Computer Programming

How do you start understanding somebody else's code when there is no documentation?

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Answered May 7, 2016

This is a very interesting question! Through out my life I had to do it many times and till today I need to do this occassionally.

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production without modifying anything. Keep a strong fallback plan always. Otherwise, you will be in trouble. You will start to notice many things in this way - what are the dependencies, what are configurations required etc.

Next step is - identify the purpose of the code - what it does? Define the boundary of the application/software/database whatever you are working on. What problem/purpose does this code serve? Get a solid answer to this (may not be comprehensive - but primary purpose statement has to be identified).

Run the application now - if it is a web app - see the flow of files and try to note down the flow. Turn on the debug/inspect window in firefoz/chrome - see which files are called when and in what sequence. If it is a desktop app - try to identify the forms in code base and note down the flow. Generally the main menu is the key point to all application. This is the main point from where different portion of application is loaded.

Look for patterns - most programmers are lazy and intelligent - they will try to do

sections/modules of code. Find this pattern first.

If it is a c/c++ or some process program, then find the entry point first. It should load some settings, then start few processes/threads and then wait for events to occur. Find the entry points of events and then look for the flow.

Your success in finding the code flow will solely depend on how well you understand the business flow. If you dont know the purpose of the code it will be very difficult for you to navigate through the code.

Identify the configuration files and configuration parameters. Check what are the globals restored from configuration files and where they are used. Best way to find it is - use Find All Reference option in Visual Studio. Just go through the lists for a while - this will give a high level idea about different functions/procedures of the code.

Find the entry point of code, draw some high level flow diagram for your own understanding. Make it as high level as possible. Try to fit the whole thing in one page - then drill down section by section.

difficulty left for you then. Its just spending some time with the code only.

If you cannot attach debugger - then you have to write log from the code that will capture the footprint of the code execution. You can then understand the code flow from there. I always prefer going through log generation instead of debugfer attachment - this helps future troubleshooting as well.

If your code already generates log to reflect code execution - read the logs and reflect back the code. It should be relatively easy then.

As a whole, reading other people code is a very common task that you have to do as you climb up the career. The best way to do it is - try to visualize - how you would have done it. Then think it through. There is every possibility that the code is atleast 60-70% match with your idea. The only way you can be far away - if you dont know the business purpose.

The fundamental and only way to read other people's code is to know the purpose and business very well. Then keep respect for the coder in your mind.

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was implemented. The more you curse the code, the harder it will become to understand it.

Now to begin with, you need to be very clear whether the Code is Procedural or Object Oriented. The approach you will have to use will depend on that.

If it is a Procedural code then the best way to start understanding is to first be clear about all the Use-Cases of the program. Then for every use case, trace the execution of the code. You may first want to read the code with a particular use case in mind, and trace the path-of-execution that would follow. You need not understand how a line-of-code or function is achieving something, it is more than sufficient if you understand the role of that piece of code in the usecase. Making a flow chart for every usecase will help.

If it is a Object Oriented code then you start by gathering all RELEVANT domain knowledge. Relevant was in capitals to highlight that you need not know everything, yet you need to have 'just-sufficient' contextual knowledge of the real-world-problem that the program is trying to solve. After this you will actually go after the key entities and try to figure out where the corresponding class is implemented. Once you have accessed and bookmarked these classes, you will explore how these classes collaborate to extract-work/offer-services to each other - in simpler words, understand the APIs of each of the entities (classes). At this stage you might want to list out the key usecases of the project. You can then draw sequence-diagrams for each of these usecases, then try to trace the code and figure out how the usecase is achieved. Initially you may do that by reading the code and then execute it with break-points to see that it is actually behaving the way you have assumed.

Maybe this was not the complete recipe. But this approach should take you to understanding atleast 20% of the code. Once you've reached there, your instinct will guide you for the rest. Actually i think wrong to assume there's a one-size-fits-all approach to understanding someone else's code.

MAY THE FORCE BE WITH YOU !!

Remember, start by knowing whether the code is Procedural or Object Oriented.

4

First, check the tests.

If there aren't tests, pause a moment to impugn the ancestry of the original developer, then start writing tests.

This does a couple nice things, which help me to wrap my head around a codebase.

1. It forces me to take it in smallish chunks.
2. Testing will often bring to light interesting corner cases, which are often important bits of business logic.
3. It keeps me from horribly breaking things when I start to make changes.

On a very large codebase you may need to focus on just one part and pray to St IGNUcius that your changes don't cause reality-warping defects in other parts of t ... (more)

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I don't what other people do but these are few things I do to get my head around any unfamiliar code base.

1. Putting break points and listing down the call stack. So lot of F9 and F5
2. In Visual Studio there is call something call View Call hierarchy(F12) which tells what are all the functions gets called from current function(the function you looking at) and which functions are calling the current function. I am sure other code editor have that functionality. This really help for making a mental model
3. Figuring out the main entry points in in the program. Like what are socket connection and the place

... (more)

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Answered May 13, 2016

Reformat it. Step through it in a debugger. Throw it away and start over (you didn't ask for effective methods, just my methods).

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Originally Answered: What is the best way to understand somebody else's code when there is no documentation?

If it's java try to put breakpoints and debug the code in eclipse. There's a couple of tutorials on the internet on how to do so. Debugging will give you a better understanding on their code than their comments would have done anyway ;)

Another thing that works for me (if i can't put in breakpoints) is to go through the files recursively(Ctrl +Shift + r) to see what nomenclatures match up and searching for where these functions show up in the project by right clicking on the function and clicking open declaration.

These are mostly eclipse tips but no matter what editor you're using I'm sure th ... (more)

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I follow the process I describe in this answer:

Steven J Owens's answer to Do programmers reading code with the intent of fixing bad code have to read code like a book from page one to the end, or are they able to isolate and find the problem quicker?

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