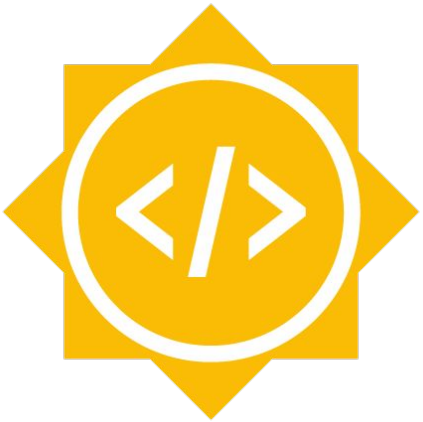
GSoC Introductory Seminar



Google Summer of Code

What is GSoC?

Google Summer of Code (GSoC) is an online, international program designed to encourage university student participation in open source software development.

Google Summer of Code

About

Students work for an open source software organization, and earn a stipend for successfully completing the project.

University students spend their time outside of school working in a field that can help them with their studies and career *after* university.

Google Summer of Code

How does GSoC work?

Open source software projects apply to be mentor organizations

Google chooses the organizations to participate (200+ in 2019)
Students submit project proposals to mentor organizations

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How does GSoC work?

Mentor organizations choose the students they'd like to accept

Students are paired with a mentor to help them throughout their project

Coding begins! Students work towards milestones laid out in their project proposal with their mentor over 10 weeks

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Evaluations

Students must pass two evaluations

Students who pass each evaluation are paid a stipend for their work

At the conclusion of GSoC, students submit the code they've written for their project for everyone to see and use!

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Eligibility

- Over 18 upon registration
- Accepted into or enrolled in a university program by the student acceptance date
- Eligible to work in the country in which you reside
- Have participated in no more than 1 previous GSoC

++ Willingness and enthusiasm to learn new things.

Things that you don't need to be for getting selected for GSoC

- Dassi.
- Student of CSE Dept.
- Competitive Coder.
- Expert level programmer.

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Statistics

- In 15 years over 15,000 students from 104 countries have been accepted into GSoC
- Countries with the most students:
  - India (2,831), United States (2,328), and Germany (772)
- 77.5 % were UGs in GSoC 2020, from various branches - Electrical, Mechanical, Civil, Mathematics, Computer Science etc.
- Mentors that are former GSoC students: 691

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Useful links

Program Site: **http://g.co/gsoc**

Student Manual: **http://g.co/gsoc/studentmanual**

Google Open Source Blog: **https://opensource.googleblog.com/**

Google Summer of Code

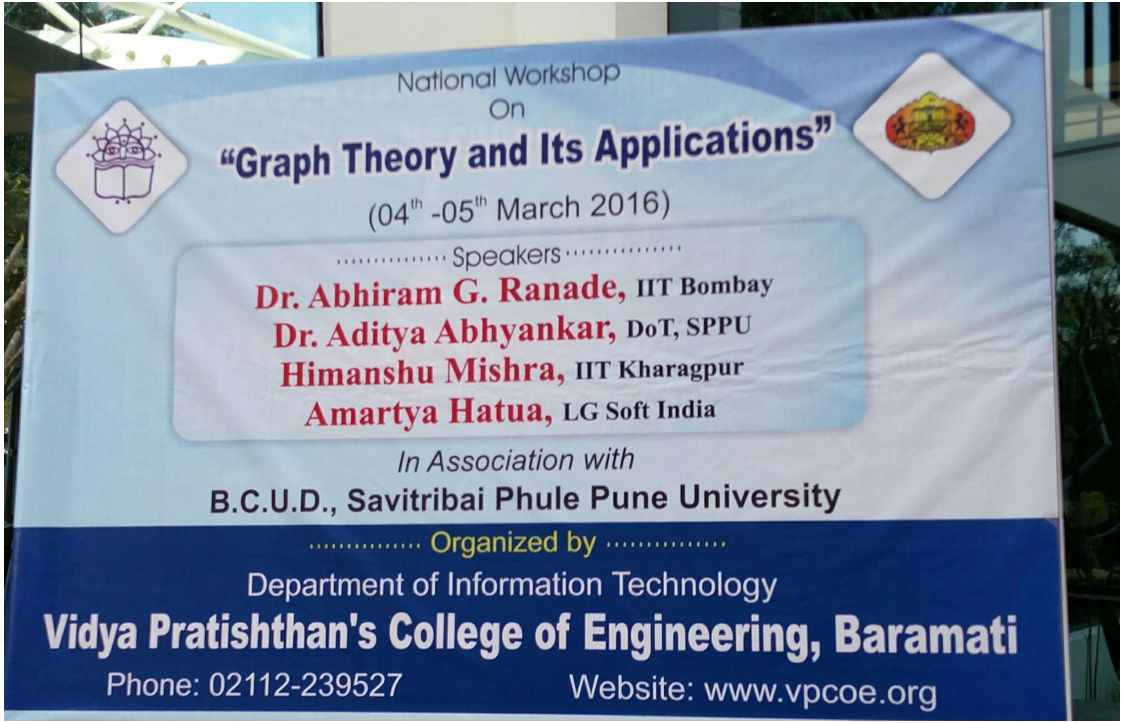
2021 Program Timeline

Mar 10:	Organizations are announced
Mar 29 - April 13:	Students submit their proposals
May 27:	Accepted students are announced
May 17 - June 7:	Community bonding period with orgs
June 7 - Aug 16:	Students code the summer away
Aug 31:	Successful student projects are announced

Perks of GSoC

Let’s talk about some swag

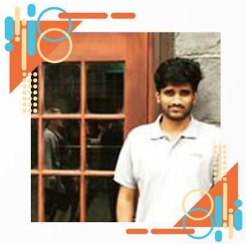
- Software development skills
- Stipend of $1500 *(Multiply by 73.01 later)*
  - This is optional. You can also abstain from receiving the stipend :p
- After GSoC:
  - Contacts, Letter of Recommendation
  - Publishing paper(s), invitation to talks
  - Conferences, Travel



Tutorial on NetworkX, Pune University, 2016

PRAGMA 19 | Student Dev Speakers

19-20th January, 2019



Saicharan Reddy

Founder, Freeflo

Embracing New Technologies is the Key to the Future.

Tarun Kumar

IIT Patna

Hacking Free Online Tools to Automatically Build Your Linux OS with Meilix Scripts

Shivam Kumar Jha

IIT Kharagpur

A Dig At Perpetual Processes

Wasim Tabraze

Senior Software Engineer, Zemoso Labs

Jumpstart to Docker

Shivam Kumar Jha at
Indian Institute of Information Technology Allahabad, 2019

Introduction to FOSS

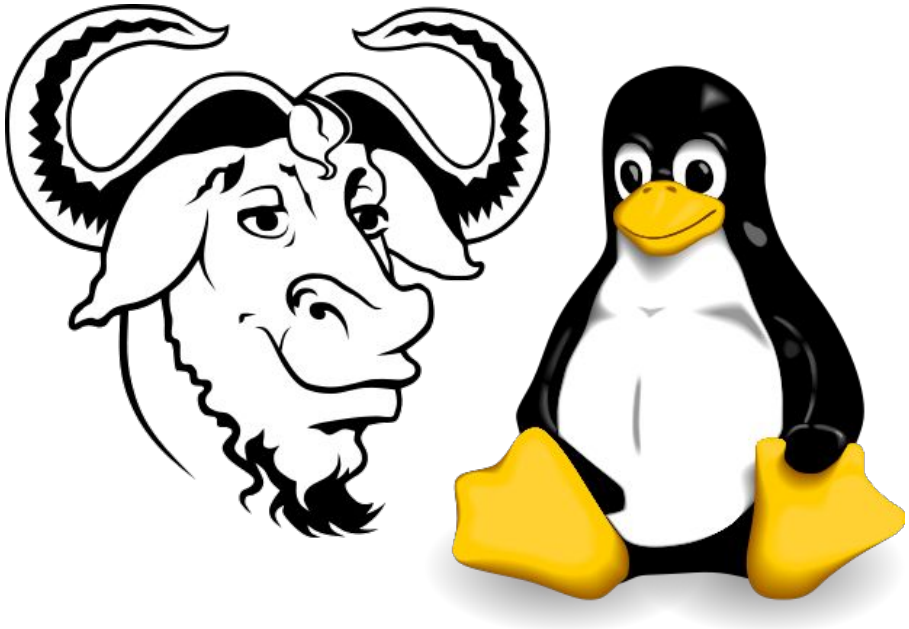
FOSS: Free and Open Source Software

Open Source vs Proprietary Software

Proprietary Software is “property” of someone else and you are licensed to use it, in way the owner wants you to use it.

Accessibility to the source code is a major difference between open source software and proprietary software.

Google Chrome vs Firefox



History of FOSS

FSF and GNU Project

- 1970’s Companies used to give software with their hardwares which users can look into and modify
- Richard Stallman, a programmer at MIT AI lab couldn’t modify their new printer to notify of jams because its source wasn’t available
- 1985: Free Software Foundation was formed and component by component they began to create a clone of the unix operating system, called GNU for GNU’s Not Unix
- 1991: Linus Torvalds wrote an operating system kernel calling Linux.
- 1992: Linux was integrated with the rest of GNU project and the GNU/Linux.

FOSS Today

- 91.4% of Supercomputer Runs Linux
- The most popular Mobile OS runs on Open source software
- Silicon Valley and Startups run on FOSS
  - Google, Facebook, Twitter and many others ship Open Source software
  - Google search open sourced their core Machine Learning library, TensorFlow
  - Uber uses requests, an open source Python library
  - Facebook developed Hive
  - Popular frontend frameworks are foss; AngularJS (Google), ReactJS (Facebook)…
  - All popular programming languages (Python, C++, …) are developed as OSS
- “Given enough eyeballs, all bugs are shallow” -- Eric S. Raymond

Free as in Free Speech, not Free as in Free Beer

Software needs to Free:

- The freedom to run the program as you wish, for any purpose .
- The freedom to study how the program works, and change it so it does your computing as you wish
- The freedom to re-distribute copies so you can help your neighbor
- The freedom to distribute copies of your modified versions to others

Additional Readings

- Free Software, Free Society: Richard Matthew Stallman
- The Cathedral and the Bazaar: Eric S. Raymond
- Revolution OS Documentary
- Free as in freedom - book by Richard Stallman

How to select Organizations

What's the ideal way

- Browse through the organizations and their projects (200 approx)
- Boil the list down to 50 orgs in 1st iteration just by looking through the project description and technology used.
- Go through 50 orgs in a little detail, by looking at their projects, no. of selections in past year etc., and cut the list to 7-8.
- Finally, visit these 7-8 orgs' communication channel and interact with the community. See your chances of getting in, talk to KGP seniors and boil this down to 2.
- Select 1 after the final org list is out.
- Note that you can have upto a total of 3 proposal in same or different orgs.
- Timeline

Demo- How to search projects.

A few tips that will come in handy!

- **Use archives to see which orgs get selected every year.**
- **Choose projects which are at the intersection of your field and computer science. You always get a head start.**
- It is advisable to look through the programming language organizations selected such as Python Software Foundation, R Foundation and Julia as these have projects from diverse fields such as mathematics, finance, physics, biotechnology, chemistry etc.
- **Do not choose University orgs.**
- **Avoid orgs solely related to ML,DL or AI (unless you are an expert in the field). (usually MS/PHD students are preferred)**

Finance	R, Python
Biotechnology	BioJS, cBioPortal, e!, NUMFOCUS Global alliance for genomics, Open Genome Informatics, Open BioInformatics Foundation
Geoinformatics	52°North Initiative, OSGeo
Chemistry	Open Chemistry
Mathematics	Sage Mathematics, ASCEND, Scilab, R, Gambit(Game Theory), cvxpy, Julia, SymPy, NUMFOCUS

Astronomy	OpenAstronomy
Electronics	beagleboard.org
Electrophysiology	Open Ephys
Physics	JuliaQuantum, Python
Social/Communications	CiviCRM, Berkman Centre

After selecting an org?

- **Interact with the community!** (VERY Important).
- Start solving some beginner level issues. Go through the issue tracker of the repo. Generally, orgs require you to solve certain number of issues for your proposal to get accepted.
- As soon as the final org list is out, choose a project and start writing your proposal. Keep discussing with your mentors. Writing a good proposal can take a month.
- Sample Proposal
- After submitting your proposal, don't disappear. This is the time when they are reviewing your proposals, hence be active in the irc channel, and keep trying to fix issues to create a good impression.

DO’s and DON’Ts

DON’Ts

- Don’t be vague
- Don’t ask generic questions

But

- Don’t hesitate.

DON’Ts

- Don’t expect instantaneous replies.
- Don’t personally mail or DM the mentors.*
- Don’t write follow up comments if you don’t get a reply.

* Depends on the Organization, checkout the guidelines

Why?

- They are busy people.
- They are nice people.

DON’Ts

“Dear Sir”

“May I ask a question?”

Do not ask to ask.

Don’t try to undermine other applicants, at-least seem helpful ;)

DOs

Being persistent is the key.

Be active on slack, irc, gitter, google groups etc.
(Make yourself visible)

Research your questions thoroughly.

CATB Guide

DOs

If you don’t get an answer to a coding specific question, try other platforms like StackOverflow.

Helping others = Getting help for yourself!

Proposal Drafting Advice

- Look at previous year’s proposals.
- Often orgs and mentors have a specific set of question and expectations, do include those in the proposal.
- Basic structure includes
  - About me
  - Previous relevant open source contribs
  - Why am I suitable for this project, why I want to work on this project
    (The above stuff should only be 20-30 percent of proposal)
    Sometimes orgs have page limit, stick to it.
- The majority of the proposal should be explaining the project - Motivation, Plan, Execution, Timeline (Do not skip out tests, blogs, docs)
- Mention other commitments, if any.

Q&A

Open

https://github.com/OrkoHunter/gsoc-FAQs

thealphadollar/GSoCOrgFrequency: List of GSoC organisations with number of times they have been selected. (github.com)

Or

v.ht/gsocfaq (Very Short link)

- Click on **Watch** button on the top, to receive emails.
- Read through the **README** completely
- Create a new **Issue** if you have have a question which is not in the README

Recommended materials:

- Official student guide by Google
- Unofficial GSoC FAQs by Himanshu Mishra(MA'19)**:** https://github.com/OrkoHunter/gsoc-FAQs
- Dr. Chris Rackauckas (MIT), Julia - Tips for your GSoC application
- GSOC: HOW? THIS? THAT? at https://thealphadollar.me/experience/2018/12/03/how-i-prepared-for-gsoc-18.html

Programs similar to GSoC

Checkout

deepanshu1422/List-Of-Open-Source-Internships-Programs: A curated list of all the open-source internships/Programs (github.com)

Women in Community

- Rails Girls Summer of Code
- Outreachy

Name	Stipend	Timeline
MLH Open Source Fellowship	Yes	timeline
Season of Docs	Yes	timeline
Season of KDE	No	timeline
Outreachy	Yes	timeline
RGSOC	Yes	timeline
Tweag I/O Summer Internship	Yes	timeline
TOR Summer of Privacy	Yes	timeline
GSOC	Yes	timeline
SOCIS	Yes	3 months
LFN Mentorship Program	Yes	timeline
The X.Org Endless Vacation of Code (EVoC)	Yes	timeline
DataONE Summer Internship Programme	Yes*	timeline
Julia Summer of Code	Yes	timeline
OWASP Code Sprint	Yes	timeline
Free Software Foundation Internship	No	timeline
Radare Summer of Code	Yes	timeline

Proprietary + Confidential

GSoC History from IIT Kharagpur

Proprietary + Confidential

2015 - 8

2016 - 15

2017 - 31

2018 - 22

2019 - 19

2020 - 9

KGP in GSoC

2019-19

Schools with the most accepted students for GSoC 2019:

University	# of Accepted Students
Indian Institute of Technology, Roorkee	48
International Institute of Information Technology - Hyderabad	29
Birla Institute of Technology and Science, Pilani (BITS Pilani)	27
Guru Gobind Singh Indraprastha University (GGSIPU Dwarka)	20
Indian Institute of Technology, Kanpur	19
Indian Institute of Technology, Kharagpur	19
Amrita University / Amrita Vishwa Vidyapeetham	14
Delhi Technological University	11
Indian Institute of Technology, Bombay	11
Indraprastha Institute of Information and Technology, New Delhi	11

2017 - 31

Top 10 schools by students accepted for GSoC 2017

University Name	Country	Accepted Students
International Institute of Information Technology, Hyderabad	India	39
Birla Institute of Technology and Science, Pilani (BITS Pilani)	India	37
Indian Institute of Technology, Kharagpur	India	31
University of Moratuwa	Sri Lanka	24
Delhi Technological University	India	23
Birla Institute of Technology and Science Pilani, Goa Campus	India	18
Indian Institute of Technology, Roorkee	India	18
Indian Institute of Technology, Bombay	India	15
LNM Institute of Information Technology	India	15
TU Munich/Technische Universität München	Germany	14

✨ GSoC Stories ✨

Volunteers to contact

- https://wiki.metakgp.org/w/Google_Summer_of_Code

Q&A (from responses)

Thank you !

Provide your feedback at
bit.ly/gsoc21_koss_feedback