Digital Elixir

Association for Computing Machinery

Saturday, January 28, 2017 Volume IV **Google Summer of Code Edition**

WHAT IS GOOGLE SUMMER OF CODE ?

Google Summer of Code is a global program that offers student developers stipends to write code for various open source software projects. Since its inception in 2005, the program has brought together over 8,500 successful student participants from 101 countries and over 8,300 mentors from over 109 countries worldwide to produce over 50 million lines of code.

Through Google Summer of Code, accepted student applicants are paired with a mentor or mentors from the participating projects, thus giving them exposure to real-world software development scenarios and the opportunity for employment in areas related to their academic pursuits. In turn, the participating organizations are able to easily identify and bring in new developers. While majority of the participants are enrolled in a university or college with Computer Science and Computer Engineering programs, there are coders who come from diverse educational backgrounds.

GSoC provides a platform for coders to release open source code for the benefit of all. This is a win-win situation for both parties. While the software community gets more code, GSoC provides a platform to showcase your skills. It's about getting introduced to new people, helping others and doing things *just because you enjoy it.* It's about understanding that you don't need to join a big, cold, soulless corporation to make a difference.

The Free and Open Source Software Community (the FOSS Community) is a huge family that is based on the purest of human intentions, philanthropy, contributing to society and in general, trying to make the world a better place. Though Google will use the results of the pro-gram to help identify potential recruits, that's not their main intention.

The best way to prepare for getting into mentoring pro-grams like GSoC is to become a contributor to the project that interests you. The mentor can help you build the project's code, identify an easy bug to start with, and help you with your patch for that bug. The mentor can guide you through your subsequent contributions and point to the resources for solving a particular task.

GSoC gives you an edge over other internships because it involves public promotion of your work. Many companies still try to hide the potential of their best recruits as they fear that the recruits will be poached or that they will demand higher salaries. Everything you complete in GSoC is intended to be published and you get full credit for it. Imagine a young musician getting the opportunity to perform on the main stage at a rock festival. This is how the free software community works. It is a meritocracy and there is nobody to hold you back.

WHY GOOGLE SUMMER OF CODE ?

The Google Summer of Code is a program that is designed to bring in new people to contribute to the Free and Open Source community. It's about introducing more people to the amazing world of free and open soft-ware.

Not only does it look amazing on your resume, Google Summer of Code provides you with an opportunity to do what you like and still get paid for it. It is the dream internship for any developer. First of all, there is a common misconception about GSoC in most people's mind: “One needs to be some sort of a genius or a really good coder to get selected.” The truth is that one just needs to be a hard worker, with a thirst for knowledge.

Google Summer of Code is about both writing and publishing your code and it is also about community work. It is fundamental that you know the basics of licensing and how to choose a *free* license that empowers the community to collaborate on your code well after GSoC has finished.

The GSoC stipend will not make you rich. It is intended to make sure you have enough money to survive through the summer and focus on your project. Professional developers make this much money in a week in leading business centers like New York, London and Singapore. When you get to that stage in 3-5 years, you will not even be thinking about exactly how much you made during internships.

Getting into the world of software engineering is much like joining any other profession or even joining a new hobby or sporting activity. If you run professionally, your closet is stocked with a wide range of shoes, a running watch and you may even spend a couple of nights at the track each week to keep in top shape. If you enjoy playing a musical instrument, you probably have a collection of sheet music, accessories for your instrument and may even aspire to build a recording studio in your garage. Basically, the point is that you do everything in your capability to win. However, if you do not get selected for GSoC, all the time spent into preparing for it shouldn’t be considered a waste. After all, it will help you clarify your own ideas about your career and help you make new friends in the software engineering community. So go on, give it your all.

BITS-ACM has planned a information and discussion session on GSoC where students get to know about the experiences of those who’ve Proved their mettle in GSOC 2016.

29th February, 2017. from 2 pm to 3 pm, LTC 5102. BE THERE!

TEAM - KSHITIJ, POONAM, ANMOL, APURV, PRIYANK AND NITHYA

THE TIMELINE

January 19 16:00 UTC	Mentoring organizations can begin submitting applications to Google
February 9 16:00 UTC	Mentoring organization application deadline
February 10 - 26	Google program administrators review organization applications
February 27 16:00 UTC	List of accepted mentoring organizations published
February 27 - March 20	Potential student participants discuss application ideas with mentoring organizations
March 20 16:00 UTC	Student application period opens
April 3 16:00 UTC	Student application deadline
May 4 16:00 UTC	Accepted student proposals announced
Community Bonding Period	Students get to know mentors, read documentation, get up to speed to begin working on their projects
May-30	Coding officially begins!
Work Period	Students work on their project with guidance from Mentors
June 26 16:00 UTC	Mentors and students can begin submitting Phase 1 evaluations
June 30 16:00 UTC	Phase 1 Evaluation deadline; Google begins issuing student payments
Work Period	Students work on their project with guidance from Mentors
July 24 16:00 UTC	Mentors and students can begin submitting Phase 2 evaluations
Work Period	Students continue working on their project with guidance from Mentors
July 28 16:00 UTC	Phase 2 Evaluation deadline
August 21 - 29 16:00 UTC	Final week: Students submit their final work product and their final mentor evaluation
August 29 - September 5 16:00 UTC	Mentors submit final student evaluations
Sep-06	Final results of Google Summer of Code 2017 announced
Late October	Mentor Summit at Google
	Mentor Summit at Google

INTERVIEWS WITH EXPERIENCED GSOC-ERS

BITS-ACM: When did you try for GSoC and why GSoC?
PRATEEK: GSoC was something that I was looking forward to participate in ever since a senior of mine from DVM got selected in my first year. I decided I would try to attempt so in my second year, since by that time I would have good command over a programming language, JS in my case. GSoC being branded by google and with the stipend of course was an eye-catcher over any normal internship.

BITS-ACM: Tell us about your work, the challenges faced, and the GSoC experience in general.
PRATEEK: My organization, TU Wien, has been participating in GSoC for quite a few years now. I project was working on Carbon Footprint, an extensions for Chrome, Firefox, Safari browsers which allowed a user to use the extension with most of leading map services. The aim is to raise awareness of the environmental impact of driving cars. I started with refactoring the code and reimplemented the user interface of the extension, optimizing the storage of user options and allowing localization. Understanding the browser specific APIs, the algorithm to calculate carbon emission based on the parameters and while keeping the structure simple and expandable to add support to other services and feature were the key challenges.
From the doomed feeling of stuck at some part to the joyous celebration of fixing it, this bumpy ride with my mentor's support is one of my most treasured experience.

BITS-ACM: What problems must one overcome if they're getting started with Open-Source?
PRATEEK: I personally think one should start with learning **Version Control**, go with **Git**. The general problem most people face is finding a project of their interest and suited language. The easiest way to go about it would be going through past GSoC projects and their Github repository. Once you have found a project that interests you, understanding of the existing code base and follow the code guidelines as implemented by the organization. Another good habit would be discussing about how you wish to implement a feature or fix a bug with the community.

BITS-ACM: How difficult is it for a novice programmer to get accepted? What points should they focus on?
PRATEEK: It all depends on how strong are the basics of the programmer in the project's language and how diligent a person is in exploring and learning the libraries to be used in the project. The most basic requirement is to have a good command over the language and understanding.

BITS-ACM: If you had to say one thing to our readers, what would it be?
PRATEEK: Money and certificate factor of GSoC aside, contributing to open source is highly valued and in itself will teach you a lot on how development for any software goes. And GSoC is the best platform to go about it with the added perks. To every aspirer out there I would say, Trying wont hurt, just give it a shot.

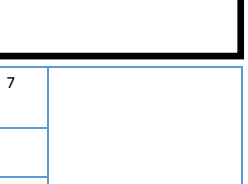
Prateek Gupta is a dual degree third year student who is also a senior member at the Department of Visual Media, completed his GSoC working with TU Wein, Austria to develop Carbon Footprint extensions.

BITS-ACM: What time did you start preparing for GSoC in second year?
EKLAVYA: I mostly focused on competitive coding initially, but finally made up my mind around mid-Feb to go for GSoC very seriously. Though I'll admit that this is too late to start your preparation.

BITS-ACM: How did you cope up with your studies?
EKLAVYA: Since I interest in a lot of subjects at that time which I liked and had known for a while, I skipped the lectures for those. For the others I didn't pay any attention.

BITS-ACM: What might be the initial but serious problems one might face while they're just starting with open source?
EKLAVYA: GitHub – pull requests, managing accounts etc. is a huge problem for novices with no prior version control system experience. Understanding the seriousness of presentation and good commenting. Installing different software, packages, libraries, versions everything becomes too confusing if the presentation is messed up.
BITS-ACM: What do you think are the most important pre requisites one must have to start contributing to open source?
EKLAVYA: Obviously to appear for GSoC, you ***must*** have experience with version control systems, and managing issues. It is ***the*** most important pre-req. Along with it, there are small things like virtual environments, vagrant, markdown, documentation, which people tend to ignore, but at a level as high as this, even these things matter a lot
And of course, a stable programming background with some decent experience

BITS-ACM: Once one starts seriously, what are the general problems one might face?
EKLAVYA: Being active on Github. Also, being consistent. The mentors can reply as late as they want, but you as a student shouldn't take more than a day to reply.



BITS-ACM: After sending some pull requests and getting acquainted, what should be the next step, when its almost time to send the proposal?
EKLAVYA: Give the proposal early, request for a review, make a blog to update all the stuff and be active on the mailing lists. In simple words, make it a way of life.

BITS-ACM: What were some problems you faced with Zulip?
EKLAVYA: It was a new organization, hence obviously, they weren't going to take many people. No other problem.

Eklavya Sharma is a single degree third year CS student who completed his GSoC working with Zulip, a powerful open source group chat application.

BITS-ACM: When did you decide to go for GsoC?
JAI: Pretty late, around march. I feel it was too late and people generally start around the beginning of January which is suggested.

BITS-ACM: Why GSoC?
JAI: I have been into App Development since a long time (9th grade). I had taken part in Google code-in too. I have always been active when it comes to such things. Also, money.

BITS-ACM: How did you manage your time?
JAI: I didn't face many problems managing time as such. I had already done a lot of work in my department and was already familiar with things like Github, pull requests, deployment (which I think is the biggest problem). So, I think I had an edge.

BITS-ACM: Is it possible for a novice programmer to get accepted?
JAI: Yes, definitely. Now , this depends upon the organization you're choosing, some organizations are made for beginners, others need good experience. It all varies from organization to organization. It's very important that one looks at the organizations pretty seriously, there are many thins which might give us hints about their working, seriousness, etc. Like, one can take a look at the number of slots an organization has to get an idea about how many projects will be accepted and choose the topics wisely. Getting the mentor to know you or being kind of special in the mailing list can make a huge difference while they're evaluating your proposal.

BITS-ACM: What is better? Focusing on projects of one organization, or two or more organizations to improve chances?
JAI: Yeah, focusing on one organization is good, but it's risky. If the primary aim is to get accepted, it's recommended that you focus on multiple organizations (max 3), understand their workflow and meet new people.

BITS-ACM: What according to you are the biggest problems faced?
JAI: It might be frustrating to wait for replies. Staying consistent is not as easy as everyone thinks. It needs a lot of dedication.

BITS-ACM: What was your approach to deal with mailing lists?
JAI: Making an impression, staying in touch with the mentor (constantly), tracking what they want and removing the ambiguity and focusing more on doing things in a very organized way, while specially addressing their problems. That, was my approach.

Jai Agarwal is a dual degree third year student, also a senior member of Department of Visual Media who completed his GSoC working with BuildmLearn on their mConference Framework project.

HYPERLOOP: A SNEAK PEAK INTO THE FUTURE

BITS-ACM met **Awais Ahmed, Levitation Lead, Hyperloop India** who happens to be a second year student from our campus. Many aspects of Hyperloop and related activities were discussed in the meeting. Excerpts.

BITS-ACM: What exactly is Hyperloop and what makes it different from other modes of transport?
AWAIS: Planes can only go as fast as air lets them go, i.e., when you are travelling fast, there is going to be air resistance and after the Kantrowitz' limit, you cannot go any faster no matter how much energy you supply. Hyperloop is an evacuated tube where a partial vacuum is created inside the tube, removing the air resistance. Thus no Kantrowitz limit.

BITS-ACM: What are the energy costs associated with Hyperloop?
AWAIS: We are using magnets to levitate the pod. Unlike electromagnets, these are passive magnets that don't use any energy. Here you just need power at certain intervals so that it propels the pod at equal intervals and maintains the speed. We will also cover the top area of the tube with solar panels and the whole thing is going to be energy efficient that way.

BITS-ACM: You, Hyperloop India started as BITS Hyperloop, a team of 16 students. How far are you now and how did the idea come into play?
AWAIS: We are currently participating on the second iteration of the SpaceX Hyperloop competition. BITS Hyperloop is the brainchild of Sibesh Kar, who initially went to the competition weekend in Texas and when he came back and he wanted to participate in the next iteration with the agenda of being prepared this time. So, he recruited people from all three campuses and work was distributed among the three campuses. Pilani campus was going to handle levitation, breaking and propulsion. Hyderabad, the mechanical structure and Goa campus was going to handle the controls part. We are also in the Hyperloop One global challenge that needs business expertise for which we have collaborated with IIM-A and ISB.

BITS-ACM: How did you manage to get funding for something that's never been done before?
AWAIS: Well, the BITS Alumni network is huge and we tried to contact BITS Alumnus in the companies. In this way, we first contacted RITES (Railway Research company of the Government), we presented our idea to the board, impressed them and proceeded that way. Then we started gaining momentum and companies started contacting us themselves.

BITS-ACM: What is the Hyperloop scene around the globe and what challenges do you face now?
AWAIS: As a part of the Hyperloop One Global Challenge, Hyperloop One is building an actual hyperloop pod and tubes in Nevada, USA. They'll be testing it on a full scale in March, this year. They are also under a contract by the UAE government to build Hyperloop route between Dubai and Abu Dhabi. We are one of the 35 semi-finalists out of 3500 applicants of this challenge. Now, if you are one of the finalists, Hyperloop One provides you with the technology, advice, funds and mentorships. Our task is to put together a team of collaborators in India who can help make this happen. Once we are the finalists, Hyperloop One will collaborate with us and the companies we are collaborating with, it is going to be like government giving projects to private companies. We have a perfect plan chalked out and we are working tirelessly towards it.

Across

1. A free and open source web development framework written in python, also unchained (6)
3. A desktop environment for Linux distros. Also small in size (5)
4. Ask me about 7 bit encoding (5)
6. No, this is very different from Java. Its like comparing a car to a carpet (10)
8. A sequence of characters that define a search pattern, daily (5)

Down

2. Something that GNU is not (4) **5**. The priestly software giant that owns coffee (6)
7. Restructuring existing code (11)
9. Software that is available free of charge and often distributed informally for evaluation (9)

Some answers in really small print - regex, oracle, gnome, Django