HWA Project

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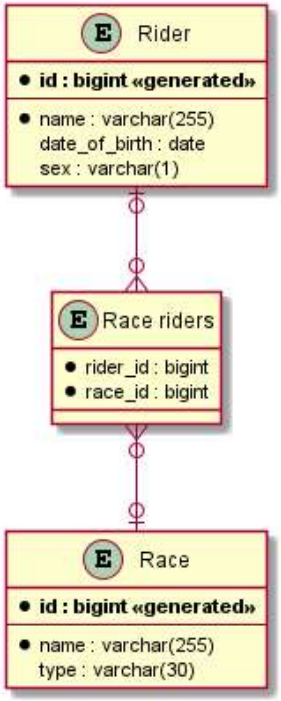
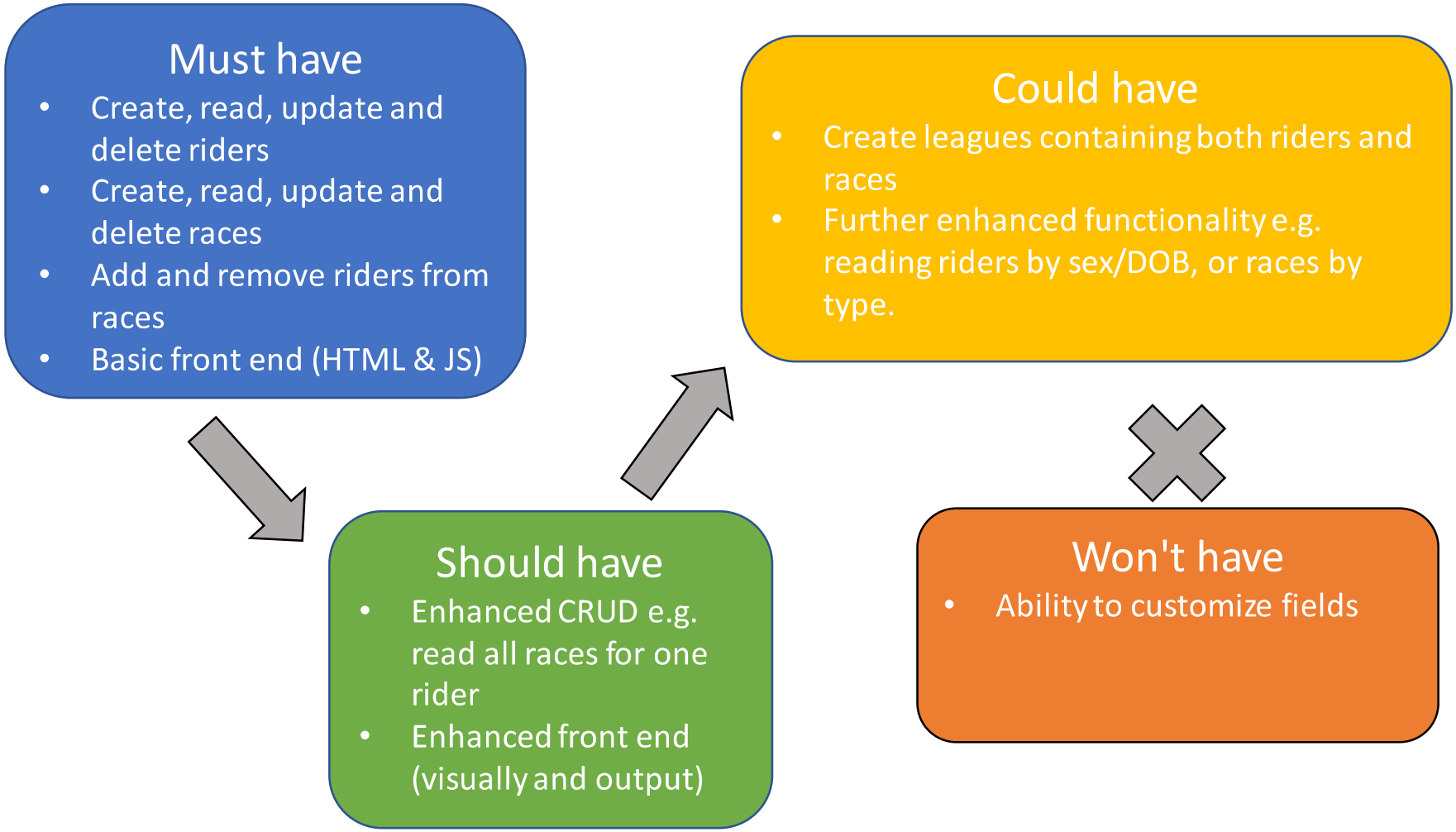
Introduction

- Application for managing bike races
- Many-to-many relationship
- Spring can automatically create a linking table



Introduction



Risk assessment

Risks	Risk statement	Response strategy		Objectives	Baseline			2021		
					Likelihood	Impact	Risk	Likelihood	Impact	Risk
Loss of data	Reduce risk	Use of version control so that any mistakes can be reverted, and work can be stored on a remote repository as well as locally.		Ensure that any single hardware failure, or loss of a service, doesn't cause a catastrophic loss of data.	1	5	3	1	3	2
Illness	Accept risk	Take precausions against being infected by disease. Aim to achieve MVP as soon as possible in case time is lost.		Minimize the chance disease affecting ability to deliver project.	2	1	1.5	3	4	3.5
Loss of internet service	Accept risk	Try to work around if I lose internet service, e.g. by using mobile/cellular internet.		Allow me to access help from trainers even if I lose my internet connection.	1	3	2	1	3	2
Running out of time	Reduce risk	Put in additional hours if necessary.		Achieve minimum viable product as quickly as possible.	3	5	4	3	5	4
Bugs in final product	Reduce risk	Ensure good test coverage.		Tests sufficient to identify any major bugs that arise in the program.	4	3	3.5	3	3	3

Consultant journey

Good familiarity

Version control : Git

Source code management: GitHub

Programming language: Java

Unit testing: JUnit and Mockito

Kanban board: Jira

Some familiarity

Build tool: Maven

Web language: HTML

No familiarity

Frontend scripting language: JavaScript

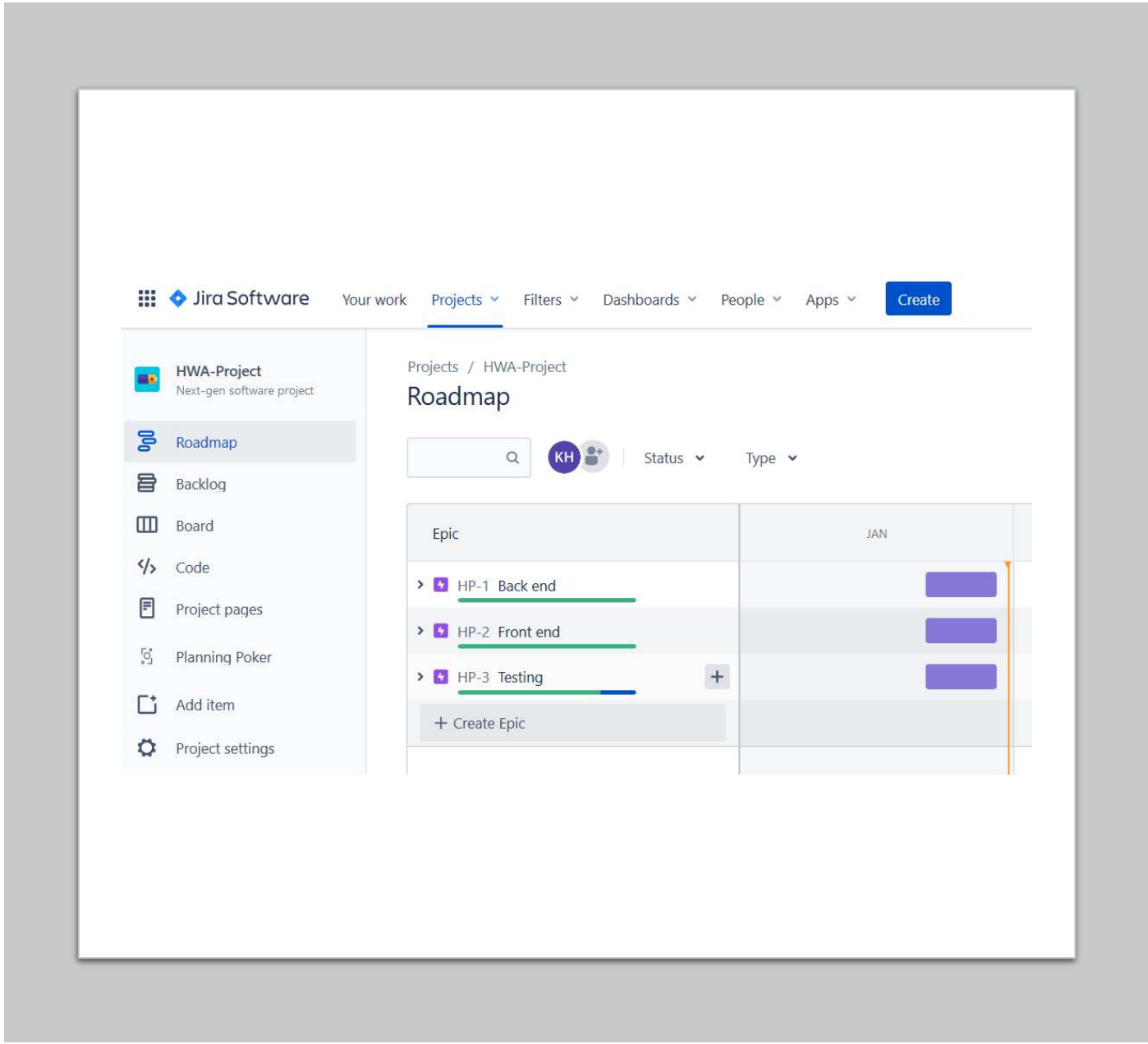
Web language: CSS

Application framework: Spring

Testing framework: Selenium

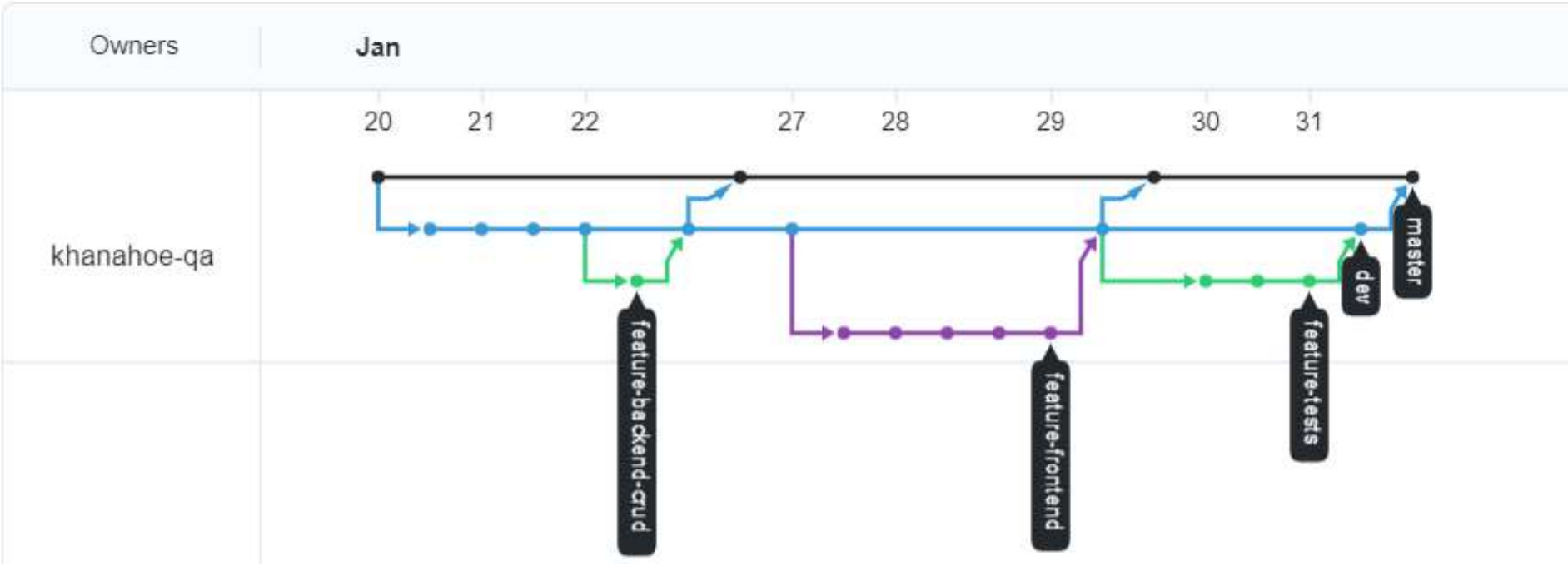
Sprint plan

- Three sprints: front end, back end and testing
- Story points used to estimate difficulty
- Front end was harder than expected
- Back end was easier than expected



Version control

- Git: feature-branch model
- Working on dev branch
- More frequent merges to master than my last project to avoid last-minute merge conflicts



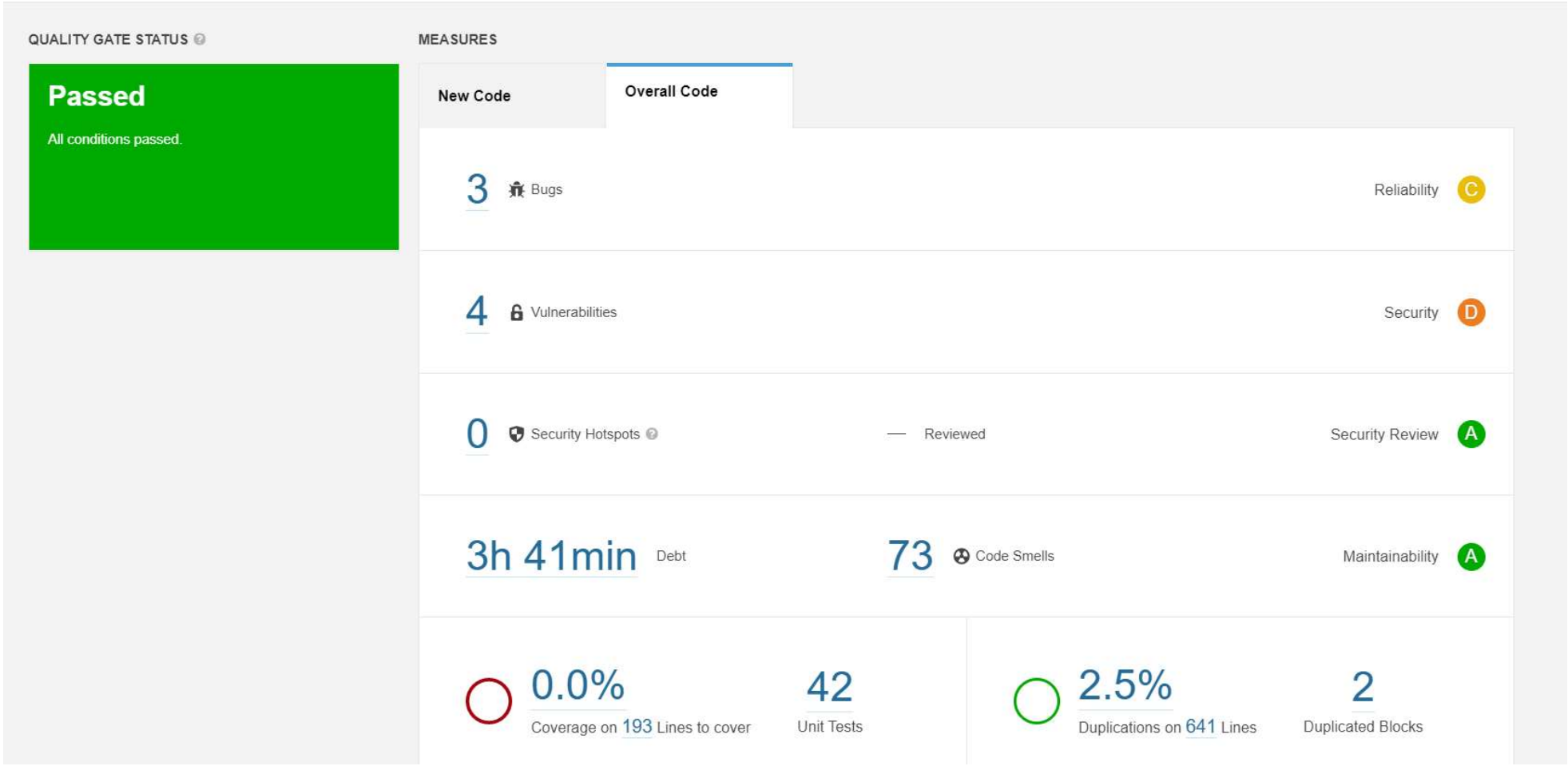
Testing

- Test coverage 72.1%
- Services and Rest coverage near complete
- Most missing instructions in domain and DTOs: equals, toString and hashCode

RiderControllerIntegrationTest (1) (31 Jan 2021 20:05:24)

Element	Coverage	Covered Instructions	Missed Instructions	Total Instruction
HWA-Project	83.5 %	2,840	562	3,402
src/main/java	72.1 %	883	342	1,225
com.qa.hwa.persistence.domain	57.5 %	242	179	421
Rider.java	56.9 %	132	100	232
Race.java	58.2 %	110	79	189
com.qa.hwa.persistence.dtos	60.9 %	210	135	345
RiderDTO.java	58.5 %	110	78	188
RaceDTO.java	63.7 %	100	57	157
com.qa.hwa	15.0 %	3	17	20
ServletInitializer.java	0.0 %	0	12	12
HwaProjectApplication.java	37.5 %	3	5	8
com.qa.hwa.rest	93.8 %	122	8	130
RaceController.java	94.7 %	71	4	75
RiderController.java	92.7 %	51	4	55
com.qa.hwa.services	98.8 %	250	3	253
RaceService.java	98.7 %	157	2	159
RiderService.java	98.9 %	93	1	94
com.qa.hwa.config	100.0 %	7	0	7
AppConfig.java	100.0 %	7	0	7
com.qa.hwa.utils	100.0 %	49	0	49
MyBeanUtils.java	100.0 %	49	0	49
src/test/java	89.9 %	1,957	220	2,177

Sonarqube analysis




Demonstration

Sprint review: Sprint 1

- Task: backend
- Problem: recursion
- Fixed with @JsonIgnoreProperties annotation

Sprint review: Sprint 2

- Task: frontend
- Date formats were challenging
- Browsers didn't initially give me helpful error messages
- Fixed by changing the date format in the backend

Sprint review: Sprint 3

- Task: testing
- Unit testing for Services and Domain was straightforward
- Integration testing was challenging as I couldn't prepopulate the linking table in my test database
- Acceptance testing failed

Sprint retrospective

Initially I made good progress

Gained experience in debugging frontend

Learned to avoid using Date in the future

Didn't have time or access to help to get acceptance testing working

Conclusion

Successes

- Achieved minimum viable product
- Gained a lot of confidence using Spring, HTML and JavaScript

Areas to improve

- Ideally would have gone slightly beyond MVP
- Could have thought through my use of Dates more

Next steps

- Get acceptance testing working
- Expand to include leagues


Questions?