



Fostering pre-university student participation in OSGeo through the Google Code-in competition Di Leo, V. Andreo,

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OSGeo

- Founded as a non-profit organization in 2006
- The number of open source software projects under its umbrella is steadily growing
- OSGeo's vision is to empower everyone, from pre-university students to professionals, with open source geospatial applications, tools and resources
- To further OSGeo's commitment to open education, the **GeoForAll initiative** was established in 2011
- At present, GeoForAll consists of 125 labs, mainly based at universities and research center world-wide



Google initiatives

- Google has two programmes to introduce pre-university and university students to open source, namely:
 - Google Summer of Code (GSoC),
 - Code-in (GCI)







Google Summer of Code

- Established by Google in 2005 and has grown ever since
- GSoC is an **online, international program** targeted to university students, that **aims at fostering their participation in open source software communities**
- How does it work?
 - Mentoring organizations select students that will be developing software applications during 12 weeks
 - Students receiving support and feedback from mentors within the software community
 - Successful students are paid stipends by Google
- 190 students (as of August 2018) completed GSoC since 2007



Google Code-in

- First stated in 2010
- In 2017, OSGeo decided to participate in Google Code-in (GCI) for the first time
- GCI is an annual online competition aimed at introducing pre-university students (13-17 years) to open source projects, development and communities, through short 3-5 hour tasks
- GCI students freely pick up tasks from one or more mentoring organizations
- Students qualify for different prizes depending on the number of tasks they complete
- A unique opportunity to interact with pre-university students and to encourage them to become part of their respective organizations



Google Code-in in 2017

- 25 open source participating organizations
- 3,555 participating students (265% increase from 2016)
- 15-17 years old [] average age of participants
- 17% of participants were girls
- 78 countries*
- Completing 16,468 tasks (66% completed three or more tasks and earned a tshirt)

* The southern hemisphere is under represented, probably due to GCI taking place during the summer vacation in most of these countries



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Google Code-in

Task description:

- Responsible mentor(s)
- Type of task (i.e. coding, documentation, training, outreach, research, quality assurance and user interface)
- Links to relevant information
- Maximum amount of time the task can take to be completed (e.g. 3 to 7 days)
- Number of instances available
- Students can only claim and work on one task at a time
- Only when the task has been approved by the mentor or abandoned, the student can claim another task.



Google Code-in

• The mentors job, once a task is submitted for review:

- 36 hours to review the work submitted (12 hours are encouraged)*
- Approve it or request more work, providing comments to improve the submission
- Delay in providing feedback can impair the student's performance in the competition
- Students win prizes based on the number of tasks completed and the quality of their submissions



Typical tasks

- **Title:** QGIS: Write a basic tutorial for creating a map that can be used to train school learners
- **Description:** For this task, you need to write a tutorial (step-by-step instructions) that can be used by school learners to get started with QGIS to design their first map. You use any open data (e.g. from your cities open data portal or the World Bank portal) for this tutorial. Add a bit of a story to the tutorial to capture the attention of the user. Submit the document as a PDF.
- Categories: Documentation & Training, Outreach & Research



Typical tasks

- Title: gvSIG: Install Tests add-on on gvSIG BATOVí.
- Description: The student will have to install the Tests add-on on gvSIG BATOVí. He or she will have to make a screenshot showing gvSIG Batoví without the addon and follow-up screenshots of each of the steps needed to complete the installation, complete a simple testing report ODT template that will be provided and export it to PDF.
- Categories: Quality Assurance



Typical tasks

- Title: GRASS GIS: Compile source code
- **Description:** Compile the source code of GRASS GIS in your operating system following the instructions at <u>https://grasswiki.osgeo.org/wiki/Compile_and_Install</u>

Compilation is usually simpler and better documented for Linux OS. If you use Windows and you get trouble please ask on GRASS GIS developer mailing list <u>http://lists.osgeo.org/mailman/listinfo/grass-dev</u> Result: Upload the log file called '*config_log.txt*' and an image with your name written in the terminal when you success in compilation. To create '*config_log.txt*' you need to redirect stdout and stderr to a file ([Unix doc] http://www.tldp.org/LDP/abs/html/io-redirection.html)



A basic tutorial for creating a map that can be used to train school learners

If you want to Use World Country Dataset You can use this json file:https://gist.github.com/Sunveer54/5d52f599354fb097c3deb28a17299973

To get Into file:-

Add a new vector layer

Choose the zip file and click ok

Choose CRS. Select WGS84 EPSG:4326 as the Coordinate Reference System (CRS).

Then the map will appear on your screen.

1) <u>Working With Vector Data</u>

Vector Data- It is used to describes geographic data in terms of points, that may be connected into lines and polygons.

Vector Feature- Every object in a vector dataset is called a feature.

QGIS: Creating a Map

Jerry Huang

January 10 2018

1 Introduction

In this tutorial, you will learn how to create a basic QGIS based map. For our story, we will assume you are a part of a charity organization seeing where to donate money to of poverty stricken areas.

2 Building a Basic Display

First, we will need to get the poverty and US data from somewhere. The two links this tutorial uses can be found here and here. Once you download both files, unzip the us county data and input the graph into QGIS via vector layer. Choose "Directory" and "US Census TIGER/Line," and input the unzipped directory as a vector layer. You should see a graph that looks like:



How to Install Portable View Viewer?

Cómo instalar Portable View Viewer?

Method

- Overview of OSGeo GCI involvement
- Analyses of student submissions
- Feedback from mentors
- Lessons learned



Method

- Once the competition finished, we downloaded the data from all OSGeo tasks
- These datasets included:
 - Tasks designed and offered by the organization
 - Instances of those tasks that had some activity (i.e., claimed, completed, abandoned)
- Each instance contains information, such as:
 - Date the task was claimed
 - Interactions among student and mentor
 - Submissions
 - Date task was approved
- The script used for this aim is available at: <u>https://git.osgeo.org/gitea/lucadelu/gci_analyst</u>



Method

- Short feedback survey completed by the OSGeo administrators and mentors
- The aim were to collect information on:
 - Percentage of material integrated into the various projects
 - The number of hours spent mentoring
 - If any students are still actively participating in the community
 - Whether they would consider mentoring in the next GCI edition
- All the co-authors of the paper served as either an administrator or mentor during the 2017 GCI edition and shared their thoughts and experience



Overview of OSGeo's participation

- Students completed 649 OSGeo tasks Sceonad 20 volunteers (16 mentors and 4 admins)
- OSGeo projects involved: FOSS4G, GeoServer, GeoTools, GRASS GIS, gvSIG, MapServer, OpenLayers, OSGeoLive, pgRouting, PostGIS, and QGIS
- Students communicated through Google dashboard, and IRC channel #osgeogsoc
- A lot of effort by mentors answering questions (sometimes upto 4 or 6 hours per day)
- majority of the students were from India (49%) followed by the United States (24%), Poland (7%), Singapore (4%) and 18 other countries



Overview of countries of origin of OSGeo



Overview of OSGeo's participation

* *		*	GCI
		OSGeo	
	FINALIST	WINNERS	
	Ethan Zha	Jerry Huang	
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Mentor feedback and

- First experience by OSGeo, so a lot of unknowns **EXPENDED** of tests Completed by students were for outreach (blogs, logos, etc)
- Some code was contributed (GRASS GIS modules improved)
- Some OSGeo mentors spent 30 hours a week answering student questions
- A few cases of plagiarism



Lessons learned

- A lot of requests from unknown mentors
- Kids are shy to ask for help and will just 'abandon task'
- Tips for preventing cheating (asking for screenshots with student name at commandline etc)
- Specific syntax for uploading tasks
- Be aware of time demands



GCI Summit

- June 25-28 Googleplex, Mountain View
- Winning students, and mentors





GCI Summit









Conclusions

- Important to introduce kids to the Open Source community
 - Next step Google Summer of Code
- OSGeo mentors must be thanked for such an effort to help these kids
- We learned a lot with our first Code-in experience
- Please share the word about this contest locally to young students
- It's fun!



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Thank you for listening!

