SCoRe Project Proposal for GSoC 2022
Open MF
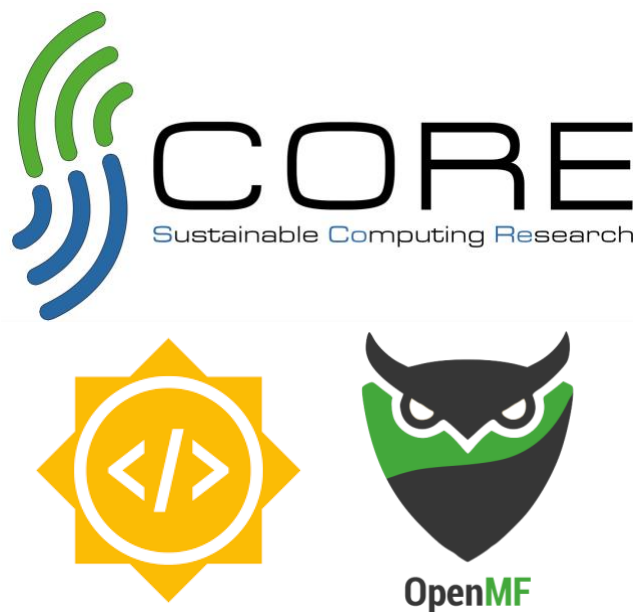
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About Me

Greetings! I'm Prerak Mathur, Sophomore at Indian Institute of Information Technology, Lucknow, a college known for its excellent Coding-Culture. I've been tinkering with codes since I was in 10th grade. I've been using git version control since my first semester of college, but it was at HacktoberFest 2021 that I got my big break and discovered my appreciation for OpenSource. From then, I worked on improving my talents even further because there's always more to learn in the field of development. C, C++, Python, Java, HTML, CSS, JavaScript, React, SQL, and Flask are just a few of my abilities. But, since I'm a good learner with quick reflexes, my abilities aren't confined to this.

Project Introduction

OpenMF is an open source forensic application for Android devices that assists digital forensic investigators throughout the investigation process. The plan is to extend OpenMF to include data extraction from iOS as well. It presently only extracts data from Android devices. Connecting it to OpenMF Analytics is also a must. Students may also integrate this with the OpenMF frontend and add more analytics functions.

- The current functionality of OpenMF restricts its usability to only Android devices.
- Android obviously has captured the most of the market, that's 71% of the market, yet iOS doesn't fall further behind. Being the 2nd most popular mobile device with a market capture of 28%.
- Hence the functionality and features of OpenMF should also be brought to iOS as well.

Project Goals

- Develop iOS data collector
- Show iOS data web UI
- Testing

Implementation

1. Generate data dump from iPhone
    a. iTunes Backup for non-Jailbroken Devices
    b. Extract entire db file from Jailbroken Devices
2. Decrypting the data dump generated from the Device for Data Sorting and Classifications
3. Sorting files by their type
    a. Image
    b. Files
    c. Call Logs
    d. SMS
    e. Location, etc.
4. Classification of data into their data types with applicable tags and types
5. Implementation of custom keyword search of records
6. Classification of data into dates and with range of date
7. Developing an acceptable frontend and API for data extraction and usability on iOS
8. Improving data representation and sorting with help of Data and Frequency graph representation
9. Writing test cases to check validity of software
10. Create project Wiki documentation
11. Create Blogs and Demonstrations of the project for better understanding for users and accessibility.

Timeline

Week No.	Date	Task
0	May 20 - June 12	Community Bonding Period
		Coding Officially Begins
1	June 13 - June 19	• Project Setup • Adding Google authentication

2	June 20 - June 26	• Declare and create missing or incomplete Routes and pages
		  o Home (more info hover)
		  o Login
		  o Register
		  o Contact
		  o About

3	June 27 - July 3	• Create Login and Register with Google for following roles
		  o Extractor
		  o Management
		• Finish leftover work for Android (if any)

4	July 4 - July 10	• Implement Search User Feature • Add ability to mark tasks as complete or incomplete • Update the API and Frontend of above

5	July 11 - July 17	• Allow access to routes obtained after Analytics, Keyword and Filter sorting in analytics
		• Classification and sorting of data for
		  o Whatsapp
		  o Facebook
		• Update The API and Frontend of above

6	July 18 - July 24	• Allow Verification of account via Email • Implement Forget User Password • Implement Reset User Password • Allow Published tasks to edit by Admin • Finish leftover work (if-any)
		Phase 1 Evaluations [July 25 - July 29]
7	July 25 - July 31	• Taking feedback from Mentors and Working on bugs and improvements • Decrypt .db file obtained from cases to .tsv format • Left-over work (if any)
8	Aug 1 - Aug 7	• Add Dashobard and Profile Routes • Create User Profile and Dashboard to display and edit information • Update The API and Frontend of above

9	Aug 8 - Aug 14	• Using extracted data to generate Graphs using either D3.js or Chart.js and connect the backend with the same • Allowing extraction in other formats, such as .pdf, XML, .csv • Update the API and Frontend of above
10	Aug 15 - Aug 22	• Creating conditions Tabular sorting of data with filters and sorting • Implementation of OCR to read and tag information present in images and screenshots. • Creating API and connecting the work done so far with frontend

11	Aug 23 - Aug 29	• iOS Setup of Project
		• Generate Data dumps
		   o iTunes Backup for non-Jailbroken Devices
		   o Extract the .db file from Jailbroken Devices
		• Create and Update the API for Frontend above

12	Aug 30 - Sept 5	• Create and Write Test Cases • Left-over work (if any) • Writing wiki
Final Evaluation [Sept 5 - Sept 12]		

SCoRe Contributions

Issues Raised

1. **OpenMF**/Typo in email verification in Sidebar ([#250](#))
2. **OpenMF**/Navbar not functioning properly ([#252](#))
3. **OpenMF**/Side Nav Buttons are non-functional ([#254](#))
4. **OpenMF**/[Frontend] Management Analytics page not behaving Properly ([#259](#))
5. Templates Required ([#77](#))
6. React-Email/Project not Initialized ([#5](#))
7. Cloudlibz/Navbar not responsive([#40](#))

Pull Requests

1. **OpenMF**/Fixed "Varified" typo ([#251](#))
2. **OpenMF**/Repaired Navbar ([#253](#))
3. **OpenMF**/Update Sidebar.js ([#255](#))
4. **OpenMF**/Navbar Buttons Fixed ([#260](#))

5. **OpenMF**/Added responsiveness to Management-Analytics Page ([#261](#))
6. Scan8/Templates added to .github ([#78](#))
7. React-Email/Project Initialized ([#6](#))
8. Cloudlibz/Made navbar responsive([#41](#))
9. Nodecloud/docker-compose repair([#67](#))

Personal Information
Email : mathur.prerak@gmail.com
GitHub : [@PrerakMathur20](#)

Reference
Project Reference

Questions

1. **Are you a SCoRe contributor/ Have you contributed to SCoRe before?**

   Yes. I'm a SCoRe Contributor.

2. **How can we reach you (eg: email) if we have questions about your application**?

   I'm easily reachable via email on mathur.prerak@gmail.com, and would be happy to assist in case of any query regarding my application.

3. **What is your github username(s)?**

   [PrerakMathur20](#)

Project Specific Questions

4. **Which SCoRe GSoC project are you applying for?**

<u>OpenMF</u>

#14 @ <u>https://scorelab.org/gsoc</u>

5. What do you plan to accomplish over this summer for this project?

a) What project you want to work on?

OpenMF

b) How you will approach that project portion

Bringing the OpenMF functionality to iOS Devices by generating and extracting data dumps from both Jailbroken and Non-Jailbroken devices. Then using them to sort, filter and classify the data into respective categories. Then, analyzing the obtained data for research and representing them in the form of graphs for better understanding.

6. If you have your own project to propose, please describe it here:

No.

7. Projects related details. (Have you tried that project you selected from SCoRe project list? What problems, if any, were presented? What prevented you from getting the entire system up and running?)

Yes, I've been working on the OpenMF Project for a couple of months now. So far, for all the problems I've noticed or faced, I've made several PRs and fixed them.

8. List down any plans you have during this summer.

- College Classes

9. Education-

a) What year are you in school?

2nd Year / 4th Semester at IIIT-L

b) What programming courses have you taken?

i) Introduction to Programming

ii) Database Management System

iii) Operating System

iv) Structured Query Language

v) Cloud Computing

vi) Design and Analysis of Algorithms

c) What is your major?

Information Technology (IT)

d) Have you done group projects (programming or otherwise)
   i)   [Hack-O-Fiesta](#)
   ii) [Faculty Recruitment](#)
   iii) [WCARL](#)

e) What was your primary contribution to/role in the group?

i) *Hack-O-Fiesta* : Co-Lead

ii) *IIIT-L Faculty Recruitment* : Member

iii) *IIITL - WCARL* : Member

f) Do you have work experience in programming?

Yes. I have fair experience in C, C++, Python, Java, HTML, CSS, JavaScript, React, SQL, Flask... and a few more.

In my sophomore year at college I contributed to the development and production of a Web-Based portal, programmed in HTML (Jinja, BootStrap), Sass, JavaScript, with Python-Django as a backend. That portal is now being used as the Faculty Recruitment Portal for IIIT-L.

Similarly, I have worked on the WCARL (Wireless Communications and Research Lab) Website for IIIT-L, with me being its Frontend Lead.

Several more Projects that I've worked on can be easily found on [my GitHub](#).

g) **Do you have previous open source experience? Briefly describe what you have done.**

Yes, I have a considerable amount of experience in Open Source. Here are some of my PRs -

● Circuitverse/Fixed Responsiveness of Examples Page cards ([#2871](#))
● Circuitverse/Visible RadioButton after Delete offline project ([#2903](#))
● Appwrite/Added Assamese translations ([#2023](#))
● Appwrite/utopia-php/storage/Created CONTRIBUTING.md ([#21](#))
● Codedamn/Disney clone project ([#858](#))
● LoginRadius/Created login-page-23 ([#85](#))

h) **Tell one interesting fact about yourself.**

I'm able to rapidly approach an alternative solution in case of mishaps.