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Project 1

Implement an offline mode for the new Open Food Facts Flutter application

DESCRIPTION

Implementing an offline mode in the current smoothie app, often found out the app is sometimes used in places having low internet bandwidth and connectivity issues. The work will consist of adding an offline mode to the app that will let the user store the already scanned products in an offline mode. And also preload the app with the common food items so as to let the user work fully and benefit from the offline feature of the app.

Mentor(s)

1. Pierre Slamich
2. Stéphane Gigandet

What city and country will you reside in during the summer?

Patna, India
Timezone: IST (UTC + 5:30)

What applications/libraries of Open Food Facts will the proposed work modify or create?

I will be working on the open food facts smoothie app

What benefits does your proposed work have for Open Food Facts and its community?

The proposed work will let the users use the app in offline mode, including the feature of keeping the data in local storage and keeping in sync with the internet allowing for a seamless experience even when offline. Also preloading the data for the country in which the app is being used in.

Why are you the right person to work on this project?

I am already contributing to the app and getting more familiar with the codebase which will in turn be of great benefit as I will take less time understanding the codebase. . Being into the world of the software industry has always been my priority to learn along the way. Being into flutter and having relevant knowledge will surely be put to good use when it comes to app development.

Also, I had done an internship where I majorly worked on pre-existing flutter projects and so my ability to work on existing codebase has been put to good use. Also, I am quite familiar with version controls and have been working with the tech stacks for quite a while.
Since a few months ago I have been actively contributing to the smoothie app and have gained quite a bit of familiarity with the same.

Also, I am a good speaker and have taken many sessions for students including one boot camp where I delivered to an audience of more than 200 talking about flutter and its demonstration. Also, I have mentored students to start with open source back in Oct 2021 at GWOC where I was among the top mentors.

Being a self-taught programmer, I have been able to easily understand new techs, and frameworks and debug them accordingly i.e. I can learn fast.

How do you plan to achieve the completion of your project?

For the part of the completion of the project I have divided the work into smaller steps:

1. Understanding the Flow and Discussion
Make a clear understanding of the flow of data between the mobile and the server, Including how the app loads the data. In the process of doing so, it will be much more clear and precise to figure out ways for implementing a fast offline experience.

2. Implementing the offline save mechanism
With proper knowledge about the exact workflow how the data flow is, the first step I think of storing the data for the already scanned and opened products. This in turn will Facilitate the users to look up for the already scanned products without the need of an Internet connection.

3. Offline Edit Mode
After being done with the above two works, the 3rd and most important phase will be Carried out. A clean and working mechanism to store the changes locally will be Discussed with the mentors and start the work on the same to store the changes and Sync those changes when online and delete the offline changes so as to keep the app as lightweight as possible.

4. Preloading Data
If time persists and the above work is done(which I am sure will be done), add a mechanism to preload the data as cache (as step 2) so as to let the users use the app For popular food items in their country out of the box

5. Testing
After the whole work is done, a clean throughout the testing of the implemented features is to be carried out so as to ensure a steady smooth experience.

Management of Coding Project :

❖ Attend daily standups on Slack as well as the weekly student check-in calls.

❖ Every week, I will be discussing the project development progress with my mentors and manage the next steps.

❖ I will be publishing reports about my problems faced, my approaches, and my results on my personal blog every 10 days.

❖ In the end, I will make a presentation and gist report of my work done during the GSOC period.

❖After working through long development cycles, I eventually aligned towards adopting Agile development principles, which I think will help me move our project smoothly.

Please provide a sequence of tasks and subtasks and how long (days) you estimate it will take you to complete each of them. Highlight important milestones/deliverables.

To further escalate the speed and overall project completion I have decided upon going with the flow of the work with something like this.

Community Bonding Duration (May 20 - June 12) :

- Explore the documentation and codebase thoroughly
- Discuss a roadmap with the mentors for a long-lasting solution
- Discuss the general working of how the offline mode is going to work that might include some design patterns as well.

Week 1 (June 13 - June 18) :

- Discuss with the mentors about the making if using any SQL-based local DB or go with some JSON-like ones.
- Making UI changes to the app so as to highlight the users if they are using the app in the offline mode through snack bars.
- Start plotting the schema of the data to be stored for the scanned/searched items.

Week 2 (June 21 - June 26) :

- Start plotting the schema of the data to be stored for the scanned/searched items.
- Take into consideration all the attributes to be stored.
- Adding a menu for the users to control/delete the cached items from the stored data, the user might want to get rid of the data so as to make the app lightweight again.

Week 3-4 (June 29 - July 10) :

- Start the changes to make a lookup of data in the local database.
- Search for the results on the scan and search page in the local database.
- Store the image path into the local DB.
- Use cached Network Image to keep the images stored in the local DB or take inspiration from PR 1600

Week-5 (July 12 - July 17) :

- Start storing the scanned product barcodes in the local DB
- Start with mapping a search of the barcodes scan in the scan page to look into the local database and if not found show an appropriate msg through snack bars.

Week 6 (July 19 - July 24) :

- Work on leftover over and improve the design aspects to the UI changes
- Clean up the code and maintain the documentation.
- Prepare the work for the first evaluation.

FIRST EVALUATION (July 25 - July 29)

Week 7 (July 26 - July 31) :

- Discuss with mentors about the possible implementation of how to store the changes to sync them later.
- A possible solution can be to use a work manager to schedule the task until an internet connection is available to get the syncing process done.

Week 8-9 (Aug 3 - Aug15) :

- Start working on the best possible solution for the task
- Record the changes in a place where the task of submitting the data is done, instead of making an API call, store the same task in a local DB in case of no network.
- When a connection becomes available, upload the local images changes to the DB and

Week 10 (Aug 18 - June 23) :

- Check into the implementation and make it robust and spread it to all the pages of the app so as to track the changes everywhere in the app in case of offline network status.

Week 11 (Aug 25 - Aug 30) :

- Clean up and refactor the code.
- Test the implementation throughout the whole app for a smooth experience.

Week 12 (Sept 1 - Sept 5) :

- Work on populating the app with preloaded data for a certain country with the help of implementation done in the first half of the summer work.
- Test, refactor and clean up the code for a smooth experience

FINAL EVALUATION (Sept 5 - Sept 12)

What are your past experiences with the open-source world as a user and as a contributor?

I had been part of the major league hacking fellow batch and I am quite familiar with the best coding practices and norms. Though the projects were small, I still learned a lot about the working of loss. From a user point of view, I use Linux, which is also an open-source project. Besides, I quite often end up using open source solutions for most of my software development tasks as most of the proprietary software doesn't support Linux out of the box.

Please include links to your code contributions which have already been merged, or to GitHub merge requests for the issues you fixed for the project of your proposal or any other Open Food Facts projects. This demonstrates your willingness to learn and familiarity with development workflow.

I got a bit late to the party but thanks to all the awesome maintainers of the project I was able to contribute significantly to the project by fixing some already laid issues as well. Even now I am still contributing to the project. For the most part, I was actively contributing to the smoothie app and wish to continue the same.
These are the links for the merged PRs.

1. fix: old crop utility brought back #1422
2. fix: On boarding dark mode fix #1402
3. fix: pull to refresh indicator for History #1368
4. fix: Removed hardcoded "See more" color from scan card #1357
5. fix: tab top padding hides text below it #1335 #1336
6. loading indicator while cropping image #1269
7. fix: #414 - changed get request to post #415 (openfoodfacts-dart)

If available, please include links to any code you wrote for other open-source projects.

For now, openfoodfacts seems to be the first major open-source organization which I am contributing, and I wish to reserve this place to write about the smoothie project in the next year :)

What other relevant projects have you worked on previously and what knowledge have you gained from working on them?

In the past internships had worked with flutter where I worked on an e-commerce app, apart from the usual network calling in the app, I had some performance improvement features in the app as well. Had done a bit of work on the analytics tracking on the same project. I gained knowledge about network calls, analytics tracking, state management, and project working in general. On personal projects, I worked on one app where I used the concepts of asymmetric encryption to make an end-to-end encrypted chat system.

What other time commitments, such as school work, exams, research, another job, planned vacation, etc? What are the dates for these commitments and how many hours a week do these commitments take?

As it will be summer here in India and my colleges will be closed for the most part of the season and that won't hinder the flow of work for my contribution to the organization. I have NO obligations during the summer and would be able to contribute full-time to GSoC.

During this period, I will devote **8 -10 hours** of work per day. Even after college starts, I have no problem with contributing to the project as there is no strict rule for attendance in my college and we can even take grants and leaves for internships and project works.

Apart from the weekends which I consider the day for lazy reading novels, I am available for the commitment. And in the case of examinations for my college, I may take a leave of 4 or 5 days. Apart from these leaves, I will be giving my 100% to the project