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Nationality: Indian

Primary Spoken Language: Hindi, English

1. **Top project choice (can be one of our project ideas or your own)**

   I would like to work on mitmproxy: pick-your-tasks project.

2. **Are you willing and able to work on other projects instead?**

   Yes, if the project is similar to mitmproxy and matches my skill set, I would love to work on it.

3. **Please describe your preferred coding languages and experience.**

   My preferred coding language is Python, I started with python around three years ago and this has always been my go-to language. I have used it for web-scraping, writing scripts for various purposes like manipulating HTTP requests and have also written a massmailer.

4. **Please describe any Windows, Unix or Mac OS X development experience relevant to your chosen project. If your project does not require OS-specific expertise, feel free to leave it empty.**

   I use Ubuntu 16.04 as my primary OS and do most of my development on that. I have WIndows as well.

5. Please describe any previous usage with Honeynet Project tools or honeypots in general.

I have used mitmproxy as a regular proxy and transparent proxy extensively to observe the traffic and HTTP methods different websites use. Recently mitmproxy helped me achieve my first bug bounty.

6. Please describe any previous Honeynet Project or honeypot related development experience, including details of any patches, code or ideas you may have previously submitted.
(As of 26th March 2018)
I have been contributing to mitmproxy and as a result, have reported 3 issues and 10 of my pull requests have been accepted and merged [Pull requests]. In one of my authored pull request, a new addon has been added '*share.flows'* which uploads the flows to the server and generates a shareable link.

7. Please describe any previous open source development experience, including projects you have worked on.

I started my open source experience by sending a pull request to VITacademics-Enhancement-Suite (A google chrome extension for my college's website). I have done a minor contribution to sendgrid-python.
Currently, I am contributing to mitmproxy and also hold a position in the managerial board of IEEE-VIT and work on their projects.

8. What school do you attend and what is your specialty/major at the school?

I am pursuing Bachelor of Technology(B.Tech.) in Computer Science and Engineering from Vellore Institute of Technology, Vellore, Tamil Nadu, India.

9. How many years have you attended there?

I am in my junior year(third year) currently and will be graduating in May '19.

10. What city/country will you be spending this summer in?

I will be spending this summer in New Delhi, India which is my hometown.

11. How much time do you expect to have for this project?

My vacations starts from 26th April and ends on 18th July. I can start working on the project from 6th May, during my vacations(~75 days) I will be able to devote 9-10 hours per day for six days in a week and around 4-5 hours on Sundays. After my college starts from 18th July, I will be able to give 4-5 hours on weekdays and 7-8 hours on weekends. Since my college doesn't have a fixed schedule for assignments and tasks, I am planning to finish all the work by the mid of July to avoid any clashes and will use the rest of July and August to clean the code and write better documentation.

12. Please list all jobs, summer classes, vacations and/or other commitments that you'll need to work around.

I don't have any jobs, summer classes or other commitments this summer.

13. Have you participated in any previous Summer of Code projects? If so please describe your projects and experience, including what you liked or didn't like about the experience

No, I haven't participated in any previous GSoC, this will be my first-time participation.

14. Have you applied for (or intend to apply for) any other Google Summer of Code 2018 projects? If so, which ones?

No, I am applying only for mitmproxy: pick-your-tasks project under 'The Honeynet Organisation'.

15. If you have a URL for your resume/CV, please list it here.

[View](#)

[Download](#)

16. If you wish to list any personal/blog URLs, do so here.

I don't have any personal/blog URLs yet, however I am planning to build my own website and will update about the same here.

17. Please describe your proposed project in detail, including deliverables and expected timeline with milestones (this is the long answer, so spend most time here!).

The tasks I would be aiming to complete in the summer are as follows:

- Map Remote/Local Editor [small]
- Improved Contentviews [small/medium]
- Importers and Exporters for related file formats, such as HAR [small/medium]

Details:

1. **Map remote/local editor(MRE)**: This has been discussed [here](#), this addition will allow users to map a URL to another URL or a local file. We are aiming at a dedicated "map remote" functionality as mentioned by Mr. Hils. The inspiration will be drawn from the *replacement* addon, with the editor in the UI it will handle the full URL.

2. **Improved Content views:** The idea of improving the content views and the concerned details are described [here](#).
   The crux of this project would be to **a)** load the data lazily, instead of taking the whole data and performing the operations and then returning, we would do this step by step and hence the dynamic construction of urwid.Text object as the user scrolls/demands and **b)** displaying the relevant content views corresponding to the data and replace the centralised guessing.

Methodology(Flow of work mentioned in Timeline)

a) Use urwid Listwalker for flow body view which will construct urwid.Text object on demand

b) Make Content view return the list or an object (*collections.abc.Sequence*) that generates the data as and when needed

c) Extend the LRU cache usage to cache object that will returned by content views.

d) Define semantics for each content view and replacing centralised guessing by checking the data/message with the semantics of each content view

e) Display The relevant content view and also keep an option for 'Other' to give the user provision to view the data in any other format.

3. **Importers and Exporters(HAR):** As of now we have har_dump.py as an external example and this mini project will focus on making it as an integral part of mitmproxy by extending and improving the *exporter* and also by introducing the *importer* which will bridge mitmproxy and other tools/browsers as mentioned [here](#).

Details

There will be a central registry that will manage all the exporters as we have done in contentviews, this will allow the addons to register their custom exporters making the process of adding more exporters in future simple and modular.

The addon will allow to export the flows in the corresponding format (HAR for now), also it will indicate whether it supports multiple-flow export or only single-flow export.

The exporter will have three flavours as discussed with Mr. Cortesi on slack, and corresponding three methods are as follows:

a) Export_one: Allowing the user to export one flow

b) Stream to file: Some exporters convert the flows and append to the file

c) Export_all: Exporting all flows to a file

Since HAR is JSON, *Stream to file* is not valid for it.

This will be highly inspired by example of 'har_dump.py' and will also draw minor inspiration from 'save.py' and 'export.py'.

Importer: It will take most of the time because of the unavailability of something similar existing in the codebase and will be extended to HAR for this project.

This will include the parser which will test whether the json file is a valid HAR file or not, decode it using python's inbuilt module 'json'(json.loads), extract the flow attributes from the dictionary ('har_dump.py' for reference) and display the flows generated.

Major modules of the project: Importer, Exporter and HAR addon

Timeline (Lists major goals of the week):

30th April - 6th May:
Community Bonding period
Clean up and finalize my existing pull requests to proceed for the work coming up.

7th - 13th May:
Community Bonding period
Writing the basic functionality of Map Remote Editor.

14th - 20th May:
Map Remote Editor
Get familiar with the UI Codebase.
Work on the UI and write tests.

21st - 27th May:
Map Remote Editor
Fix Bugs and write Documentation.

28th May - 3rd June:
Content Views
Use urwid Listwalker.
Make Content view return the list or an object.

4th - 10th June:
Content Views
Extend the LRU cache usage to cache object returned by content views.
Define semantics for each contentview.

11th - 17th June:
First Evaluation
Display The relevant content view.

Option for 'Other' content view.

18th - 24th June:
Content Views
Bug Fixes and Documentation.

25th June - 1st July:
Importer/Exporter
Work on central registry(addon exporters), incorporate three flavours.
Write the converter(flows to HAR)addon

2nd - 8th July:
Importer/Exporter
Prepare basic structure of importer.
Work specifically on HAR and add a parser.

9th - 15th July:
Second Evaluation
Display of the flows imported.
FIxing bugs.

16th - 22nd July:
Importer/Exporter
Final touch-ups on Importer/Exporter.
Writing Tests.

23rd - 29th July:
Fixing Bugs.
Code cleanup.
Writing documentation.

30th July - 5th August:
Final submission

Proceeding with the minor changes.

Future Work:

After the GSoC period, I intend to maintain the functionalities added, modify the documentation as well as the code accordingly. Moreover, I want to work on other 'Pick-your-tasks' projects and help maintain the repository as well as helping fix the existing issues and continue being a part of mitmproxy.

18. **Why are you well suited to perform this project and why are you interested in it?**

Mitmproxy was introduced to me by a friend and since then I have noticed that this tool is used by numerous people and the kind of satisfaction you get when thousands of people use something which you contributed for is unparalleled. I believe that working for mitmproxy under the mentors in the summer will provide me with an opportunity to work in my field of interest and gain lots of experience.

As far as programming is concerned, I started to code and learned about python around three years ago. After grasping the basics, I found out about 'Information Security' which sparked my interest. Even though I started kind of late as compared to my peers who were already pretty decent in the the field, I was able to refine my theoretical and practical knowledge through sheer hard work and perseverance which in-turn helped me grab an opportunity of being an Information Security intern in Codec Networks, Delhi. I have worked on projects as a backend web developer which gives me both, a pentester as well as a developer's perspective which can help make mitmproxy a better tool for security researchers along with developers.

Initially when I started contributing to mitmproxy, my motivation was wanting to see my name in the list of "Contributors" but over the course of these two months, mitmproxy has become an integral part of my life which and without which my routine feels off. Not only has it made me an open source enthusiast but also taught me a lot during this journey.

Therefore, with my interest in the field, motivation towards mitmproxy and the experience in the development of the tool, I believe that, with my skills, I will be able to become a major contributor towards the project in the near future.

19. **Have any of our members met you face to face, such as at one of our recent public events ([Paris,](#) [San Francisco Bay Area, Dubai, Warsaw](#), [Stavanger](#), [San Antonio](#) and [Canberra](#))? If so, please list who/where.**

No, I haven't met any of the members.