Choonz

By Team 4

Introduction

Process of Development

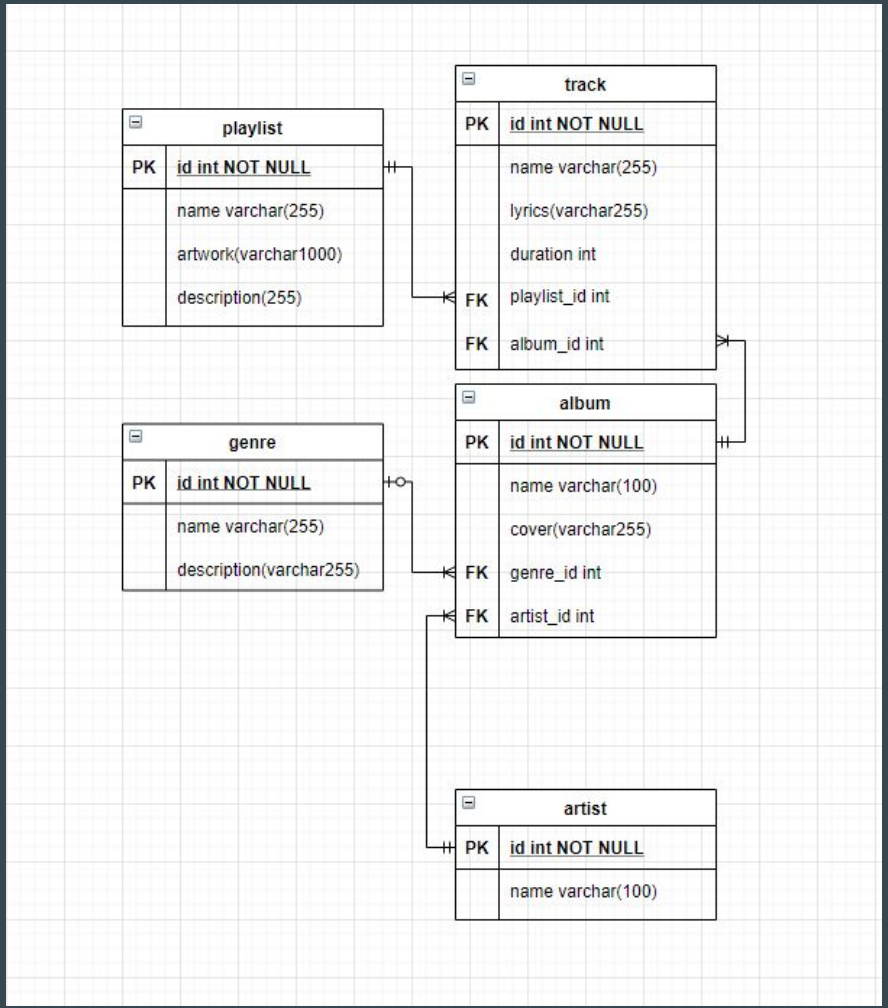
- Looked at current state of the project (API and Front-End)
- Created a risk assessment for project
- Decided on the priority of the features for final product (to quickly provide a MVP)
- Split the user stories into sprints
- Added project to Git
- Worked using main/dev/feature branch model.

Risk Assessment

ID	Risk Description	Cause	Effect	Likelihood (1-5)	Impact (1 – 5)	Risk Rating (1-25)	Action
1	Lack of time	Improper time management	Not Finishing Project	3	5	15	Daily Planning and daily targets / stick to MVP
2	Version Control not correctly utilised	Not pushing to correct Git branches regularly	Unable to rollback to a working verion of the system, resulting in no working program	2	2	4	Use Feature/Branch model and push regularly
3	Login Leak	Password Information gets stolen	Information leak and loss of trust	2	5	10	Encrypt Data after stored in database
4	Inaccessible work equipment	Failure of equipment	Losing access to project	1	3	3	Have access to back-up equipment
5	Become Unfit to work	Catch an Illness (such as Covid-19)	Unable to work	3	2	6	Social Distance
6	Over working	Fall behind schedule	Not finishing project on time	1	1	1	Take regular breaks and manage

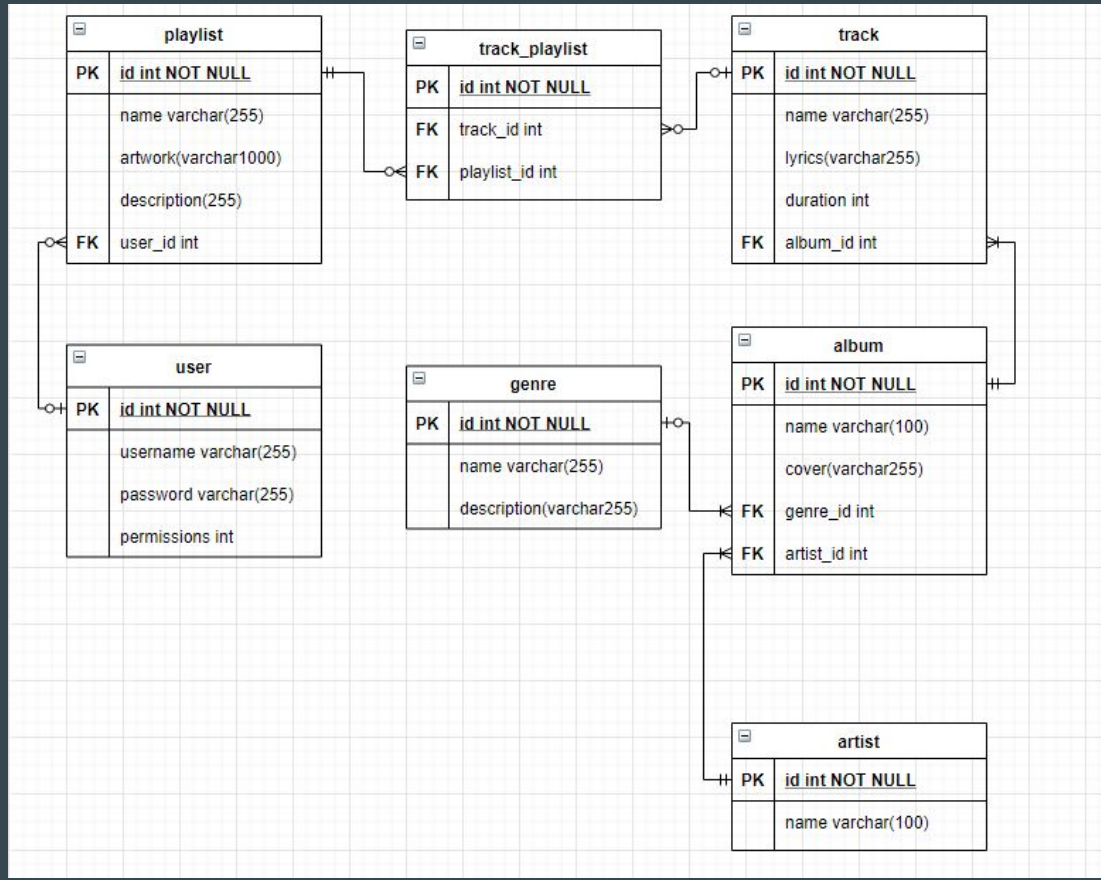
Diagrams

- ERD at the start of the project
- No User Table
- Track contained a playlist ID

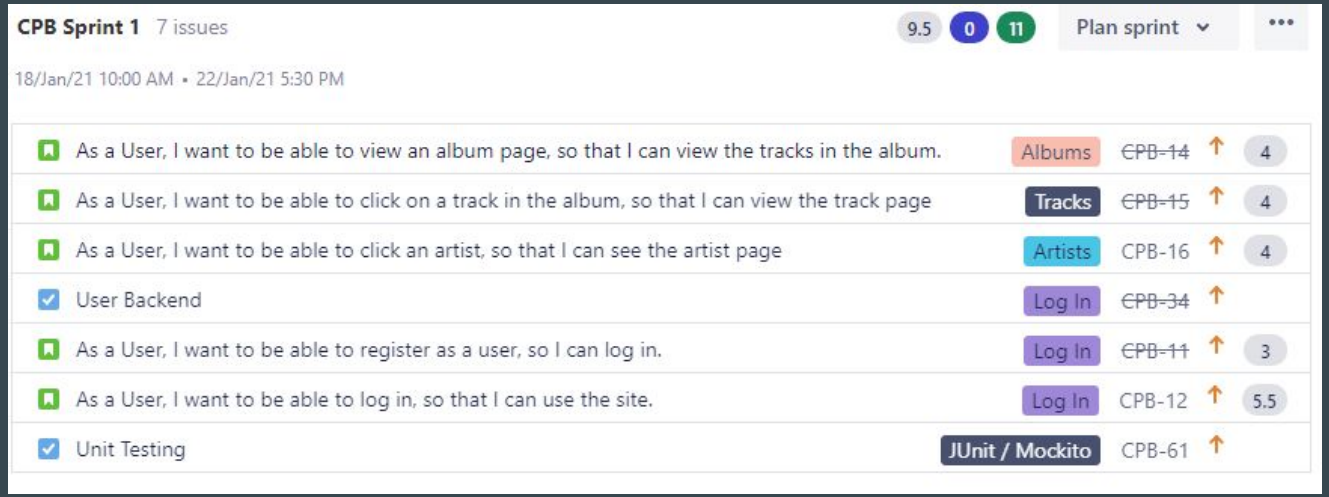


Diagrams

- ERD after refactoring
- User table was added
- A user owns a playlist
- A user can be admin
- Track_playlist table was added



Sprint 1



CPB Sprint 1 7 issues — 9.5 | 0 | 11 — Plan sprint

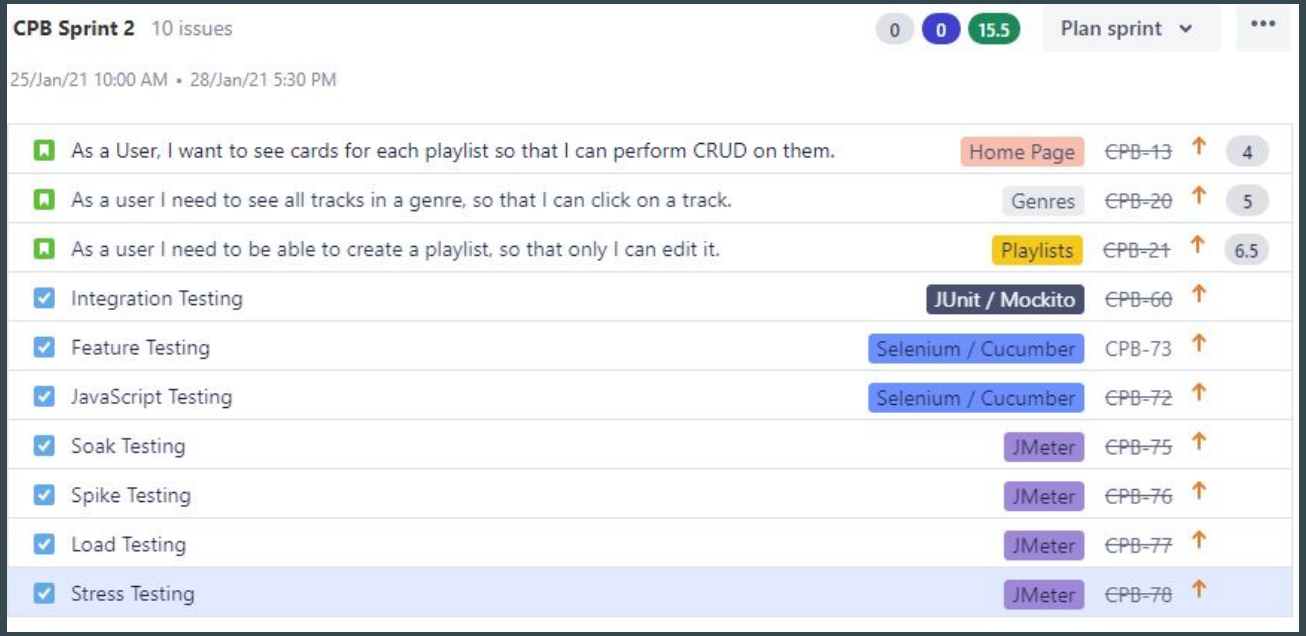
18/Jan/21 10:00 AM • 22/Jan/21 5:30 PM

As a User, I want to be able to view an album page, so that I can view the tracks in the album.	Albums	~~CPB-14~~	4
As a User, I want to be able to click on a track in the album, so that I can view the track page	Tracks	~~CPB-15~~	4
As a User, I want to be able to click an artist, so that I can see the artist page	Artists	CPB-16	4
User Backend	Log In	~~CPB-34~~	
As a User, I want to be able to register as a user, so I can log in.	Log In	~~CPB-11~~	3
As a User, I want to be able to log in, so that I can use the site.	Log In	CPB-12	5.5
Unit Testing	JUnit / Mockito	CPB-61	

Sprint 1: Retrospective

- Because this sprint was mainly to quickly produce a MVP, this was completed relatively quickly.
- There was no delete from playlist function. This was before we decided to implement the track_playlist table.
- Real data should be used rather than using test data
- The only testing that was implemented was Unit testing and Postman. This was taken into consideration for the next sprint where testing was performed regularly.

Sprint 2



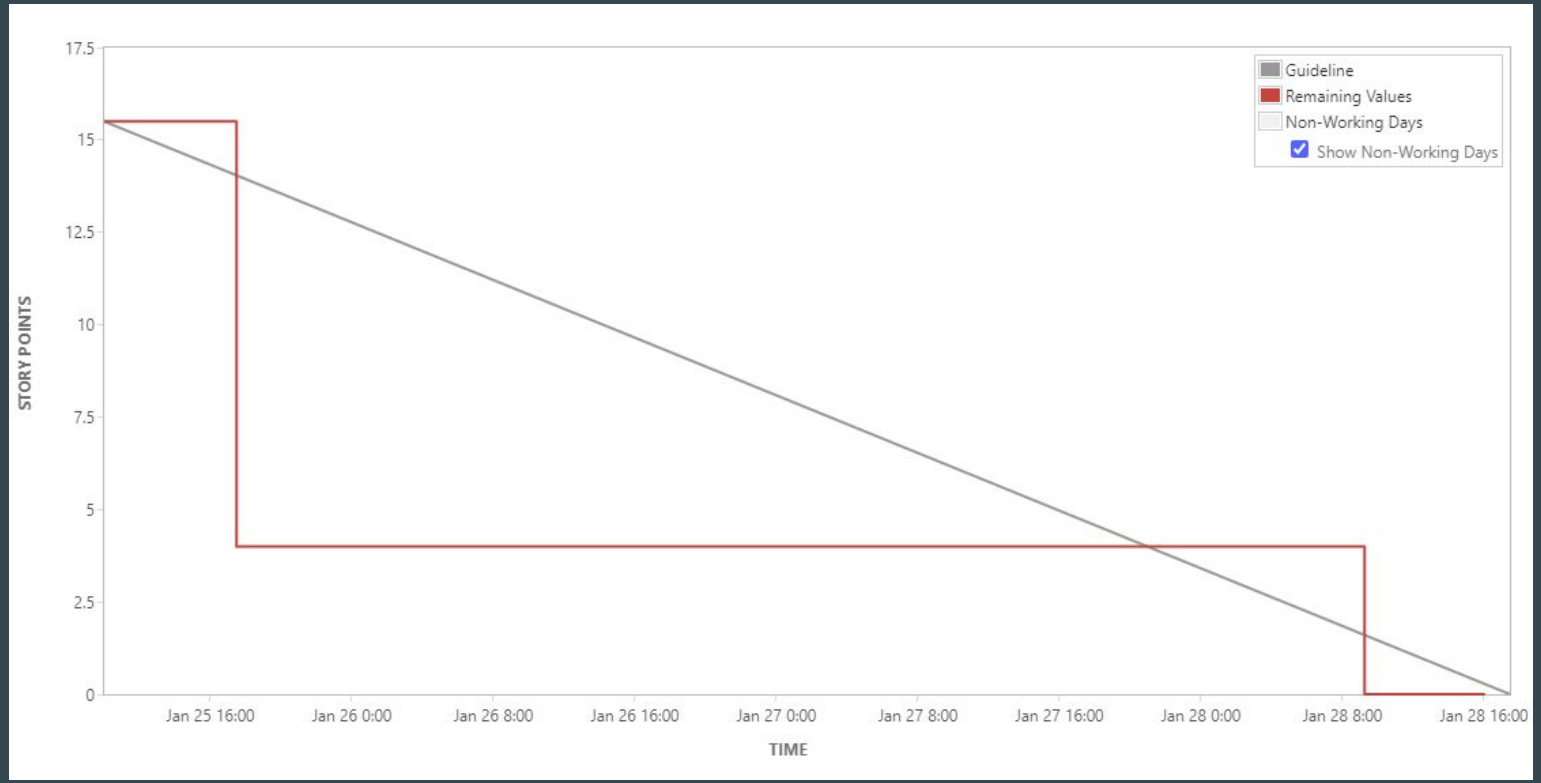
CPB Sprint 2 10 issues

0 | 0 | 15.5 | Plan sprint

25/Jan/21 10:00 AM • 28/Jan/21 5:30 PM

As a User, I want to see cards for each playlist so that I can perform CRUD on them.	Home Page	~~CPB-13~~	↑	4
As a user I need to see all tracks in a genre, so that I can click on a track.	Genres	~~CPB-20~~	↑	5
As a user I need to be able to create a playlist, so that only I can edit it.	Playlists	~~CPB-21~~	↑	6.5
Integration Testing	JUnit / Mockito	~~CPB-60~~	↑	
Feature Testing	Selenium / Cucumber	CPB-73	↑	
JavaScript Testing	Selenium / Cucumber	~~CPB-72~~	↑	
Soak Testing	JMeter	~~CPB-75~~	↑	
Spike Testing	JMeter	~~CPB-76~~	↑	
Load Testing	JMeter	~~CPB-77~~	↑	
Stress Testing	JMeter	~~CPB-78~~	↑	

Sprint 2

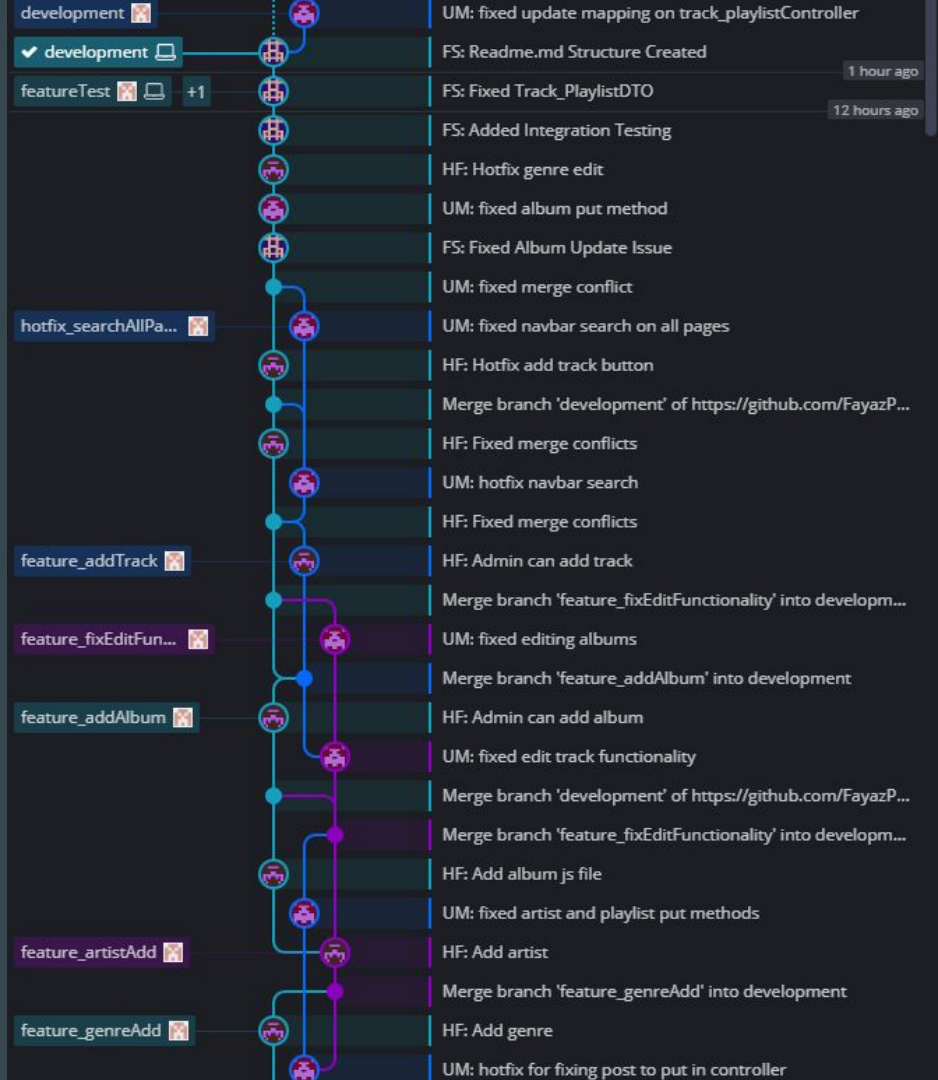

17.5
15
12.5
10
7.5
5
2.5
0
STORY POINTS
Guideline
Remaining Values
Non-Working Days
Show Non-Working Days
Jan 25 16:00
Jan 26 0:00
Jan 26 8:00
Jan 26 16:00
Jan 27 0:00
Jan 27 8:00
Jan 27 16:00
Jan 28 0:00
Jan 28 8:00
Jan 28 16:00
TIME

Sprint 2: Retrospective

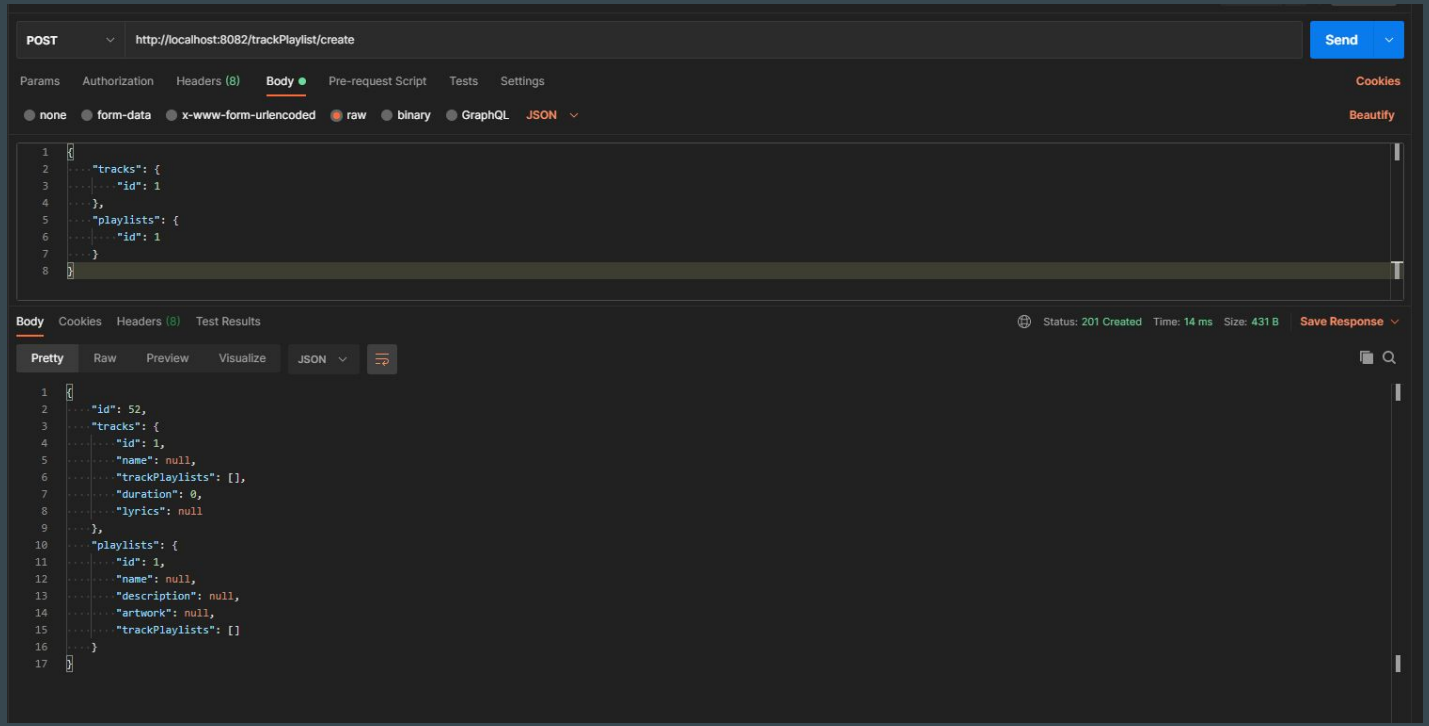
- Was mainly to do with CRUD functions on the playlist and allowing an admin to perform CRUD functions on every entity.
- This meant adding permissions to a user; 0 for normal, 1 for admin.
- Creating Intermediary many to many table to track-playlist.
- Fixing bugs found through testing.
- Updating documentation for end users.

Git

- Never fully used Git in a team environment, with different developers on different branches.
- Started with a few merge conflicts in the beginning, but we all understood it relatively quickly.
- Git is now an **essential part of development**.



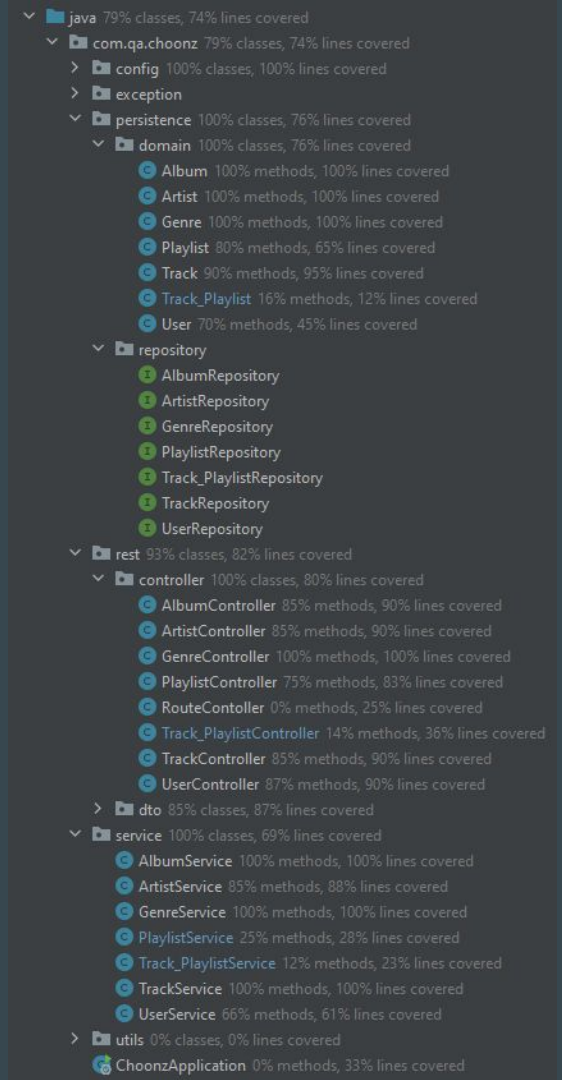
Development with Testing



Unit & Integration testing

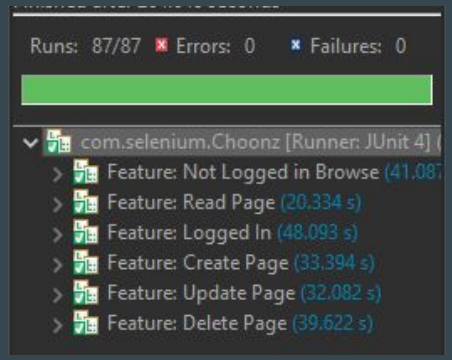
74% Test Coverage

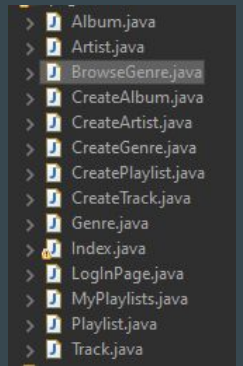
80% Industry Standard

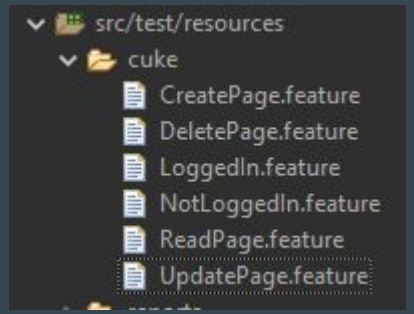


Functional Testing - Selenium

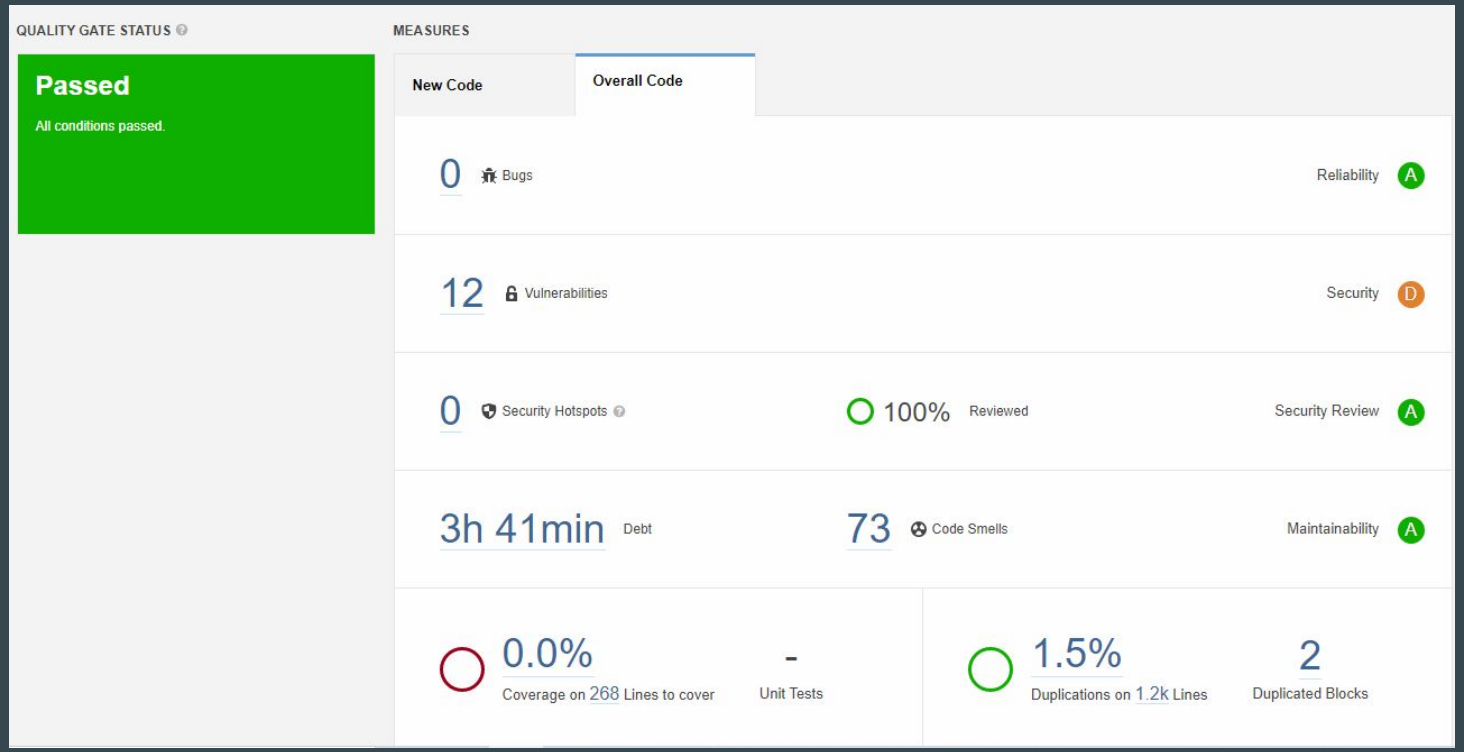
- Used Selenium to test the front-end and see if all the functions performed correctly.
- Also allowed us to see if changes in the API affected the front-end.
- Testing started with testing the difference in the site when logged in or not, then went on to test all CRUD.
- Used Cucumber and Gherkin to write the feature files
- And in the step definition file, used Selenium with POM







Static Analysis - SonarQube



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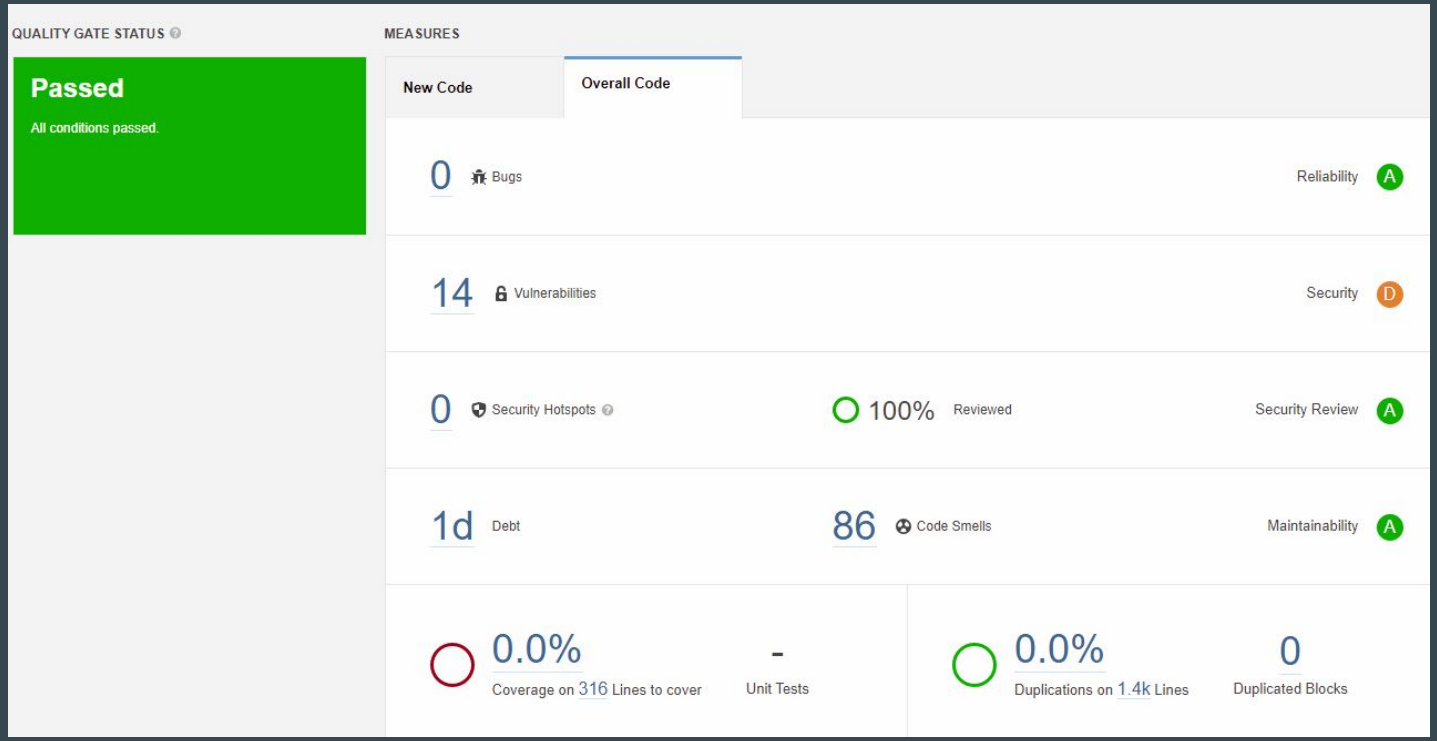
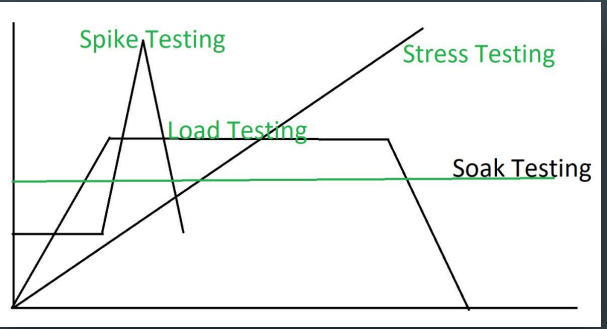


Non-Functional Testing

- Used JMeter for measuring performance of web application and api
- Performed Spike, Load, Stress & Soak Tests
- Performance hindered by personal hardware

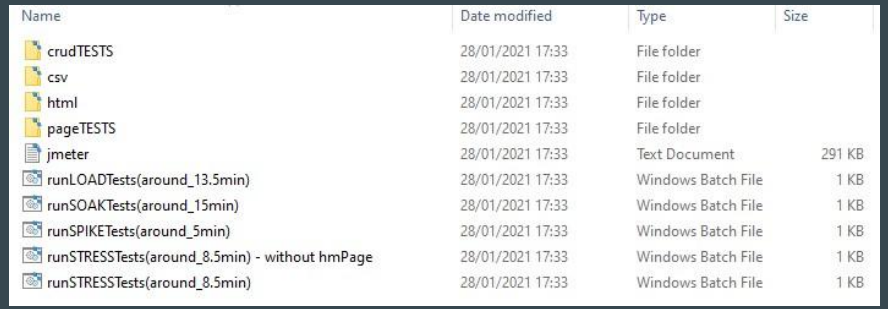


Non-Functional Testing

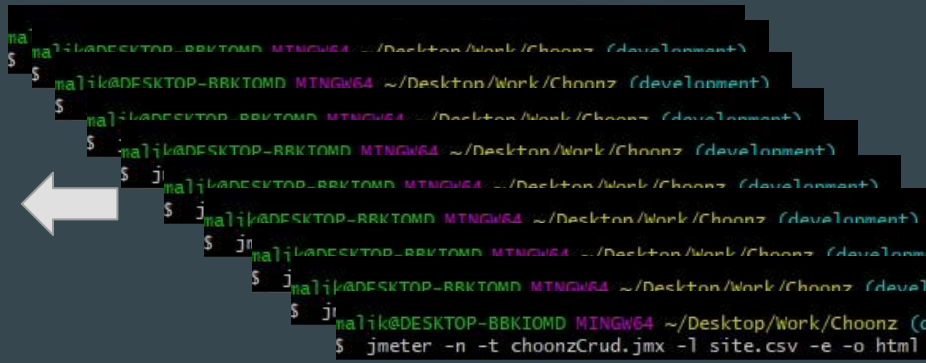
Utility Batch Files

Created Batch files to save writing command lines

Helps individuals unfamiliar with JMeter testing suite run tests easily



Name	Date modified	Type	Size
crudTESTS	28/01/2021 17:33	File folder	
csv	28/01/2021 17:33	File folder	
html	28/01/2021 17:33	File folder	
pageTESTS	28/01/2021 17:33	File folder	
jmeter	28/01/2021 17:33	Text Document	291 KB
runLOADTests(around_13.5min)	28/01/2021 17:33	Windows Batch File	1 KB
runSOAKTests(around_15min)	28/01/2021 17:33	Windows Batch File	1 KB
runSPIKETests(around_5min)	28/01/2021 17:33	Windows Batch File	1 KB
runSTRESSTests(around_8.5min) - without hmPage	28/01/2021 17:33	Windows Batch File	1 KB
runSTRESSTests(around_8.5min)	28/01/2021 17:33	Windows Batch File	1 KB



Non-Functional Testing

Example Test Result:

Spike Test on Album page with API crud operation.

Tested with 1000 threads within 1 minute

Throughput
Transactions/s
836.33
420.73
420.65
418.72

Response Times (ms)						
Average	Min	Max	Median	90th pct	95th pct	99th pct
82.98	1	2500	111.00	201.00	271.00	731.98

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.639	**500 ms**	**1 sec 500 ms**	**Total**
0.626	500 ms	1 sec 500 ms	Transaction Controller
0.641	500 ms	1 sec 500 ms	Albums Read
0.649	500 ms	1 sec 500 ms	Album Page

Non-Functional Testing

Solution to meet Spec Requirements:

Hardware

Demonstration

Questions