



OG Values :

Contribute to student's community
Knowledge when shared, grows
Ones' experience is a lesson for others
Giving back to the society
Let us learn together
Building a knowledge based society

Visit Open Gyan at <http://www.opengyan.com> for more updates and articles

Please think before taking print out of the entire magazine. Online and soft copies are always better than hard copies. Save Trees and Save Environment

Editorial

When the site went live last month it was a pleasant feeling. In just a week there were 1300+ page views and it was a surprise, pleasant surprise. Well it was just a beginning and well begun is half done. But it just reminded that it is just a small step taken towards the goal. Starting a website was just a starter. To maintain it and add features is a herculean task and we are learning it step by step.

To many it was a surprise that OG started and started with high goals. Why and most of all why you ? were the questions. To answer those queries, its the need for a challenge, pursuit of passion that motivates and drives the OG. People who have volunteered for the OG are also being driven by the same passion. It is heartening to know that there are many out there willing to take part in an initiative of this kind. All it needed was a little step. May be this is what is meant by the tipping point. Hoping to see a tipping point in OG too in near future.

While it was a pleasant month for OG, the nation was rocked by terrorist attacks. Its a time to mourn for those who laid down their lives to protect us. Our hearts reach out to the brave khakhis and commandos. Its now time to accept our nation is in dire states and start looking for solutions. Petty short term measures can never hold. We cannot afford to lose our decorated police officers any more, nor can loss of civilian lives be tolerated. Steps have to be taken and though small they should be firm.

Its a small step that starts a long journey.

-- signed

Visit Open Gyan at <http://www.opengyan.com> for more updates and articles

Please think before taking print out of the entire magazine. Online and soft copies are always better than hard copies. Save Trees and Save Environment

Contacts and Relationships - A Step Ahead in the Race

Career is a long journey, it does not stop with the first job. But the first job is certainly the start. When you step into the today's workplace mentors, colleagues and managers welcome you. If you are going to view your colleagues as your competitors then it is bound to affect both. Partner them. Start partnering your colleagues, mentors and managers. Your success has an impact on your managers' success so does your failure. Collaborating and having a good working relation with your team is of prime importance.

Be open and aware of what is expected out of you by your peers, manager. Being open to constructive criticisms and LISTENING to feedback is a necessary part of building the relationship. Your manager and leaders open the doors for your skill development and career improvement. Having a constructive and healthy relation is necessary. Workplace conflicts and petty office politics can cause havoc and through spanner in the works. Anticipating and side stepping the pitfalls can help maintain a good relationship.

In the school and college days the small matters like turf war over the space in school desks, ink poured over the shirts, well anything and everything starts a fight. And any small deed like 'helping' a 'friend' in exam, loaning a pen makes you the best pal. School playgrounds and cricket grounds form the place for starting a fight and making the best pals. If you fight or quarrel, the friends invariably broker the peace by coaxing you or driving sense in to the hard head. Well it happens the same way in offices too, just that your 'friends' at office will not take extra efforts to calm the things down. No one wants to rub the wrong side of any one. You may have been the hot head of college, but a cool head above the shoulders serve the purpose in corporate life.

Count the number of friends in your school final year. Count the number of pals you made in the college days. You will be amazed that the total number of pals you had made will be crossing a three figure mark !! amazingly the count starts reducing from the time you step into corporate for many of the people. Keeping contacts and growing the list of contacts has its own merits. You can trade in favors. Your younger brother needs a project in computer science ? You will be able to pull in strings and get a internship in a company where your friend works !! Switching jobs? forget the job portals, the friends should be able to put your resume directly to the HR. There are umpteen ways the contacts and the relationships built over the years can help. [Try watching / reading Godfather [Mario puzo] to know more of the friends and favors.]

Whom you know is equally important as compared to what you know.

Visit Open Gyan at <http://www.opengyan.com> for more updates and articles

Please think before taking print out of the entire magazine. Online and soft copies are always better than hard copies. Save Trees and Save Environment

Becoming a Better Programmer - Part 2

Bus Conductor: Ticket, please.

You: Give me a ticket?

Bus Conductor: Where do you want to go?

You: Isn't necessary to board a bus knowing the destination?

Bus Conductor: Hey.. are you a crack?

In previous part of the series of article on "Becoming a better Programmer", we discussed the basic steps of software development. In this part, we are going to discuss on "Understanding the problem". This is very critical for the successful completion of the software. Not knowing what needs to be done is something like boarding a bus without knowing where go. If you like to travel aimlessly, you will have to waste your time/effort and end up nowhere. Understanding the problem is nothing but knowing what the users of the software want. Before evening solving the problem, you have to know the problem. Understanding the problem is known as "Requirement Analysis".

The requirement analysis typically consists of two phases - requirements collection/gathering and analyzing the requirements. In the requirements collection/gathering phase, you will typically sit with the users of the application and know what the requirements are. To put it simply it is something like "Write a program to identify whether the given string is palindrome or not, without using buffer (additional memory)". In this example, there are two requirements given to you. First one is "Writing a program to check whether the string is palindrome or not" and the second requirement is "without using any additional buffer/memory". With this problem statement, what would be your score when you understand the problem partially. Let us say that you have written a program that works perfectly fine but you have neglected the requirement "without using buffer". May be, you will lose 25% of your score (if your examiner happen to be so liberal). So the requirement collection plays a very critical role in the successful completion of any software. In the case of lab exercise, the requirements will be so explicit and given by the examiner. But in the software development the onus of collecting the requirements lies with the development team. So, the capability of understanding the problem and collecting it properly is a much needed skill. When you have that skill, the other things come to you automatically.

After collecting the requirements, you need to analyze the requirements, find out whether the requirements are feasible, prioritize the requirements and redefine requirements if they are not clear. For example, if you are an astute developer, you will ask probing questions to understand the requirements. Considering our "Palindrome" example, you could ask the examiner that whether giving input through command line (argc, argv stuff) is one of the requirements. If that is one of the requirements, you need to redefine the requirement of getting the input from the users. The second phase is all about logically reasoning and problem solving skills which are must to complete the first stage "Understanding the problem" or "Requirement Analysis" successfully.

This is very simplistic way to tell you about "Requirements Analysis". At this point of time, it is sufficient to know that "Requirement analysis" or "Understanding the problem" plays a

Visit Open Gyan at <http://www.opengyan.com> for more updates and articles

Please think before taking print out of the entire magazine. Online and soft copies are always better than hard copies. Save Trees and Save Environment

vital role in Software Development and it has to be done with due care. If you imbibe that, you have passed the first step and rest of the other steps will come to you automatically.

As an end note, please note that the requirements can be of few subtypes such as "Functional Requirements" which tells how the software should work or should not work, "Performance Requirements" which tells the maximum resources that can be used to achieve the functionality etc. If you correlate with "Palindrome" example, you can say "Checking for palindrome" is functional requirement and "without using any additional buffer" is performance requirement. These are details and will come naturally to you as you move along. So, please pay due care when you do your lab exercise or mini-project or your final year project.

Exercise

Take out any of your lab exercise such as PALINDROME or FACTORIAL, do the requirement gathering and analysis of the requirements. Ensure that you ask so many questions to understand how Palindrome/Factorial has to be developed. Write down the requirements that are related to functionality and requirements related to performance.

Visit Open Gyan at <http://www.opengyan.com> for more updates and articles

Please think before taking print out of the entire magazine. Online and soft copies are always better than hard copies. Save Trees and Save Environment

Open Source - Who said you can't be a GURU

We often get complacent when just finish our lab session and we happily share how our program "PALINDROME" worked or how "Swapping of values of two variables without using the third variable". But software development and product development is much more than these lab programs. While lab programs are foundation, you have to understand that you cannot be there for a very long time. Please remember while the foundation is necessary for a building, the foundation by itself is not sufficient, you got to build a nice building on the strong foundation. Writing programs for lab exercise is quite different from writing a real software and the obvious difference is that you will have many users for real software whereas for the lab exercise there will not be many users.

Linus Torvalds was a student when he started to code Linux. Linux, a much popular operating system either in server space or embedded space, had a humble beginning. Though much of the credits to Linux stability and performance has to go to Linux development community, the efforts of student Linus Torvalds also deserve equal credits. There will not be any second opinion on that. Linus Torvalds is an excellent reference point for all of us. All over the world, you can find students collaborate together and write open source software. This article discusses why it makes sense for you to contribute to a open source community by becoming as an open source developer. Read on.

Exposure to Software Development Practices

Hope you have been reading the series of articles on "Becoming a Better Programmer" started from November '08 issue of OG Magazine. The series of articles talks about becoming a better developer/programmer. When you are studying in a college, you will hardly be exposed to software development practices as the avenues of getting exposed are very little. By becoming an open source developer, you can start to contribute to any Open source software. As the time passes and without your conscious attention, you will end up being an important member of the team. By constant contribution, you will know the nitty-gritty of software development such as requirements analysis, design, implementation, testing and support activities. You will know why code reviews are done and also how to do it. You will understand why the documentation is of so much importance and you will know how to document. Above being brainy, these skills make you a seasoned expert.

Understanding Product Life Cycle

When you engage in an open source community, you might be contributing to a specific module but yet you will think about the product as a whole. You will be able to learn and understand what a product is and how is it different from program that you do in the lab. You will be able to build products based on the user demands rather than your own imagination. You will understand the details of product development right from product inception to product marketing. This by itself is like doing a research both technically and in management. :-)

Strong Technical Excellence

Today, Linus is one of the experts of very few kernel developers. When you work in a product like Linux, you will certainly have an opportunity to work with great developers. The developers in Open source community by no means ordinary people with respect to their technical knowledge (but they are modest and simple in real life). These people are very open to share the knowledge and mentor the junior developers. The open source developers do not

Visit Open Gyan at <http://www.opengyan.com> for more updates and articles

Please think before taking print out of the entire magazine. Online and soft copies are always better than hard copies. Save Trees and Save Environment

talk in English (or any other language) but in source code. By constantly interacting with them, at some point of time, you will speak like expert and ultimately become expert. When you reach that point, it is called as "Technical Excellence". Would you believe, all it takes is few years of conscious efforts and staying focused.

Proud Being Open Source Developer

When you are an Open Source Developer even for a smaller duration, you will be part of an elite club. The satisfaction of creating something for a noble cause will elevate your thought process. You will understand that the reason behind the existence of many fully functional open source and the reason being the passion towards software development and commitment to work for a noble cause. This force drives many open source developers and it will drive you too.

Considering all the above factors such as passion for creating something for a noble cause and achieving something great though constant endeavor, it is worthwhile task to give it a try. If you start in the second year and work in any open source software, we assure you that you will be an expert when you finish your course and probably would have ended up getting a job on your own irrespective of the economy :-).

If you are interested to write Open Source Software and do not know how to start it, watch out "OG Lab". We are planning to bring you little tools which you can develop in a month or two. We are also planning to bring a Guest Lecture on "Open Source - Who said you can't be a GURU". Please get in touch with Open Gyan through opengyan@opengyan.com if you want it to be presented by us in your college.

Visit Open Gyan at <http://www.opengyan.com> for more updates and articles

Please think before taking print out of the entire magazine. Online and soft copies are always better than hard copies. Save Trees and Save Environment

Global scenario - What is in store for you?

There are two major scenarios playing in the global arena as of now. First is the economic recession. You and I you and I are concerned with the rising costs of petrol, potatoes. But never forget, that economic recession also plays havoc. The second issue is the terrorism. Why should that affect your career ? Perplexing ? read along. We are more concerned with the pick pockets in our buses but not terrorism. Lets just note how these two factors affect us and how can they be tackled.

Economic recession. Every now and again there is a need to trim the fat in our body. We get old and catch some flabs by being nonchalant and careless. The same things happen to the economy. The policy makers become careless and the result of it is that the economy gets the flab. Why is that yester year heroines get fat and ugly ? The same thing happens to the economy. It is needed in a way to get rid of the bad blood. Fate so happens that it affects a generation which had little hand in this. How is it going to affect you and me? The economic recession or slower growth rate means the oppurtunities available are reducing or at best staying the same. The risk taking appetite of the industry bigwigs go for atleast a temporary hibernation or they reduce their staffing for future plans. One thing to be understood is that the freshers recruited are primarily to free up experienced resources for better things. If there are no bright or better things there is no need to free up the experienced resources and hence the need to replace them with freshers reduce.

Secondly the terrorism. How can they affect you and me ? Is it just confined to the borders of Kashmir or the Oberoi hotel of mumbai? Is it confined to the Ak 47s and grenades and idealogies? How does it affect the college life and the corporate ? for starters, if you are planning to enter into a tourism industry, the industry is taking a hit. Placements are going to be difficult and even so, the pay package is going to be tough. If it is an allied industry of hotel management, then the same case arises. In all these scenarios, the issue is the case of industry getting affected out of the terrorism. But, there is another dimension to this. Think of it. If your college is in chennai and there is a deadly terror attack in the city. It is the prime placement season. Will you seriously think the corporates will drive down to the corporate campus for placements ? They will think twice !! The whole placement season gets affected..

So whats the way out ? Lets look at the positives. Just because a fanatic dud head decided to drop few bombs, does not mean the corporate houses are going to cancel the plans. It is just the case of postponement. An industry cannot afford to lose a whole batch of fresh minds for a whole year. So take heart. Placements will happen and the best will get in. So prepare for the placements. It is this time that one needs to hone his / her skills. Stay ahead of the competition and be aware. It should all fall in place.

Visit Open Gyan at <http://www.opengyan.com> for more updates and articles

Please think before taking print out of the entire magazine. Online and soft copies are always better than hard copies. Save Trees and Save Environment

Challenge of the Month - Deadlocks

Here is a set of processes. Determine if deadlock is possible. If it is, show a set of interleavings which would produce deadlock.

Set 1

Mutex M1, M2, M3

P1 P2 P3

```
while (true) { while (true) { while (true) {  
1.1 NonCriticalReg(); 2.1 NonCriticalReg(); 3.1 NonCriticalReg();  
1.2 MutexLock(&M1); 2.2 MutexLock(&M2); 3.2 MutexLock(&M3);  
1.3 MutexLock(&M2); 2.3 MutexLock(&M3); 3.3 MutexLock(&M1);  
1.4 CriticalRegion(); 2.4 CriticalRegion(); 3.4 CriticalRegion();  
1.5 MutexUnlock(&M2); 2.5 MutexUnlock(&M3); 3.5 MutexUnlock(&M1);  
1.6 MutexUnlock(&M1); 2.6 MutexUnlock(&M2); 3.6 MutexUnlock(&M3);  
1.7 } 2.7 } 3.7 }
```

How do you avoid deadlock :

- 1) Dont worry, put the burden on god and sleep well :-)
- 2) Detection and recovery - if it happens, take action
- 3) Dynamic avoidance by careful resource allocation.
- 4) Prevention - change the rules

Useful links :

http://blogs.sun.com/nsolter/entry/debugging_a_multi_process_deadlock

http://en.wikipedia.org/wiki/Dining_philosophers_problem

Visit Open Gyan at <http://www.opengyan.com> for more updates and articles

Please think before taking print out of the entire magazine. Online and soft copies are always better than hard copies. Save Trees and Save Environment

Interesting Links

It gives me great pleasure in joining the Open Gyan initiative and greater pleasure in writing an article for us. I was pondering over some thoughts to write in this article and I decided to let people know of other Open Knowledge forums which can facilitate and bolster our efforts in getting education to a wider community.

So I would like to put in writing of some of the other initiatives which are great resources for both technical and non-tech learnings.

OCW - Open Course Ware. - ocw.mit.edu

This is a site which compiles all the courses that have been and are being taught at MIT, USA. The best part of OCW is its OPEN. Most of the material for almost all courses can be found online.

Some good links which I find interesting are :

- <http://ocw.mit.edu/OcwWeb/Sloan-School-of-Management/15-020Fall2003/CourseHome/index.htm> --- Telecommunications
- <http://ocw.mit.edu/OcwWeb/Sloan-School-of-Management/15-053Spring-2007/CourseHome/index.htm> --- Management science
- <http://ocw.mit.edu/OcwWeb/Sloan-School-of-Management/15-060Fall-2007/CourseHome/index.htm> --- Data models and decisions

The site provides contents and information on varied fields like : Accounting, Communication, Law, Finance, Technology, History, Healthcare, Management, IT, Leadership, Entrepreneurship...

- MIT School of Management : <http://ocw.mit.edu/OcwWeb/Sloan-School-of-Management/index.htm>
- Open Knowledge Foundation : <http://www.okfn.org/>
- Open Knowledge : <http://www.openk.org/>
- Google Scholar : <http://scholar.google.co.in/schhp?hl=en&lr=>
- Open Knowledge Initiative : <http://www.okiproject.org/>

Visit Open Gyan at <http://www.opengyan.com> for more updates and articles

Please think before taking print out of the entire magazine. Online and soft copies are always better than hard copies. Save Trees and Save Environment

Open Gyan Updates

During Nov '09, Open Gyan was inaugurated. Its founders were the first people to write something. After the initial setup, the website went live. After visiting OpenGyan Rahul, Kesavan and Aravind were quick to join our team. Guys, glad/fortunate to have you on board.

1. Idea of Open Gyan, simple naming ceremony and hosting
2. Define the framework and identify things that comes under the pursuit of Open Gyan
3. Spread a word about Open Gyan among friends.
4. Launch of OG Magazine, OG Lecture and OG Lab. While OG Magazine is started, the ground rules for OG Lab and OG Lecture have to be identified
5. Three members added to Open Gyan network

Visit Open Gyan at <http://www.opengyan.com> for more updates and articles

Please think before taking print out of the entire magazine. Online and soft copies are always better than hard copies. Save Trees and Save Environment