

# Code Review

Date & Time 15:20 – 15:40 23/09/2022

16:50 – 17:50 23/09/2022

Commit Beta-Build

eb022f32a4594327bad353571d12c60de634244e

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Scripts QuizActivity.kt

QuizGenerator.kt

BirdDatabase.kt

Purpose To ensure the code controlling the quiz's logic is decoupled as much as possible from the UI. This is because we need to test the logic but, due to time constraints, we cannot test the UI. Therefore, they must be in separate scripts where the UI calls in the quiz logic. Since this quiz and the bird database are central to the app, we want to ensure it is the best it can be for now, and for future extendibility.

Misc Template from:

<https://dev.to/alexomeyer/code-review-a-comprehensive-checklist-5gnm>

## 1 Feature Requirements

*BirdDatabase.kt*

- Appropriate functions for queries.
- The bird frequency test should be in a unit test.

*QuizGenerator.kt*

- Very easy to interact with because it has a minimal interface, and you can call on it whenever (because it is static).
- Does exactly what it needs to.
- There could be a problem if someone uses this script but forgets to compile the bird database. This is done on launch, but someone may edit that code. Perhaps there should be a safeguard.
- Shuffling the bird list multiple times is not necessary.

*QuizActivity.kt*

- Contains the logic for all quizzes.
- Could move the marking and scoring logic to another script.

## **2 Code Readability**

*BirdDatabase.kt*

- Each line that adds a bird in the compilation function is very hard to read. These should be indented on each entry (e.g., name, indent, photo, indent, sound, indent, and so on).

*QuizGenerator.kt*

- Decently literate, written in a simple way.

*QuizActivity.kt*

- Lines 85-86 are a pain to read because of the cross-outs (because its old code), but it's the only stuff that works at the moment.
- Easy to read because everything is split into evenly-sized functions.

## **3 Coding Style**

*BirdDatabase.kt*

- Seems consistent apart from the code that adds birds to the database (should be indented like our other code).

*QuizGenerator.kt*

- Do we want to put braces around a single line within an if statement? Jackson says braces since it's clearer.

*QuizActivity.kt*

- Excess/unneeded commenting on lines 93-95.
- Multiple (if quizType == var) – bad design, should probably only have one.
- Use of both pauseAudio() and mediaPlayer.pause() – choose one.
- Consistent styles.
- Line 277, should use “until” instead of “..” (Kotlin style).

## 4 Clear Naming

*BirdDatabase.kt*

- Clear.

*QuizGenerator.kt*

- Clear.

*QuizActivity.kt*

- Yes.

## 5 Code Duplication

*BirdDatabase.kt*

- None, although the get bird using photo resource ID function could be generalised to avoid future duplications.

*QuizGenerator.kt*

- The code for each quiz type is almost identical. It should be written once with and contain if statements for the few things that differ.

*QuizActivity.kt*

- Use for loops for dealing with answer buttons (setting listeners and changing text) because four lines per action is a waste when you could use two. Plus, what if we wanted five options? Edit: enacted.
- Could be a for each loop like:  
    optionButtons.forEach{

}

Like how clear the last function is.

## 6 Tests

*BirdDatabase.kt*

- Fully tested to our satisfaction. Although CodeCov disagrees, stating there are many partially tested lines. Mainly it says we haven't tested bad bird entries. Jackson will do that elsewhere.

*QuizGenerator.kt*

- The option frequency test function seems out of place. That should be in a unit test.
- No apparent issues, the photo quiz is thoroughly tested.
- Needs tests for the other quiz type cases.

## 7 Documentation

*BirdDatabase.kt*

- Fully documented.

*QuizGenerator.kt*

- Clear and concise, minimal comments which is good. All fully literate code is uncommented (a good thing).
- Fully documented interface.

*QuizActivity.kt*

- Pretty good comments explaining lines of code.

## 8 Conclusion

Overall, these scripts were good. The main things we want to improve are using a more concrete quiz type selector (e.g., an enumerated type, not a string, however the enumerated type was throwing us issues because they are hard to pass between activities) and planning ahead so we don't duplicate code.

Now we have finished the code review, we have the full picture. After some thought, we have decided *not* to shift the quiz logic's functionality to another script. This is because there is much less quiz logic in QuizActivity.kt than we thought. The only things that could be moved is the marking and scoring. The marking is a simple if statement, and QuizActivity will always need some way of knowing where it is in the quiz, and the scoring is how it does this. Moving the code would only allow us to unit test one or two simple bits of code which is not a good use of time.

However we have acted on other parts of the code (such as the massive duplication in QuizGenerator.kt), and plan to act on more for the final release.

Most interestingly, this review revealed other small things that only individual group members noticed meaning they could share them with the group.