

## What went well:

- Managed to successfully test some user stories with Selenium
- Feel a lot more confident with the technology.
- Manually tested all user stories

## What Didn't:

- Ran out of time to script Selenium tests for all stories
- Was unable to produce a report of the successful tests

Chrome is being controlled by automated test software.

QA COACHES

HomeTimetableContact Us

My AccountSign-upLogin

Sign-Up

Please Register Your Personal Details Below

First Name

Lloyd

Last Name

Low

Address

20 Fal Road

Postcode

BE34 4RF

EG: BW56 3RG

Login Details

Email

ll@qa.com

This will be used as your login email.

Password

\*\*\*\*\*

Password must be between 6 and 20 characters and contain at least one numeric digit, one uppercase and one lowercase letter.

Chrome is being controlled by automated test software.

# Screegrab of Selenium testing the Website

# Console logs of the chrome driver running the tests.

Runs: 4/4Errors: 0Failures: 0

QA Coaches (Runner: [Unit 5] (31.520 s))

- buyTicket() (10.533 s)
- userLogin() (6.856 s)
- adminLogin() (5.418 s)
- createUser() (8.713 s)

```
10 class DomainCoverageTest {
11
12
13 @Test
14 void testCoach() {
15     List<Coach> co = new ArrayList<>();
16     Coach newCO = new Coach ("London", "Cardiff", "10:00", "14:00", 55, 12.00f);
17 }
```

ProblemsJavadocDeclarationConsoleCoverage

<terminated> Rerun QA Coaches [JUnit] C:\Users\Lloyd Low\Desktop\QAStuff\sts-4.9.0.RELEASE\plugins\org.eclipse.justi.openjdk.hotspot.jre.full.win32.x86\_64.15.0.1.x20210201113123\jre\bin\java.exe -Dwebdriver.chrome.driver=C:\Users\Lloyd Low\Desktop\QAStuff\chromedriver.exe -jar QAStuff\QA Coaches.jar

Failure Trace

!!! WebDriver closed successfully !!!

Boot Dashboard

type tags, projects, or working set names to match (incl. ...)

local

HWA-Project [devtools] [8081]

- Selenium-Tests

```
Starting ChromeDriver 88.0.4324.96 (68dba2d8a0b149a1d3afac56fa74648032bcf46b-refs/branch-heads/4324@#1784)) on port 40378
Only local connections are allowed.
Please see https://chromedriver.chromium.org/security-considerations for suggestions on keeping ChromeDriver safe.
ChromeDriver was started successfully.
Feb 01, 2021 1:31:23 AM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: W3C
Feb 01, 2021 1:31:23 AM com.qa.HMA.Selenium.POM.QA Coaches userLogin
WARNING: Connecting to QA Coaches....
Feb 01, 2021 1:31:27 AM com.qa.HMA.Selenium.POM.QA Coaches userLogin
INFO: Logging in as user...
Feb 01, 2021 1:31:28 AM com.qa.HMA.Selenium.POM.QA Coaches tearDown
WARNING: Closing webdriver instance!
Feb 01, 2021 1:31:28 AM com.qa.HMA.Selenium.POM.QA Coaches tearDown
INFO: !!! WebDriver closed successfully !!!
Starting ChromeDriver 88.0.4324.96 (68dba2d8a0b149a1d3afac56fa74648032bcf46b-refs/branch-heads/4324@#1784)) on port 21946
Only local connections are allowed.
Please see https://chromedriver.chromium.org/security-considerations for suggestions on keeping ChromeDriver safe.
ChromeDriver was started successfully.
Feb 01, 2021 1:31:30 AM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: W3C
Feb 01, 2021 1:31:30 AM com.qa.HMA.Selenium.POM.QA Coaches adminLogin
WARNING: Connecting to QA Coaches....
Feb 01, 2021 1:31:33 AM com.qa.HMA.Selenium.POM.QA Coaches adminLogin
INFO: Logging in as admin...
Feb 01, 2021 1:31:34 AM com.qa.HMA.Selenium.POM.QA Coaches tearDown
WARNING: Closing webdriver instance!
Feb 01, 2021 1:31:34 AM com.qa.HMA.Selenium.POM.QA Coaches tearDown
INFO: !!! WebDriver closed successfully !!!
Starting ChromeDriver 88.0.4324.96 (68dba2d8a0b149a1d3afac56fa74648032bcf46b-refs/branch-heads/4324@#1784)) on port 11963
Only local connections are allowed.
Please see https://chromedriver.chromium.org/security-considerations for suggestions on keeping ChromeDriver safe.
ChromeDriver was started successfully.
```

# GITHUB FORKING AND BRANCHING

- All new methods, features and tests were created on branches off the developer
- Changelogs (on GitHub and in documentation) for every push were created
- There will be one final commit and push to developer then master to complete the project



# PROJECT DEMONSTRATION

The background features a vertical gradient from light green at the top to dark blue at the bottom. It is populated with numerous small, glowing white and blue particles. Faint, semi-transparent circular patterns are visible, including a large one in the top right with degree markings (90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210) and arrows, and another in the bottom right with dashed lines and arrows. A partial circular pattern is also visible in the bottom left.



# OVERALL PROJECT RETROSPECTIVE

What would I do next time:

- Really focus on functionality over making it look nice as I feel like I overcomplicated the project with the timeframe available.
- Better apply my understanding of all the coding languages/styles to more efficiently code.

# FINISHING REMARKS