Proposal for OSGeo gsoc project

1. Contact details

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2. Your idea

<u>OSGeo or guest software:</u> GRASS GIS

<u>Title:</u> Support writing tests with pytest for grass gis

<u>Brief description of the idea:</u> Writing tests or test code using pytest instead of grass.gunittest

<u>The state of the software BEFORE your GSoC:</u>

The current testing framework is grass.gunittest which was written before migration to git/github. Goals such as independence on current code, detailed custom HTML reports, success tracking over time, and high specialization towards GRASS-specifics are prioritized which are not currently relevant.

grass.gunittest is based on Python unittest package and many projects since then migrated to pytest. It contains many assert methods and doesn't work well with tests of main grass executable.

<u>The addition that your project will bring to the software:</u>

pytest supports writing small, readable tests, and uses plain assert statements instead of many different assert methods.

Using pytest for this project will lead to tests which feel like Python scripts and testing-specific code is minimized. The pytest framework makes it easy to write small, readable tests, and can scale to support complex functional testing for applications and libraries.

Future developments:

Fixture for pytest to set up and tear down a GRASS session in a temporary mapset. In future if there is any change or new pytest version is released and any assert statements are removed, added or modified, then this project will have to be updated and maintained.

3. **Timeline**

May 20th-June 12th community bonding period

Reading documentation for grass.gunittest package and pytest framework- (may 20th-26th)

Initial research on project and becoming familiar with code- (may 27th-31st)

Setting up environment, tools and repositories- (june 1st-5th)

Knowing and interacting with mentors and osgeo community- During the period

Setting up wiki page for describing my project- (june 1st-5th)

June 13th-July 25th phase 1

Start with coding which may or may not be related to project and evaluation work- (june 13th-30th)

Fixing failing tests or writing new tests- (july 1st-25th)

July 25th- September 4th work period

Creating general comparison functions from the grass.gunittest assert methods so that they can be used with pytest- (july 25th to august 14th)

Current grass.script.setup.init function and grass.script.core.create_location function should be made to work in the pytest test function.- (august 15th to september 4th)

September 5th- November 13th final

If previous work is remaining due to exams it will be done in this period- (september 5th-30th)

Fixture for pytest to set up and tear down a GRASS session in a temporary mapset.- (october 1st-30th)

Final work to be completed and submitted to mentor for evaluation- (November 1st-13th)

<u>July-September time conflicts</u>

I may have my college end semester exams during this period so will not be able to work on the project. It may start from July end or even mid of august and it is not finalized yet. I will inform and tell the actual dates later.

4. **Studies**

<u>What is your School and degree?</u>

I am studying for a degree in computer science branch in neil gogte institute of technology hyderabad. Earlier i was studying urban planning degree in jnafau hyderabad but discontinued it in middle and started studying computer science. I am also doing online BSc degree in data science from iit madras.

<u>Would your application contribute to your ongoing studies/degree? If so, how?</u>

By doing and working on this project my python skills will strengthen which will help me in python related projects and will be a nice project to add in my portfolio.

5. **Programming and GIS**

<u>Computing experience and skills:</u>

Windows operating system
C (Programming Language)
Python (Programming Language)
HTML5
Java language
Android
Cascading Style Sheets (CSS)
MERN Stack
NumPy
Basic c++

<u>GIS experience as a user</u>

I know basic arcgis and qgis tools. I studied urban planning degree earlier so I used it for doing my projects and course work.

GIS programming and other software programming

Arcgis
Qgis

6. **GSoC participation**

Have you participated in GSoC before?
No

How many times, which year, which project?
-

Have you applied but were not selected? When?
-

Have you submitted/will you submit another proposal for this year's GSoC to a different org? Which one?

Checkstyle, openafs, robolectric, openstreetmap, ankidroid