Systers 2018 GSoC Student Application

General Questions

- **Full Name**: Anjali
- **University/Current Enrollment**: Indian Institute of Technology, Roorkee
- **Major(s)**: Integrated Msc. in Applied Mathematics(2nd yr.)
- **Short Bio/Overview**:

  I am an enthusiastic learner, known for my reliability, sociability, and eye for detail. As a *Hub Coordinator* at Information Management Group (IMG), IITR, which manages the official websites and intranet facilities of the campus, I have successfully completed projects involving Python, Django, and PHP. I am an active member of EnA cell, National Service Scheme which aims at enrolling rural women in semi-skilled employments such as stitching and catering. Music and badminton are my go-to recreations.
- **Contact Info**
  - **Email**: anjalidhanuka99@gmail.com
  - **GitHub Username**: anjali-dhanuka
  - **Systers OS Slack Username**: anjali

- **If you have multiple applications, please rank this 1 through n (n being the number of proposals you submitted with Systers OS).**

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Community Involvement Questions

- **Do you understand Systers' mission? Give us examples of your community involvement (i.e. Women TechMakers, WomenWhoGo, Python, PyLadies, Systers, Ruby, Rails, etc).**

  Systers envisions an inclusive society, seeing a rise in the number of women in technical roles through their technological proliferation. They inspire, motivate and support women in the world over for this cause. I have been actively contributing to systers-opensource since December, having attended almost all the Community and GSoC Open sessions. I am also an active member of *Systers OS Slack* and WomenWhoGo.

- **What kind of contributions have you made to the Systers Open Source Community that is not related to code?**

  I have documented all the possible enhancements (link) in VMS, explained the same in open sessions and have also helped in cleaning up the repo by documenting the issues (link) that need to be closed. I have pitched ideas for UI improvement of VMS (link) and women healthcare app (link) by exhibiting mock-ups in the lightning talk of an open session. Simultaneously I have been guiding the newcomers in the community and helped other community members by reviewing their PRs and giving them constructive feedback.

- **Do you consider yourself as a team player? Tell us why. If you are selected, how do you plan to cooperate with fellow community members (including other students, mentors, etc.)?**
  Yes, I do. Being a part of IMG, I have worked within a community with strict deadlines, brainstorming sessions and under the supervision of mentors similar to the working of open source communities. If selected, I'll constantly participate in the discussions, review other students work and try to give them constructive feedback, while striving to meet deadlines. Since I know when to question and when not to, I'll try to work independently and only bother the mentors when absolutely necessary.

- **Give us 3 examples (max. 2 lines per example) of unaccepted behavior in a multicultural community.**
  1. Non-womanly behavior of a girl; often generalized by a community as *Tomboy.*
  2. Forcing *Collectivity* or *Individuality* on an individual or a group of people.
  3. Tabooing homosexuality

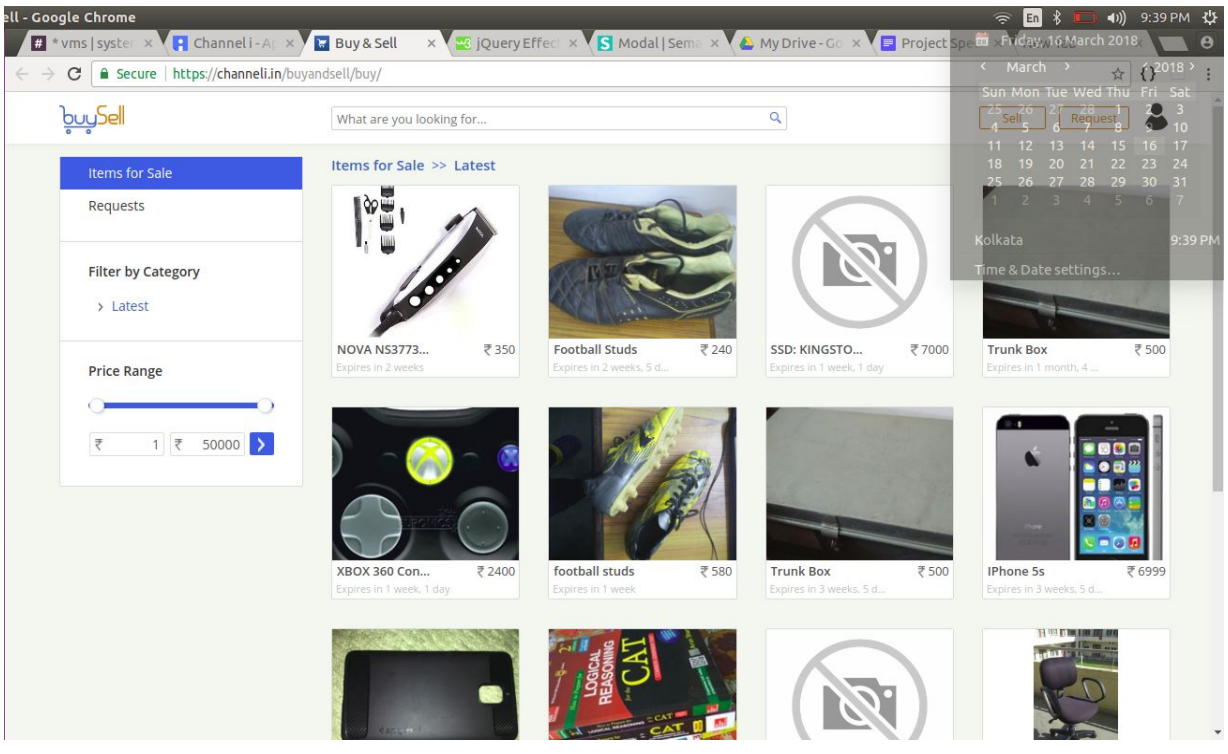
- **How to do you plan to stay involved with open source after this program? (Becoming a regular committer, maintainer, mentor)**
  I am an open source enthusiast and my vision aligns with that of Systers. Thus I will be around in future contributing to the project and if I get a chance, I'll be involved in other activities like maintaining, mentoring and helping new people get onboard to the project.

- **Are you a Syster?**
  I have already applied for it and would really love to join if accepted.

Background Questions

- **Do you have any work that you improved User Experience or User Interface on an application? Give us a few examples.**
  1. Buy and Sell portal, IITR(Semantic UI)
  2. People Search
  3. VMS - includes pull requests around UI improvement

1. Buy and Sell Portal



- **Do you have any experience with creating unit tests, integration tests, or regression tests? Give us a few examples.**

  I have read about unit and integration testing. I have gone through the tests of *VMS* thoroughly and have also fixed most of the failing tests on my local machine. I have also studied cross-browser testing, database testing, regression testing.

- **Do you have any programming or developer experience? Give us a few examples.**

  Individual projects:

  1. Ppl Search, IITR-Django app for student's profile search
  2. mini-Fb-PHP app providing features of Facebook
  3. notifi-Chrome extension to notify about upcoming contests
  4. Secured Rank 202 in International Coding League
  5. Participated in hackathons like CFD etc

- **Do you have any experience working remotely? What struggles did you have?**

  The game of venom- A Django app(front-end: AngularJS) hosted on Heroku

  This was an IMG assignment for summer break while I was at home. It needed constant reviewing by seniors. This was a challenge because they were not always available to guide me with problems.

- **Do you have previous open source experience? Tell us what you have done. (i.e. Hacktoberfest, Google Code-in, etc.)**

  I have been working on VMS since December, opened 23 issues and submitted 24 pull requests (10 merged).

  1. Merged PRs: 531 538 562 564 585 589 619 623 654
  2. Ported VMS to django 1.11(PR) and django 2.0(PR)
  3. UnMerged: 625 617 603 584 545 534 530 528
  4. Issues opened: 655 518 522 532 557 561 567 578 577 166 576 622 616 602 550 544 277 624 618 588 581 579 563

- **What motivates you to be a part of GSoC 2018?**

  It will be a great learning opportunity as I will get to work with developers around the world. GSoc will be a great utilization of my summer. Since GSoc involves working with a community, I will learn more about teamwork that will benefit me for my future.

- **Describe the largest project you have completed. This is not limited to coding. You can include fundraisers, school clubs, hackathons, etc. (Include # of members, time zones, details, etc.)**
    - ❏ Bhawan Portal-a portal for registration, complaint, guest room booking
    - ❏ **Team**- 3 other members
        - ❏ Supervising mentor
        - ❏ a designer
        - ❏ a co-developer
    - ❏ Assigned by-Students Affair Council(an organization representing the students of IIT Roorkee)

- **Do you know what a branch is? Use your own words to define a branch in a repository.**

  A branch is a pointer by which we can separate our work. A branch allows many developers to work simultaneously on a project and then get their contributions merged without overwriting each others' work.

- **Describe any commitments you have over the time period of GSoC (including the community bonding period), such as classes, a summer job, vacation plans, final exams, master's thesis, other internships, jobs, etc.**

  I have my end term exams from 25/04/18 to 5/05/18. So, my involvement would be less during this time. Apart from this, I will be having my summer breaks until 12 July 2018 and I have no other commitment during that period. After that, I'll be having my classes, but that will not affect my work because I have about 20-22 contact hours per week. Thus, I can easily contribute 40-45 hrs per week. I will also try to contribute during my crunch time.

Project Specific Questions

Which Systers GSoC project from this Ideas List are you applying for?

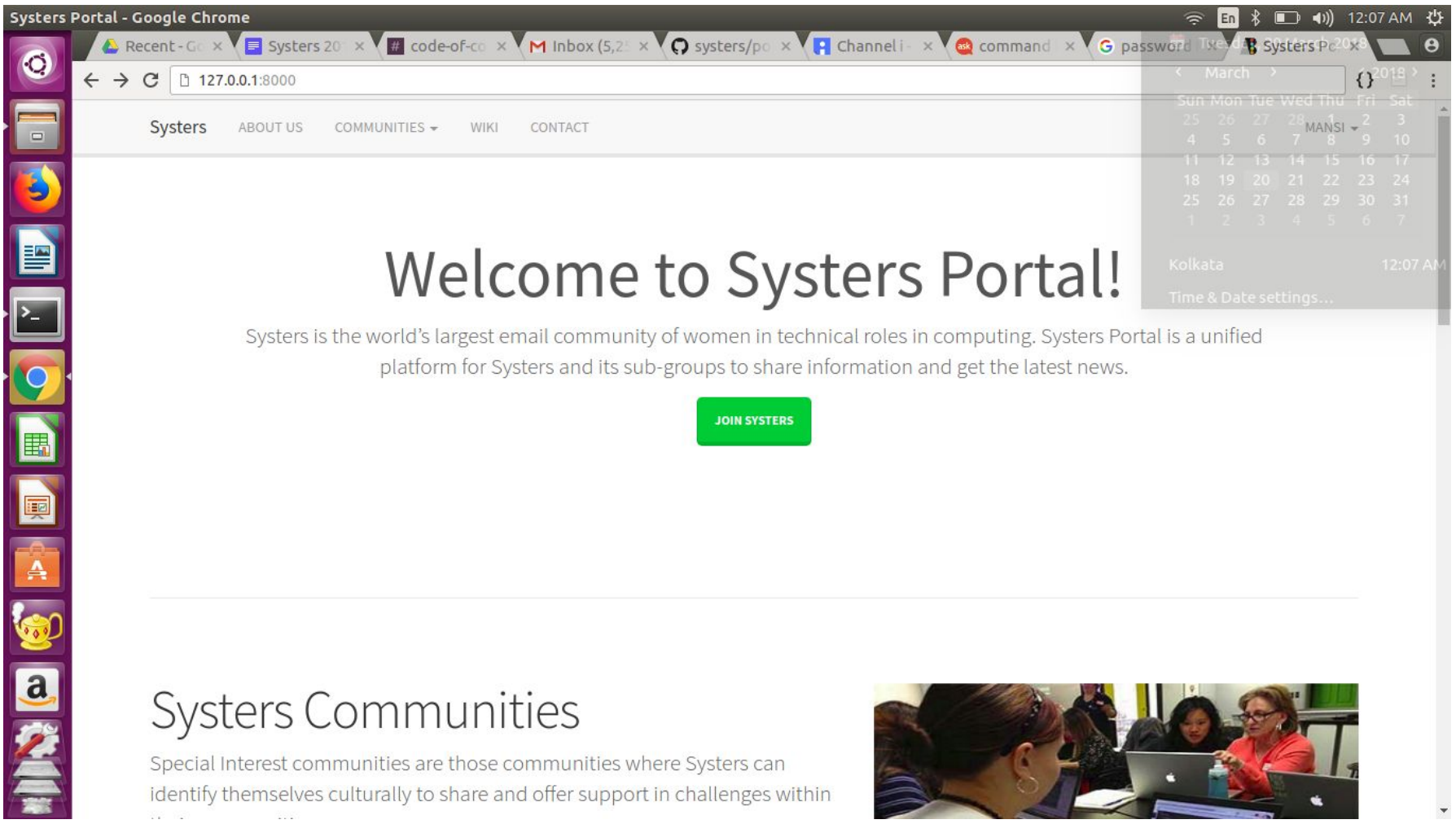
Infrastructure/Automation

Which platform are you most interested in improving coverage (i.e. Android, iOS, Python, etc.)?

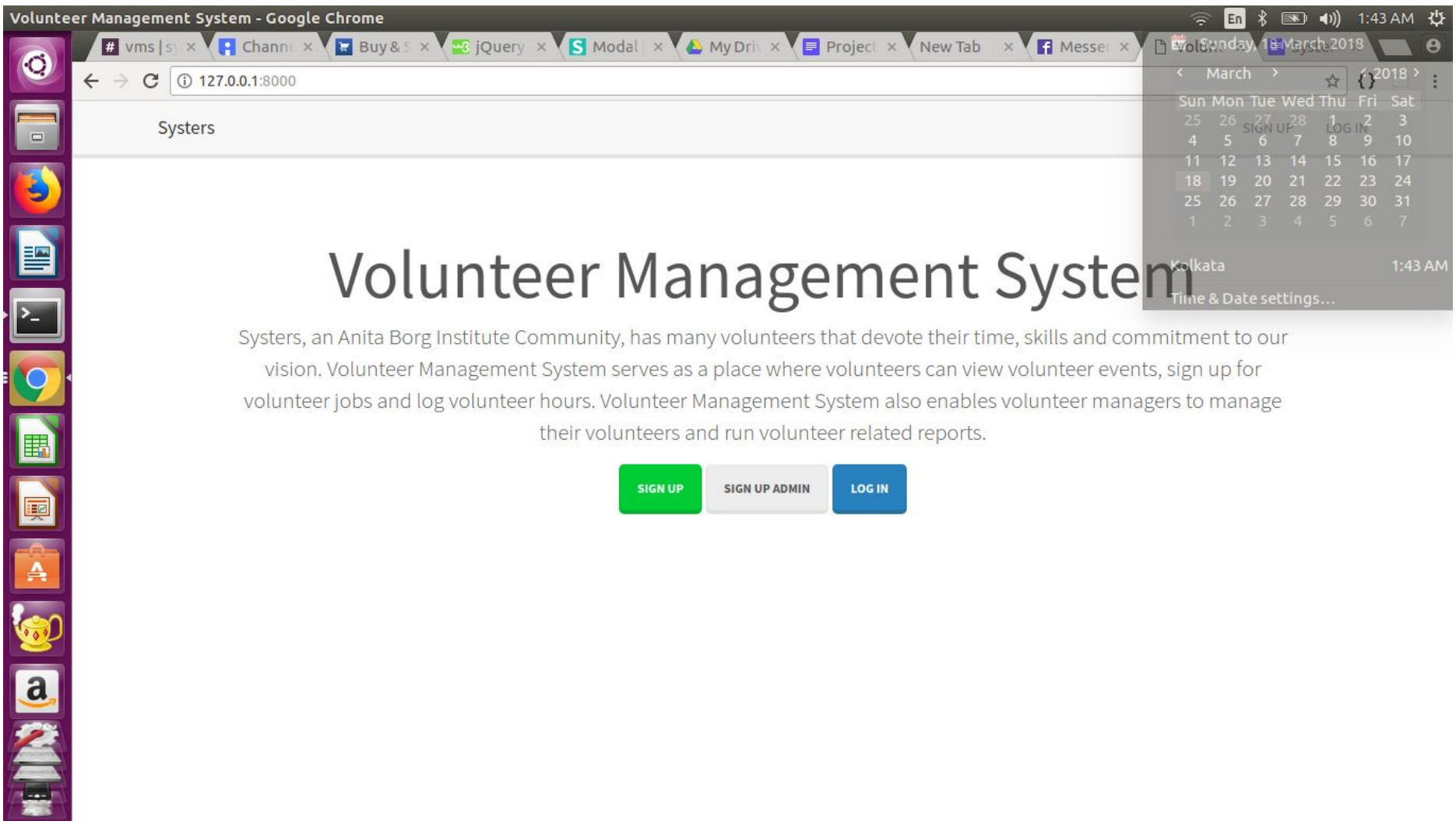
Python

Which applications using that platform have you built?Submit screenshots of the running applications with the date/time visible on your machine.

- Portal


Systers Portal - Google Chrome
127.0.0.1:8000
Systers
ABOUT US
COMMUNITIES
WIKI
CONTACT
Welcome to Systers Portal!
Systers is the world's largest email community of women in technical roles in computing. Systers Portal is a unified platform for Systers and its sub-groups to share information and get the latest news.
JOIN SYSTERS
Systers Communities
Special Interest communities are those communities where Systers can identify themselves culturally to share and offer support in challenges within

- VMS


Volunteer Management System - Google Chrome
127.0.0.1:8000
Systers
SIGN UP
LOG IN
Volunteer Management System
Systers, an Anita Borg Institute Community, has many volunteers that devote their time, skills and commitment to our vision. Volunteer Management System serves as a place where volunteers can view volunteer events, sign up for volunteer jobs and log volunteer hours. Volunteer Management System also enables volunteer managers to manage their volunteers and run volunteer related reports.
SIGN UP
SIGN UP ADMIN
LOG IN

Do you have any ideas how we can improve the infrastructure and processes of Systers' projects?

1. Increasing code coverage.
2. Implementing proper documentation and installation instructions
3. Strict Implementation of Pep8 style guide.
4. For python/Django projects implementation of class-based views rather than function based views.

What are the features/enhancements that you plan for the summer with Infrastructure and Automation?

1. Follow PEP8 Style Guide

Portal and VMS don't follow PEP8 style guide failing the pipelines on each run.

Implementation:

Yapf tool by Google can autoformat the entire codebase.a

It can format code snippets, files and can also replace the code with the formatted one.

2. Regression/Integration Tests

Integration testing (grey box testing):

After unit testing, integration testing can be done. For integration testing, a test suite would need to be prepared to crosscheck the interaction between different modules - such as is the data being returned by one module as expected by the other one.

Regression testing

Testing the application as a whole for the modification in any module or functionality. Since it is difficult to cover all the system in regression testing so typically automation tools are used for these testing types.

VMS

Most of the tests are failing in VMS that needs to be fixed. Here is the list of the failing tests with detailed explanation of fixing them:

a. test_check_intersection_of_fields(app=Administrator)

Fix:

A function register_dataset needs to be created to create the report from the parameters passed in the create_dataset function.

```
Function register_dataset(parameters)
      Create volunteer
      Create event
      Create job
      Create shift
```

b. test_shift_sign_up_with_outdated_shifts(app=Event)

Fix:

Job model needs to be imported

c. test_field_value_retention(app=Registration)

Fix:

By the time the assertion is done, the form has changed or is in the process of being changed, thus we need to find the element again after assertion.

d. test_fields(app=Registration)

Fix:

Messages passed in views are not displayed in Django templates.

e. test_incorrect_volunteer_credentials(app=Authentication)

Fix:

The function expects an alert on incorrect credentials. The corresponding class needs to be assigned to the div.

f. test_upload_resume(app=Volunteer)

Fix:

Currently, the tests only run locally. The file specified for testing is not system independent. Thus we can create a directory in VMS itself and create some sample files in it for the test.

Portal

Almost all the tests are running fine by now. However possible issues can be reported.

3. Automated Builds

Automated testing is an extremely useful bug-killing tool for the modern Web developer. For implementation of automated testing, selenium can be used. Selenium is set of tools for automating browsers. It provides a lot of options and APIs for automating user interaction with the web applications. It is used for testing web applications, web scraping and automating boring repetitive tasks. Selenium supports automation on all the major browsers including Firefox, Internet Explorer, Google Chrome, Safari, and Opera. Selenium can be also run on android devices.

VMS

Currently, VMS already performs web-based automated testing using Selenium webdriver.
It doesn't work out due to compatibility issues between selenium and browser.

Fix:

Upgradation of selenium webdriver

Since the latest version of Firefox is not compatible with Selenium 2 which is being used currently. Selenium needs to be updated to version 3. When using Selenium 3, we need to download Geckodriver

and add the directory containing the executable to the system path.

Implementation:

Download geckodriver and set its path.

Portal

Automated Testing is implemented in Portal but based on Java-based Test framework(Link) . But The project has been phased out.

"This project is being phased out. Automated testing is being moved to each project's repository."

Thus we will use selenium WebDriver with Firefox for automating Django views test same as we were doing it manually.

For each Class, a setup method would be defined, which starts the server and a tear down method which destroys it in the end. For example, for VMS, LiveServerTestCase provided by Django is used (It launches a live Django server in the background on setup, and shuts it down on teardown).

The setup method completes steps necessary before running the test case - These would include but are not limited to

- ❏ Initializing the driver
- ❏ Assigning variables to the URLs to be used throughout - for eg. the url before the test, standard expected url etc.
- ❏ Window setup (maximize etc.)

Executing tests:

This is a very broad area, exploring how application reacts to user actions. Possible tests include:

- ❏ Testing all links in web pages (that they are not broken and lead to expected pages). All outgoing, as well as internal links, would need to be tested.
- ❏ Testing forms on a page - passing valid, invalid data, if they lead to expected pages based on entered data, where clicking buttons leads to
- ❏ Testing data entered, retrieved and displayed on the page is as per expected results for triggered user actions

To verify the data is displayed correctly and trigger actions, one needs to have significant knowledge of the underlying HTML structure of the webpage. While simple functions can be used to tackle tests for one part at a time, I would be using the Page Object Model. It would structure everything in

classes ensuring that pieces of frequently used code are not duplicated everywhere. What this also does it makes the tests adapt more easily to UI changes. Example: Instead of changing the path variable everywhere, we can just change it in one location.

4. Code Coverage at 90%+

A common measurement for tests is test coverage: the percentage of lines, branches or files of the code that are executed when the tests are run.

VMS

Currently, the code coverage in VMS is just 42-43% which is very less. Most of the tests are commented out which needs to be fixed(mentioned above in failing tests of VMS).
Apart from that, some new tests need to be written.
There have been many changes to VMS for which tests need to be written. Here is the list of the additional tests that are required with detailed explanation:

a. Tests for Administrator profile view

The administrator can view or edit his profile.

```
Class AdministratorProfile
        # test if all the details are displayed
         def test_details()

        # test for edit profile
         def test_edit_profile()
```

b. Tests for duplicate jobs

The jobs of same event can’t have same name.

```
Function test_duplicate_jobs():
        create event
        Create job
        Check the no of job objects in db.
        If it is 1: test passed
        Else : no
```

Portal

The code coverage of portal is around 98.6% already which is quite a decent figure. However, we can still improve that.

Potential Timeline for the Features/Enhancements

What is your backup plan for time management in the event of unseen difficulties that you might encounter?

Working with IMG, I have gained the mindset to cope up with difficulties.

I will try to be ahead of the timeline whenever I can so that I am prepared for such events.

If need be, I am also ready to pull out all-nighters, if that's what it takes.

Timeline

Period	Milestone	Due Date
Community Bonding Period Apr 23 to May 14		
Apr 23 to April 30	Exam break	
April 30 to May 5	Exam Break	
May 5 to May 14	● Get in touch with mentors and other students ● Restructuring of timeline and tasks	
Phase 1 May 14 to June 11		June 9
May 14 to May 21	● Implement PEP8 for portal and VMS	
May 21 to May 28	● Fix automated tests for VMS	
May 28 to June 6	● Fix failing tests in VMS	
June 6 to June 9	● Documentation and testing of the tests fixed in Phase 1	
Phase 2 June 15 to July 12		July 10
June 15 to June 22	● Increase code coverage of VMS to 90%+	
June 22 to June 29	● Increase code coverage of VMS to 90%+	
June 29 to July 4	● Increase code coverage of VMS to 90%+	
July 4 to July 10	● Run tests of VMS and report bugs ● Documentation of the tests implemented in Phase 2	
Phase 3 July 13 to Aug 6		Aug 4
July 13 to July 20	● Implementation of Automated Tests for portal	
July 20 to July 27	● Implementation of Automated Tests for portal	
July 27 to Aug 1	● Implementation of Automated Tests for portal	
Aug 1 to Aug 4	● Run tests and report bugs ● Documentation	
Final Week Aug 6 to Aug 14		Aug 12
	● Test the project ● Complete the documentation ● Add readme	

Optional Question

Tell us about yourself in one line! :)

I am a keen enthusiastic learner who can code her way to success.