KONRAD

TECHNICAL TAKE-HOME TEST

KG Interview

Overview

Hi Simon! Welcome to the take-home test portion of your interview.

Test Format

- You will be given a working iOS app and will be tasked with adding various features to it.

- After clicking "Start Test" you will be able to download the starter code and will have **3 hours** to complete the tasks.

- You probably won't have time to finish all of the tasks so focus on the ones that play to your strengths.

Load Messages for selected Labels

Merge Messages

Unit Tests

Integrate API call for applying labels

Messages Count

Other

Time remaining:

0:00

Time's up! We have already received your test but if you have any last minute changes, please upload them ASAP.

Submit Test

Test recieved: Jul 12 1:25 PM

- When you are done, zip up the code base and upload it.
- Good luck!

What you'll need

- Xcode 11. This starter code was last tested in Xcode 11.5
- The app uses Google OAuth for sign in, so make sure you have a GMail account with some emails in it ahead of time.
- The app is written in Swift 5, targeting a minimum OS version of iOS 12.
- The app uses Alamofire for networking. You don't need to be familiar with Alamofire in order to complete the test, but it wouldn't hurt if you were!

Download Starter Code

kGmail

Using the provided application as a starting point, make the following listed changes. The changes can be completed in any order you like.

The provided application was built with **Xcode 11.5** and **cocoapods v1.8.4**. Note that all dependencies are included in the provided zip, and the project should run immediately with no set up (provided you have the necessary software installed).
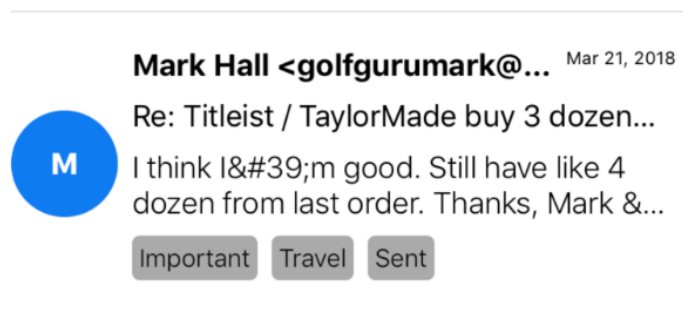
Useful Links

https://developers.google.com/gmail/api

Tasks

Select All Checkbox

Implement the "Select All" functionality in the toolbar:

- When no messages are selected, the "Select All" checkbox should be unchecked. Clicking it sets all the visible messages to their selected state

- When some (but not all) messages are selected, the "Select All" checkbox should be in the indeterminate state. Clicking it will deselect all selected messages

- When all messages are selected, the "Select All" checkbox should be checked. Clicking it will deselect all messages

Design Implementation

Currently the design of each message cell is extremely basic. Update the layout of the cell to look as close to the following as possible. Follow best practices when implementing this cell design:

Load Messages for selected Labels

Currently, loading messages for labels is not implemented - Implement this functionality:

- When `labels` is empty (no labels are selected), `getUserMessages(labels:, completion:)` should return a list with the most recent messages.

- When `labels` is not empty, `getUserMessages()` should load the most recent messages for each label in `labels` **separately** and use `EmailUtilities.combineAndSortEmails()` to merge them into a single list.

Merge Messages

In `EmailUtilities.swift`, implement the method `combineAndSortEmails()` with the following specifications:

- Parameters: array of array of Email

- Return: all unique Email, sorted from newest to oldest

- O(n) run time

Unit Tests

Write unit tests for the `combineAndSortEmails()` method.

Integrate API call for applying labels

Implement the functionality that enables a user to apply labels to a selected message. When the user clicks "Apply" on the label dropdown:

- Each selected label should be added to each selected message

- De-selecting a label should remove the label from the selected messages

- The dropdown should close once the label changes have been applied

Messages Count

In the slideout drawer where labels are displayed, implement the message count functionality (the number of messages with the applicable label should appear next to the label name in parentheses):

- Message count for each label should be based on the messages with that label in currently loaded page of messages

- When each label is selected for display, the message count should update to display the associated counts for the messages return for the selected label

- Any selected state for messages should be reset when the visible label is chosen

Other

In the Notes section of readme.md let us know if you
fixed any bugs, cleaned up any code, or added any
features not covered by the previous tasks.