

Wizard/GUI helping students/interns apply and get started

GSoC 2018 proposal for Debian by Shashank Kumar

AIM

To develop & deliver a GUI based FOSS which can become the entry point for students/interns by introducing them to necessary tools and services to contribute to Open Source. Content on the software will be structured with respect to increasing difficulty and will be gamified to make the process of learning more interactive.

APPLICATION TASK

For the application task, I've used Python-GnuPG to demonstrate **Key Pair Creation**, displaying **Available Key Pairs**, **Public Key**, **Encrypt and Decrypt Text** using the GUI. The GUI is roughly based on the proposed designs shown below. Application tested on Debian 9 and Ubuntu 16.04.

Application Task Repo - salsa/realslimshanky-guest/Open-Source-Buddy

Demonstration Video - salsa/realslimshanky-guest/Open-Source-Buddy/blob/master/demo.mp4

DESCRIPTION

The software will be majorly divided into modules. Each module will contain both the services and tutorials. Formation of the module is based on the increasing difficulty. Gamification can be introduced easily by asking answers or output of problem from the user during tutorial steps. Here are the modules I would like to propose to begin with -

- **Introduction**
 - It is important to make the user aware of the flow of software, how to use different features and explain about the correct way of using it. This module will contain all the details about the same.
- **Communication**
 - This module will have 3 sub-modules.
 - **MAILING LISTS:** First sub-module will contain a step by step description on what mailing list is, mailing list etiquettes and subscribing to Debian mailing lists.
 - **IRC:** Second sub-module will shed some light on IRC and help the user join Debian IRC #introduction channel using OFTC server and showcase working of any open source client (like xchat).
 - **PRACTICE:** In the third sub-module, the user can directly subscribe to any

mailing list or IRC channel of Debian of their choice without going to the tutorial.

- **Command Line Interface (CLI)**

- Explaining that terminal/command line access is the soul of a developer this module will guide a user through some common commands (like ls, cd, du, etc.) first and then share resources with the user in form of some documentation or blog for them to explore more.

- **Blog**

- Pelican is a good framework to begin with in terms creating static blogs and written in Python. The user will be asked few questions about their needs and pelican-quickstart will be used to deploy the blog and run the server. Later step by step guide will help the user understand how to manage Pelican and write simple Markdown files to write blogs.
- The user will also learn about RSS feeds and clients which can be used to get feed updates.

- **Version Control**

- This module will delve into detail why version control of the project is important and an interactive tutorial will help the user understand and use Git.
- The second part of this module will be on creating an account on Github/Salsa and uploading the blog creating in the previous module. This module will conclude when the blog will become live on Github.io.

- **Encryption**

- First, sub-module will contain information regarding how to communicate using SSH with a quick tutorial.
- Second sub-module will inform the user about the importance of PGP and help the user create the key pair with interactive QA. Later on, the user can manage the keys, use keys to encrypt/decrypt messages and print Public Key whenever needed.

- **Way Ahead**

- This module will include further resources on helping user getting started with Projects of their choice.
- GSoC/Outreachy/RGSoC organizations can be showcased in different categories with all the information about these internships and guidelines for the user to begin their contributions.

PROPOSED TIMELINE AND OBJECTIVES

April 23, 2018 - May 14, 2018 Community Bonding

- Interaction with Mentor and Co-mentor and discussing ideas regarding various possibilities for features to be added to the project.
- Setting up the development environment, Kanboard, and other essentials.
- Probing more into PyQt API in order to understand the intricate architectural details.
- Understanding how packaging and deployment work for Debian.
- Discussing on UI designs and user interaction flow.

May 14, 2018 - May 20, 2018 First Milestone

- Setting up core functionalities of the software which includes dependency management using Pip/Pipenv, PyTest integration for TDD with pytest-qt plugin and modular source design.
- Developing Introduction module.
- At the end of this week, the software will have a GUI ready to store user interactions and save it in SQLite DB so that the user can continue with last progress. Introduction module will contain all the details about how to interact with the software.

May 21, 2018 - May 27, 2018 Second Milestone

- Developing Communication module. Explaining IRC, making the interactive guide for beginners, setting up the client and explaining about bouncers.
- At the end of this week, the software will allow users to access IRC module and join Debian IRC on OFTC.

May 28, 2018 - June 3, 2018 Third Milestone

- The second part of Communication module would be including Mailing List tutorial. The user will learn mailing list etiquettes and communication guidelines. Subscribing to list and replying to threads.
- At the end of this week, the software will allow the user to learn about Mailing List and subscribe to Debian mailing list of their choice.

June 4, 2018 - June 10, 2018
Fourth Milestone

- Developing Command Line Interface module. Step by step guide on important *NIX based commands and tools which are essential while development.
- At the end of this week, the software will allow the user to learn about CLI with hands-on tutorial and interactive feedback.

June 11 to June 15, 2018 - First Evaluations

June 15, 2018 - June 21, 2018
Fifth Milestone

- Developing Blog module. Implementing Pelican quickstart on GUI and taking information from the user to setup static blog. Enabling options to start/stop the server from the GUI itself and sharing local blog URL.
- At the end of this week, the software will allow the user to create static blogs right from GUI and later explain how it all works.

June 22, 2018 - June 28, 2018
Sixth Milestone

- Finishing up Blog module. Developing step by step guide to inform the user about Markdown or reStructuredText to create blogs and how blog metadata works.
- At the end of this week, the software will help out in creating new blogs and manage them from the GUI itself.

June 29, 2018 - July 4, 2018
Seventh Milestone

- Developing Version Control module. Option to install Git from the GUI and then guide through the basics of Git by the example of a sample project.
- At the end of this week, the software would help out user understand Git and its functionalities using a sample project and then change the blog (created earlier) folder into a Git repository.

July 4, 2018 - July 8, 2018
Eighth Milestone

- Finishing up Version Control module. Integrating Github/Salsa to GUI and developing the guide to inform the user about upstream projects.
- At the end of the week, the software will help out in creating upstream repositories and deploy blog to Github.io.

July 9 to July 13, 2018 - Second Evaluations

July 13, 2018 - July 19, 2018
Ninth Milestone

- Developing **Encryption** module. Integrating PGP with GUI using [Python-GnuPG](#) and allowing key pair creation and management.
- At the end of this week, the software will help the user create, manage key pairs. Print Public Keys for signing parties and explaining why encryption matter by sharing other resources (like [EFF](#)).

July 20, 2018 - July 26, 2018
Tenth Milestone

- Finishing **Encryption** module. Integrating Open SSH with GUI and giving a CLI like functionality with which user can interact and learn more about the same.
- At the end of this week, the software will help inform the user about SSH and transfer files using SCP.

July 27, 2018 - August 2, 2018
Eleventh Milestone

- Developing **Way Ahead** module. Integrating GUI with [GSoC API](#), [Outreachy API](#) and RGSoc to showcase timelines, organizations and guidelines. Integrating [Github API](#) to allow the search of upstream projects w.r.t preferred language.
- Adding 'Report an error' or 'Drop a feedback' option.
- Reviewing the software structure for packaging and publishing.
- At the end of the week, software would help users get started with upstream contributions and prepare for summer internships.

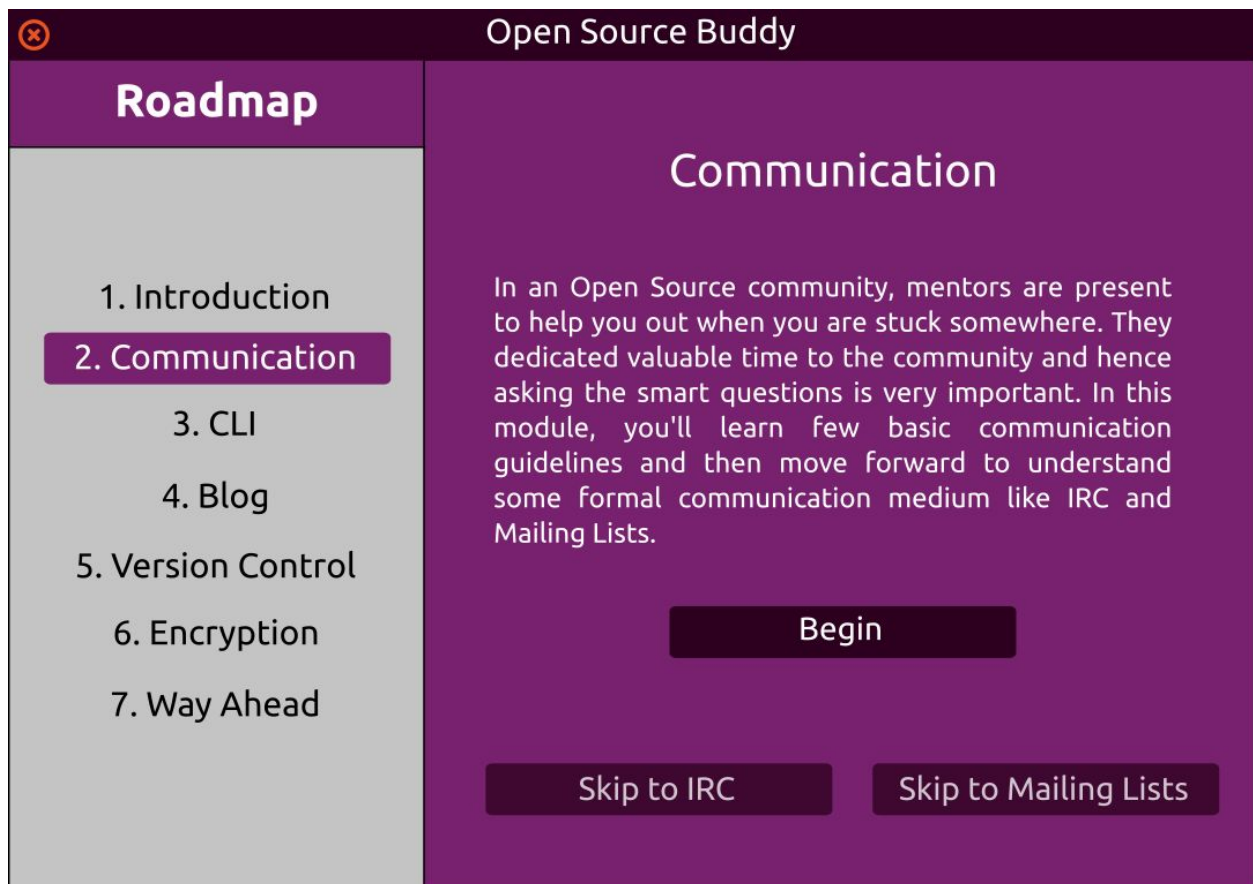
August 2, 2018 - August 5, 2018
Twelfth Milestone

- Packaging project and publishing it to [mentors.debian.net](#) and other upstream marketplaces from where it'll be freely available to download and develop further.
- Review of technical and design documentation.
- Creating roadmap which will help future contributors to this project.

August 6 to August 14, 2018 - Code submission and Evaluations

UI MOCKUPS

- On the left sidebar taking 2/3rd of entire window showcases placement of Menu items in order of their difficulty.
- User is free to explore in order to checkout different features.
- Two modules are displayed here **Communication** and **Command Line Interface (CLI)**.
- In first mockup, user will be taken to each step of learning communication guidelines and then to IRC and Mailing List. User also has an option of skipping directly to IRC or Mailing List.
- In the second mockup, it is shown that user is in the middle of taking CLI tutorials and their process will be recorded and displayed in an interactive manner (bubbles in this mockup) through which they can go back and practice again.



TOOLS TO BE USED

VCS - Git and Salsa

Programming Language - Python 3

GUI toolkit - PyQT 5

Database - SQLite 3

Versioning - Semantic Versioning

Testing Tool - PyTest with Pytest-qt plugin and Pylint

Code Editors - Nano and Visual Studio Code

UI/Design Software - Inkscape and GIMP

Communication Medium - Jitsi, Email, IRC and Signal (+91 9818171872)

Development Environment - Debian 9

Testing Environment - Debian 9, (optionally Macintosh and Windows for outreach)

Project Management - Kanboard

DELIVERABLES

A Python script/module, preferably distributed as a Debian package and uploaded to mentors.debian.net with the technical documentation also to helpout contributors.

ABOUT ME

My name is Shashank Kumar and I'm a Computer Science Engineering, Undergraduate student currently in my final year (graduating by June, 2018) from NIET, Greater Noida (Delhi NCR), India. I'm an Open Source contributor and Python enthusiast. Ever since I attended that first meetup of PyDelhi, community has become my second home. I have been a volunteer, speaker, organizer, contributor, mentor and mentee and spend most of my time working with and for FOSS. My interest lies in Python and Web Development domain and in my free time I experiment with technologies and tools mostly outside of it.

AVAILABILITY

I'm willing to work for ~7 hours a day for 6 days in a week. Hence, I'm not willing to take any vacation longer than a day per week. My University examinations are scheduled during second and third week of May and I'll work on Sunday to compensate for study time. I'll also maintain logs on my blog and Debian wiki about my experience and technical skills I learn during the internship.

WORKSPACE

I've a setup at home with 40 mbps broadband connection and quiet environment to focus on the work without any hassle. I'm comfortable doing my internship from here. Alternatively, there are many cyber cafe and co-working spaces with good internet connection and favorable environment for a developer to work around my place.

WHY DEBIAN

Debian is one of the huge Open Source communities has always inspired developers around the world with its projects and a shelter for new contributors to learn. Since I've started using Linux as my primary operating system I got to understand important of FOSS and community culture. After looking through the idea list with projects that can be developed using my favorite language - Python, I've put all my efforts and creativity on coming up with the best solution possible. I'm excited to learn more from Debian community and contribute.

OTHER PROJECTS

I'm not looking for any other project apart from this in Google Summer of Code 2018.

RECENT CONTRIBUTIONS

- [Railway Assistant Bot](#) - Python conversation bot to query about Indian Railway
- [Tweet Me](#) - Simple Python bot for The Geeky Way blog to post blogs on twitter at a regular interval
- [Query Server](#) - FOSSASIA - My contributions to Flask based Query Server project of FOSSASIA
- [Just Jobs Bot](#) - A Telegram bot to gather information about internships/jobs and post it on the public Just Jobs channel
- Telegram Bots - List of bots I created and maintain for various communities in and around Delhi
 - [PyDelhi Bot](#)
 - [PyData Delhi Bot](#)
 - [PyLadies Delhi Bot](#)
 - [Cryptocurrency India Bot](#)
- [What Pelican Quickstart actually do and how does it do that?](#) - A blog
- [Recovering commit after git reset —hard](#) - A blog

LINKS

Debian Wiki Profile - <https://wiki.debian.org/ShashankKumar>

IRC - realslimshanky (on OFTC, Freenode and Mozilla)

Blog - <https://blog.shanky.xyz>

GitHub - <https://github.com/realslimshanky>

Salsa - <https://salsa.debian.org/realslimshanky-guest>

Resume - <https://shanky.xyz/resume.pdf>

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