**P 1**

2021-10-1 13:52:32

【ask】

Documentation for developing developers.

Um, okay, um, okay. The first question is to briefly understand your basic information. Can you tell us about your professional background and development experience ?

【answer】

Well, I am studying computer. Undergraduate is X XXX University. Uh, computer major, and then I'm now at X X University , 20th grade, master's degree. Hmm, X XXX direction , which is equivalent to doing some computer-related development work all the time. Hmm, but are you asking about something specific to software development?

【ask】

Oh, yes, I will ask about some software development projects in detail later , and then how long do you probably have a development experience ?

【answer】

Uh, I have been writing programs in various programming languages since my sophomore year, and I have written both front-end and back -end work . Now I mainly do some research on the database side. Possibly the rear end . In fact, the truth is the same, for some programming languages .

【ask】

It's just that you have participated in some development work in the course you studied in school and in the process of interning in the company , right?

【answer】

Yes .

【ask】

It is equivalent to that you can do development from the beginning of the university, and there is still a lot of experience in this development.

【answer】

Yes, yes, yes, uh, and it is just a general computer study , there are still many projects to do , right? Whether it's playing some games, but the course projects in the class , well, generally, it's either done individually or as a team. Well, it usually plays a very important role . As an individual, personally,

【ask】

okay. Then I will ask again, that is, we are studying Chinese developers, and then we want to ask you to answer , as programmers , your positioning as a group of programmers. Simply put, what do you think are the characteristics of the programmer group compared with people in other majors and other occupations? What are the differences?

【answer】

With other occupations , such as with liberal arts, eh? As for programmers , I personally feel that they are more rational. For this problem, because they get a programming problem, they will analyze it in the first step, the second step and the third step , to figure out what to do, and then they will Implement it in your own programming language. Well, what about this process? will compare. There will be such a process of rational analysis, which may be more rational than that of other majors. Er, it is easier to grasp the essence of this problem. Well, because the program is like that , you write it, write it once, and it can keep running, right? So it likes that kind of pleasure , just write it down and then don't need to spend a lot of thought on such a thing. Some programmers will be critical, pursuing a perfectionism, writing programs well, and writing code neatly. Yes .

【ask】

Well, in terms of character, it is rational in terms of personality and the way of thinking . Then you think, uh, in terms of study habits, there is nothing special about it.

【answer】

, personally , programmers generally don't like getting up early. Well, I, I changed majors, because when I was a freshman, I majored in X X, and then when I was a sophomore, I switched to computer science. When I was a freshman , I would be like that. Because I want to get good grades , I will get up early to memorize words to study, right? Then read books. Then I found that when I switched to computer , my grades dropped a lot in my sophomore year, because I got up early every day , and then read books to study. Later, I found that I couldn't do this, uh, but it was the textbook. As for things, it’s not really that important. Instead, you need to program more, go to the Internet to collect some other people’s programming codes, look at it, run it, debug it, and then see its effect, and then you have an idea. Go ahead and make it happen. To put this code is to have an idea. You have to write it yourself, because the program is not difficult, but you have to put your ideas into a program. OK, what about such a process? Well, there will be a relatively large growth, and in addition to taking classes, I will also learn some online courses, and others have some excellent codes .

【ask】

That is, you are more self-taught, right?

【answer】

That's right, uh, then in this process, it may be that you will , and sometimes you will require a quieter environment, so maybe, uh, prefer to stay up late, or because this time is quieter, and then you will To better adjust an idea to write this program, after writing it, you will have a greater sense of accomplishment .

【ask】

Understood, that is to say , not only listening to the teacher in class, and then following . As a programmer, the component of self-learning is quite large .

【answer】

Yes, yes, and in fact, the programmer's words give people a stereotyped impression, that is, they don't seem to talk much. In fact, we have our own community. There are also forums and blogs on the Internet , and some websites that share code, that is, we can write our own code on it. Well, this is actually still a very active, very active community .

【ask】

more active online .

【answer】

Yes .

【ask】

Well, that is, you can recall, what new technology, new tool or new software you have learned recently.

【answer】

I'm studying recently, because I'm a graduate student now, and I mainly focus on scientific research, mainly some projects in the laboratory, and then the thesis. Well, I'm currently doing some computer vision related work . So it is nothing more than this job . In fact, I started from the third year, uh, when I entered the laboratory in the fourth year, I wanted to learn things like Python and deep learning. In fact, I felt that various papers and algorithms , we are going, we are going Look at some new and classic things, and then, uh, use your own actual one, such as data, or in a problem in a game, uh, adjust it , uh, this is still quite challenging , it will take a lot of time .

【ask】

Well, okay, so can you give an example ? I also mentioned some deep learning, and Python, etc., so when you start to contact this new tool or new technology, or a new framework, what is your learning process like?

【answer】

Well, you said the process is definitely not the same . It depends on your foundation. For example, when you are a freshman or sophomore, your technology is not that good. Generally speaking, I will look for related blogs, which is a path that others have traveled, and then it will make me step on less pits . Because how it will be downloaded step by step, how to install, how to run. Then it even has some explanations in Chinese, so what does this module do? What is this file for, so that I can open this way very well . Uh, sometimes I also go to some video websites to find some tutorials, so that it will be faster and get started . But now, for example, if you enter scientific research, you find that you have a lot of things to do, you can't find it, and others haven't done it, so you have to do it yourself . At this time, you have to read some articles in English. If you don't have Chinese, you can only read some articles in English. The first is its thesis, if it is in English , it will talk about its own method, uh. and then? If it has released its own code, then there will usually be some explanations, that is, what I am doing, usually in English, and then of course there is no problem at this time, just see. Then the third one is that if you read the code yourself before, you should guess based on some experience of your own development, and think about what kind of architecture it is. Uh, the more important thing is a piece of software, it's more important is its architecture, a structural thing, rather than what each line of code is doing, we can see it when we first get familiar with it How is it defined, how is a layer of it as a whole . What to do at this level, what to do at the next level , a structural thing. For example, software is a structural thing, and if you understand this, er, it will be much easier to go deeper.

【ask】

That is, uh, looking for some blog forums and so on at first. If you are unfamiliar, you should first look at the experience of these other people, and then if you are at a relatively high level of learning, you should read English papers, because at a high level, there may be no relevant knowledge on ordinary blogs. .

【answer】

Yes. Especially doing research.

【ask】

Well, that is, have you used technical documentation in this learning process ?

【answer】

Technical documentation, that's for sure. Well, it must be useful, uh, but there are many types of technical documents, such as this one I just asked you, just to ask you what kind of technology this is. Uh, generally speaking, the common technical documentation of developers is a description of the software, that is to say it , for example, there is another developer, it has written this software, and then it wants others to see its work, then It will write a technical note. Say what I do first , and then , what is its overall architecture? It is divided into several modules, right, and then which module is the core and which module is a branch, that is, it will draw something like this Figure, and then some places will talk about the core , as well as the core algorithm , the core process, and then some details. At this time, when it publishes this document , it has two purposes first. On the one hand, it is for some novice users to use, and on the other hand, it is for some professional users to see it for convenience and help it develop . Especially in a scenario like open source , we all do such a thing, that is to publish my code and my documents , and then anyone can contribute a code to me, such a process, then You should say this as if it were a technical document for the type to be evaluated .

【ask】

Yes, it is to evaluate the quality of technical documentation. In fact, our definition of the developer's document is not very clear, that is, what is the developer's document and what types it includes, which is actually a research question for us. So I will. I want to use this example to ask, what types of documents do you usually use, such as the description document of a software you just mentioned, um, is there anything else besides this?

【answer】

Well, I should have said that it is for you two. First of all, it is one for novice users, which is equivalent to the user manual . How to download , install, and run. It may not be very professional, but it is meant to be used. Well, the second type, that is to say, is also a document for a professional developer . It will talk about an architecture of the software , how to organize it, what its code is , and how to organize it, that is, it is convenient for others to come. Get involved and contribute to it . Yes, uh, these two parts of the document are the most common . For a developer, we usually look at the second document, uh, this one may be more detailed and thicker, right? But if you want to see your purpose clearly . Your purpose is to use this software. OK, look at the first one you can, right? If you want to understand , to use this thing in depth , or to contribute something , you can see the second one. For the third type, it may be your side, that is, to evaluate those things, such as writing a software, then I don't care about a detail of it, but I want to know how good it is. , for example, a database, and then I may write another software, and then test it, for example, do some stress tests on it, do some aggressive tests , and then I may get a report, a document . This is my understanding. In this case, for example, a database software, and after I test it in various aspects, I get a report saying how good the data is. What kind of ranking is it in the market , then this is also a kind of software .

【ask】

document that can provide you with a good reference when choosing a product .

【answer】

Yes , this is possible, it's for users, like people who want to buy this product , right? My thought should be like this .

【ask】

As programmers, you are, for example, you need to complete a project, such as developing a website , and you need to use a certain framework, then you will also have the choice of this tool, right? Also look at its documentation before choosing .

【answer】

Choose a technology stack , this is more necessary. Uh, in fact, I can give an example , a project that I took a course in my class when I was a junior, a project of software engineering . At that time, the project was to create a website and an educational administration system. The teacher asked us to follow the whole process of a software engineering development process and various documents . That is, you say you want to write software , but also to write various documents. Then we do it in groups . But there are many, many such problems, that is, what requirements documents , design documents, practical documents , evaluation documents, and so on . a lot . The requirements document doesn't seem to say it , let me tell you .

【ask】

The requirements document should not be within our scope. We are mainly for the articles that developers need to refer to in the process of learning, uh, some documents that can provide knowledge and technical assistance to it . Well, then, uh, another question is, uh, you mentioned just now that documentation is very important for development. So can you tell me what to do when you encounter problems during development? Will you look at the documentation first? Or will you find other ways to solve it?

【answer】

Well, it depends on the size of the problem . Generally speaking, for example, when running a program , because it reports an error, there is a line of error here, so you must first look at what the error is, because the error is actually the best solution , that is, it will tell Where did you go wrong, look at it, for example, which line is which, which word is wrong. If it can be solved in place, then it can be solved in place, right? Well, if it can't be solved, generally speaking, I try to put this error in the browser to see if others have encountered this error. If I don't understand this error , I'll see if others have encountered it . Is there a ready-made solution? If there is still no solution, then we will go to further analyze the cause of this error and what level it appears at. Well, does it appear in the software, or does it appear in the system . Is it because of the incompatibility between these 2 softwares, or is my program written wrong? Or it is a problem with the program itself , anyway, it is to gradually locate and narrow the scope, the spatial scope of this error, and then slowly find a solution .

【ask】

Just now you mentioned that you can search for this code in the browser search engine. If you can't find it, you should analyze it based on your own experience. The error is logical, level or in other aspects .

【answer】

need to use documentation in this process .

【ask】

With documentation, where did the documentation come from?

【answer】

Well, generally speaking, we will give priority to referring to one of its official documents, so it is generally available . If it is a better software, it will be written in more detail . Well, its documentation, let 's find it. First of all, it is the error on this system, that is, the software is not compatible. You see, for example, it reports an error, and then you look at it and you want to run on this system , and then you run on another system, it will definitely have an impact , right? It actually says in the documentation , or that it needs to depend on , you install another package first. If it is said that you installed another package, or it is not the same at all, OK, then you will find a way to install it , and this will be written clearly .

【ask】

This is more clearly written in the official documents .

【answer】

Yes , especially a problem with the version, because you may say that the software is installed, but it has some changes in some versions . Right , it will have some incompatibilities, so you can take a look. Whether the installed version is too high or too low, then you should check according to this document . Is this function deleted, or there is a new function, or a new name, etc.? Um.

【ask】

That is, as you mentioned just now, basically the problems you encounter are clearly written in the official documents and can be found. Is there anything that can't be found ?

【answer】

There must be, and there are quite a few. Because of the official documentation, it is impossible to say that everything is separated for you . Generally speaking , it means to give an example that can be run, an example that it can test, for example, your best environment is like this, um, right? , because it is impossible to test all models and all software for you, which is absolutely impossible. Well, that's the best way to go, then there's a problem, you look at what kind of a problem it is, right? Well, you have to think from your own level, can this problem be solved or not?

【ask】

you you . Can you give a more specific example? That is, you have encountered a problem, and then you can't solve it through the official documentation .

【answer】

Well, there are many examples of this, but it's hard for me to come up with a more appropriate one for a while . Let's just talk about one, for example, a problem on the system. For example, we usually develop this program on that Linux system. If it is required , the program is generally like some low-level program. The dependency on this system will be higher, right, for example, it requires you to run on this 16.04 machine, but my current machine is 1 8.04 , which is more advanced. It modifies something, so it won't work. Can't understand it either.

【ask】

That is to say, it is a version problem.

【answer】

Yes, yes, this is a very common one, so I thought, either change the machine, or I will use some other means to solve it. Well, yes, in general, I will consider changing a machine, or installing some dependent packages, anyway, um.

【ask】

That is to say, the very detailed issue of version. If there is no clear mention in the official documentation, you can only rely on your own experience, it may be because of the version problem, and then go to another machine to try to solve it .

【answer】

It may be written in the official document , that is to say, this software should be downloaded according to this version . If it does not correspond at first sight, if it does not correspond, I will think that it does not correspond here . Then it generally doesn't say , generally doesn't say don't install higher, because it doesn't know what will happen to higher, it just says it's more appropriate to follow this. Well, if you don't see the correspondence , I will check to see if there is such a difference between the two versions , and whether there is such a possibility. Well, if you want to combine this, you have to combine some of the information it reported as an error to do it.

【ask】

Yeah, I got it. Well, well, another question is, how do you usually find this technical document? Just mentioned one is to search through search engines.

【answer】

Technical documentation, it is the software , when it is released, it will release its technical documentation. A piece of software , because the definition of software basically means that a program plus a document can constitute a software. If there is no document, then it basically cannot become a software, but can only be said to be a program. Well, we usually think so, but there are more differences, so I won't go into details here. Generally speaking, we will find its documentation on its official website . Yep.

【ask】

official website, and then a search engine.

【answer】

Yes, then as for those blogs written by others, then its reference significance may not be so great. Well, but sometimes I still have a look.

【ask】

That is, it mainly depends on the official documentation, and then the blog is just an auxiliary supplement, right ?

【answer】

Right, right, right, um.

【ask】

Oh, what do you think about the quality of the documents you have encountered , domestic and foreign? Can any of the articles you read solve your problem?

【answer】

Domestically, the quality is actually getting better. Judging from the data of the entire programmer, it has been developing better and better in recent years, especially in the atmosphere of open source software, right? Everyone prefers to put their code on the Internet and let everyone see it, so if you want others to see your code, you must write better, right? So generally speaking, for example, like GitHub, this platform, or in China, we have a platform like Gitee , and a platform like Code Cloud . Generally speaking, there is a lot of software in China, so some well-known ones may also write documents in English, even if they are in Chinese. Well , it is not very difficult for this. For example, some big companies, such as X X Company and X X Company , will open source a lot of excellent codes, and then they will have corresponding documents, which is to reflect their great achievements. It is a place of strength , through which I can actually find a lot of good developers. For example, when I see this code, I really want to work there . There are a lot of such cases. Well, domestic documents have become better in recent years, especially for large companies, they will specifically require you to write this document , which is very standardized. Many big manufacturers have a lot of such a software, so the whole ecosystem is like this. Well, as for personal wishes , such as projects, right , or our classmates, or some small engineers, if they have time, they will also write some codes and put them on this website. This is uneven, because it depends on the individual's time and this, right? If you say you have more time, or you want to write better, you will write in detail. If you don’t have that much time, you may not write in detail.

【ask】

Yes, that is to say, you tend to think that, uh, the official documents of such a large factory are written in high quality and hierarchical, and then like those documents shared by some programs themselves. The quality is uneven , some good and some bad . Then you mentioned just now that the quality is getting better in general. Have you ever encountered a bad situation before, where is the bad situation ?

【answer】

If you are running some old software in the past , it may have no documentation, or it is very well written , or it cannot solve your problem at all, because its age has passed , and it exists in that era, such as Speaking of its system , it doesn't have this thing at all, because it suffices to predict what the entire architecture of your current software will look like, right? You may look at its documentation, but you have no effect, because you can't go back to that era and write some very old software . In other words, it doesn't write documentation , right, it doesn't write comments, it doesn't have that habit, it doesn't have that awareness , right? This is more common to say that you take over some projects in the laboratory, some ancient codes, yes, take over it, that is, because this thing has not been published on the Internet , it may not be so popular, or That is to say, the code left by several brothers before , and then let you read it, you can't understand it . Then there is no supporting documentation to help you explain. Right right right . On the whole, your online community is getting better, so it can do this, and it is an individual . Of course, the documentation for individuals is uneven. The main reason is that, on the one hand, your personal words are very different. It's hard to invest such a time to do it, but if it has a good meaning, it may be said that you write such a thing , a software is accompanied by a good document. Might be a good thing for your job search , a stepping stone, right? Um. Then a lot of people, it would be willing to write a little better, um, right? Or some people, it can make money through this thing . Others will give it some donations, for example , or ask it to give lectures, okay, this can also generate some income, then it can be better and spend more time doing it, so personally it is well written Also more and more.

【ask】

Well, what I just mentioned is basically the documents of some major domestic manufacturers. Have you come across any foreign documents ?

【answer】

It's the same with big foreign factories, and generally speaking, they are in a leading position. Uh, this is public , such as Google and Facebook . They also have their own software ecosystems, so the software they develop will have a corresponding document, and of course they are all in English. There are a few, there are not many , that is to say, it is generally in English . As for your developers, you can use some translation tools, or some international tools, to convert them into Chinese . There are many well-known software will have such a document .

【ask】

Generally speaking, foreign documents are also relatively mature, that is, the quality is relatively good and complete, right?

【answer】

Right right, um.

【ask】

Is that an example of a good documentation you can think of ? It was relatively successful.

【answer】

There are, uh, generally speaking, the more successful software has successful documentation, because documentation is a very important part of the software. Well, that's too much, really too much. Uh. If I talk about some tools that I often do now, such as some development frameworks for deep learning, then this thing is very hot , and it was very hot in the past few years . For example, if you want to engage in deep learning, um, it is this thing It is very complex, so you definitely need a framework to write, and then use this framework to shield those details for this complex problem. For example , like Google's tensonflow , right? Well, or Facebook's pytorch . So in the laboratory, this pytorch is generally used a little more, that is, its software is well written. Then, it will write a lot of documents, as for this document, there are many, it is for different developers. For example, if you want to use this framework, OK, then I will teach you how to install it. The first step is to execute this command to install, and then it will give the corresponding version matrix . You click to try this system, then this platform, and then click, It can automatically generate a script for you to install this command , which is a version matrix, which helps you solve a problem of this version and solve the problem of version as much as possible . But there may be many problems. But it means that this piece is done very finely, right? After that, if you use it, it will give a lot of cases, just some very simple use cases, and then you paste these use cases, and then change it yourself , change it to your own things, and you can run . This is for one, you use it first, and then introduce more and more complex cases to you from the shallower to the deeper , um, and then give you , if you want, then for the developers, you want to contribute, that is Said, then it also has a lot of a detailed one to introduce this code.

【ask】

Well, you just mentioned a version matrix, which means that there are many versions of this framework, and then basically every update of a version, it will be added to the version matrix , and then click that is equivalent to a link, you can enter the corresponding Corresponding version example right?

【answer】

Pretty much, but what I'm talking about is exactly, well, the exact version matrix means you install this thing, it needs to depend on 3 things. Well, if it needs to depend on 3 things, well, then it needs the platform and the GPU support. Requires your version of Python. OK, we are 3 things, and then you can choose. For example, if you are A, it has 3 possibilities , B has 3 possibilities , and C has 3 possibilities, so there are 9 possibilities in total, then you can choose 123 according to your own situation. And then it came out with something like this .

【ask】

Well, I can probably imagine what it is. Then you mentioned just now that it is to teach you how to install, for example, it will have that kind of code, it will be placed directly in the document, and then you can just copy the code and change it, right?

【answer】

Right right right .

【ask】

This is something that is more convenient for programs, right? A very detailed design is a more user-friendly detail , right ?

【answer】

Um.

【ask】

Well, then , one more question, can you think of an example of a more failed document? Relatively failed , very bad , bad , um.

【answer】

comparison failures, there are many documents , we can say a few typical comparison failures. Well, for example, if it does not have a document , is it considered a failure, or it just writes a title. This is very common in some course projects we do. The teacher asks for a document, and then it writes a title and author . Actually If there is nothing , this will not give any information. Well, the other failure is that it is not updated , it is never updated , that is, for example, you change the software, but the documentation is not updated . Well, it no longer corresponds to yours. It will be messed up according to the way you install this program and this thing. So you're leading the wrong way, um, right? Well there are some failed cases. For this document, it is actually about an organizational structure, that is , you have to target your users according to yours, and target your users . For example, if you are a developer , a novice, what should you install first , what should you do first , the first step, the second step, the third step . Just want it to get your thing, it is a program , it must be installed first, you can't tell it a lot of things first, and it doesn't understand . Install it first, then introduce simple problems to it first, let it run and see the effect, and then go into depth and use advanced usage, right? Well, so, the structure and organization are also very important. Uh, you have to know your users. If you are talking to a novice, it will talk about a lot of complicated things, how I designed it, and what is going on with me, it will be confused , and it will not work, then At this time, it may give up the software. Well, this is also a case with many, that is to say, you have to write it in an easy-to-understand manner, not that it is too complicated.

【ask】

Well, this document should be a design from shallow to deep, from easy to difficult. A design that is organized and hierarchical .

【answer】

To it is to correspond with the software.

【ask】

Well, then you just mentioned the novice user, basically it starts with the installation, and then goes to some relatively simple examples to let it experience the functions of this software. What if it is a deep user ? For more experienced users ?

【answer】

Experienced users. Well, in fact, I personally dare not say that I am a very experienced user , although I have developed some code, but, um, this in-depth user depends on you , because, uh, your understanding of this problem , Generally, like the great ones , it goes straight to the code . Well, yes, that means the documentation probably doesn't do that much for it. Well, you can understand it by looking at the code . For it, I will directly look at the structure of this code, because it may appear that my code has been updated, but the documentation has not been updated, so I am a bit of a waste of time to read this documentation , right? Uh, this is for advanced users, because it wants to participate in it to modify it, it must be clear in its heart, that is, what does this thing do, so what is its architecture like? ? Well, at this time, it is not just to solve it through documentation , but through more experience , or it has an understanding of the design. Generally speaking, if this document has the purpose of talking about it , that is, to talk about the framework design of the software, and then the details , some of its important core things, then it must be read, if not, Then we must rise to the challenge and go directly to that code .

【ask】

Yes, um, then this is an advanced user, that is, an intermediate user. You should be considered an intermediate user now. When you are reading this document, how do you quickly find the information you need? For example, if you open an official website and its documentation, how do you read it and how do you find information ?

【answer】

This is your problem orientation. Well, yes, if you know your problem well, then you can click directly to the corresponding chapter, or use the search button to find the corresponding search, right? Well, if. Generally speaking, for example, you should first look at what it does. If it is right, it will introduce what my software does and what problems it solves. The second one , if you want to install, then you just click the install OK, and then you follow it . If you want to find a tutorial, OK, you can find one of its tutorials, what kind of case, case study, or Example, you can get one or two , and you are familiar with it. Well, then you go to that more in-depth study . Yep. And then you've got it all , you 're intermediate , and then you've got it all , and then you can go and have a look at the code, right? You can jump into some of it , that is, our development tools, you can plug in to see some of its implementations, right? Well, if it does not meet your function , I may add some functions or change some of its code, and change it. Generally speaking , I will not change much at this time, and maintain its overall framework. Sometimes, I will add one or two functions , for example , which is equivalent to doing a little expansion.

【ask】

Hmm, has this ever happened to you? That is, you actually need to solve a very detailed problem, and then you need to refer to this official document, and then you will quickly locate after entering this website . How to locate it quickly ? Very small, very detailed question .

【answer】

Yes, this is definitely there, but it seems a little hard for me to think about it right away. For example, if there are some details, let's say you want to take a look. For example, if you have a process of an algorithm, it needs to perform two steps , such as going first, for example, a neural network . It first passes through a neural network layer, then passes through an activation layer , and finally passes through Something, and then you look at it, like you want to come up with something in the middle , right? Then you have to see which layer it does this operation on, and from which layer you want to take out a thing, this has to go to the documentation, it is a definition of this function, for example, it is. For example, it has a parameter , such as a parameter, when it is set to true, it will perform this operation. If it says false , it performs another action. Well, at this time OK, I thought oh no , I should not let it perform this operation now, yes, now set it to false, and then take out all the things I want, and then take it out Go, you may have to perform this operation manually. Well, that's a little bit more detailed on this one.

【ask】

For the comparison of details, it is still like the one just said, through the search button or the chapter in the navigation bar, and then go to it step by step , right?

【answer】

If it is in the documentation, it will talk about it. Generally speaking, it will talk about this function, such as this thing, the definition of its parameters, what does it mean to set true , what does it mean to set false , all of which have to go to the documentation , I I don't know, right? I just used it, uh, and it's like this, because it has a lot of documentation, and some of the documentation is auto-generated , right? Well, that is, it will be in the source code of the software, it will write its comment , well, it will write comments in a specific format , well, and then after it is written, it will run it directly , This document will automatically come out, like the web page, or the PDF version, it will come out automatically , and then you can avoid a problem online, that is to say, a problem that your document does not correspond to that one, you can change it After you finish the code, you can change that one, and it will come out automatically, not that after you change it , you have to take a photo with the person who wrote the article, then you have changed this, the example has changed , certainly does not correspond .

【ask】

This documentation is automatically generated, can you give me an example? Sounds relatively new? I've heard of some auto-generated documentation before, but I'm not sure what software it is . Which codes, which types of software will have this functionality .

【answer】

This may be considered relatively new at present, but in fact it is not new now, and large-scale software will use this method to do it . Because its development workload is too large, yes, in order to maintain this consistency, in fact, when developing software, the biggest problem is your communication and coordination costs. Well, that is, if you change this, you have to tell it to change it , and then it will tell it , spread it, then it is very likely that this version does not correspond. So the best thing is that after you change it, the other party's change takes effect immediately, and everyone can see it. OK, then this is actually a different language, and it has some corresponding tools to generate this document. The format of this is also different, but you can be universal, that is to say, it can be written in a comment. For example, if you write a function definition, you are in front of it , in front of or behind the function, you have to press a A specific format, for example, add 3 dots, then add an @ symbol, or add a brace or something, this is a special variable, and then you write an explanation later, um, then this is Special variables, OK finished writing , after writing, you can use some corresponding tools, maybe run it, it will automatically scan your code, extract all those things , and automatically generate them This HTML, this web page, we this thing, um, it's not that difficult actually.

【ask】

What you said is a bit similar to what we call document coding , right, right, when writing code, you will pass some special markup languages , such as markdown, rst , etc. , and then you can generate documents . , which automatically generates documentation .

【answer】

Well, that's the one like Java, right? It has something like this in the corresponding Java doc . Well, as long as you write it, run it, they are used, probably some things that use natural language processing, may not be used, right, it matches those things, extracts it, and then stuffs it into It's not very difficult to go into that webpage tag language , right?

【ask】

Well, so you said that one of the problems solved by the automatic generation of this document is to save the cost of this manpower and time communication , and the other is to maintain the consistency of this version, um, it's good . Then another one is have you written technical documentation ?

【answer】

It must be written about the country , it must be written.

【ask】

Can you give me an example?

【answer】

But we didn't use such advanced technology at the time , it wasn't even advanced, but we were lazy. Well, or the teacher’s requirements are more academic , it needs word formats, um, right, our software is a software for users, not software for developers . Well, it may not be very concerned. It doesn't care how your function is defined. It doesn't care at all. It just wants to know how many modules your software has and what kind of work I can accomplish. Well, OK, then your purpose is to write it in a simple and understandable way, right? Well, it is to write a lot of use cases , such as what is your purpose? Then, for example, I want to check the results, OK, then I need to do some inquiries and how to check 123 , first click this and that, right? Hmm, if you want to get grades and do a lot of things, is it actually equivalent to an explanation like a screenshot? Yes, this is the one written for Xiaobai, right? If you write it to a little , it means that the teacher needs to take a little look at your technical content, then you need to draw a block diagram of the entire software, yes, it is a structure of the software , this diagram , don't draw it as a diagram A form of , um, yes, to present it to the teacher, and then to use language to explain what kind of function it has achieved, and what kind of implementation method we adopt is a way to change it into language. Not to use programs , yes, to natural language . It is equivalent to the leadership, it does not like to read the code , right. If it is said that a developer at the same level will also write a lot of them, I remember that at that time, for the developers of the same level, I wrote a lot of technical documents, and this is to be combined with the code = do it. Well, because this is the case , because we have to develop a relatively large-scale thing, it is impossible for me to develop it by myself. Well, I'll write an important thing to it, and that's it. Post a piece of code here, and I tell it, tell them what this piece of code does. Then you know the code. I said which place to change is specific, yes, and then you can assign the work to your own team members at this time , and then this is equivalent to the next , what should be done to this technical staff , then you have to combine the code. Well, you have to make it clear what this code does and how to change it. Well, right, at this time, the work can be done .

【ask】

Well, I understand , it is probably divided into 3 levels and 3 types . You need to figure out who you are writing to, um. Well, what do you think is the difficulty in the process of writing the document? Difficulty , for the more difficult places, the difficulty of writing documents is correct .

【answer】

Well, you're still like that, you have to figure out who you are reading your documents . Well, what kind of problems it may encounter should be seen from its perspective. The second one , um, this one has a lot of workload, and there is quite a lot of workload in writing documents . Well, there's quite a bit of detail, right? It's no less than writing code . Another problem is that you have to have a global view. Just because it's not like you write a specific program, you write an algorithm , you know what this is like? What about A plus B, just return it. When you think about it carefully, you write a thing, compare a global concept, for example, there is a structural and hierarchical thing, where is this thing, and then what kind of thing is it related to, this If you want to have one, you need to organize it well .

【ask】

The overall view, and then the structure of the overall document, first of all, you have to figure it out for yourself .

【answer】

Yes, yes, be ready. So in fact, uh, they are like developing a software in a class, they generally say, um, let this person who is more capable write the code, and then the person who can't write code will write the documentation, but in fact I basically have all the documentation I wrote it with my own hands , because I thought it was more important at the time, right? Uh-huh. As for saying this, it doesn't mean that there is such a mismatch. I write mine, you write yours, and then you don't know what the problem is, because no one actually reads your code, right? In fact, the document is still seen by others. Well, it is also very important to reflect a design and a thought in it.

【ask】

In fact, the last question, you just mentioned a range, that is, what kind of documents do you think are good documents, or what kind of documents you expect to use. You mentioned a few points just now , such as it,

are some things , everything you need , it is complete and detailed, and the design of the entire organizational structure is very reasonable, and then there are some more user-friendly designs, etc., is there anything else that needs to be added ?

【answer】

Humanized design, this is a lot of details. For example, you have to provide various versions, right, or provide some. If it is online, generally everyone prefers to browse on this page and provide pasteable versions. Something, right, um, something that provides some interaction, provides, like I can switch this color, like you see at night you don't need to be so dazzling, um, or you provide this, and it automates It can be translated into other languages . This is called internationalization . Yes, this is also implemented by programs. Instead of saying that you go and write a version in Chinese yourself . Like those good software , such as Google 's tensorflow , or this program is used by many people, it is impossible to write various versions, and it can do an internationalization process, which is equivalent to using a program to achieve an automatic translation . Well, this translation isn't that advanced, it's about matching this word to that word, um, right, um, the program .

【ask】

It's not all accurate, but it still saves you the time of copying and pasting and going to Google Translate to translate .

【answer】

Relatively speaking, it is more accurate than Google , because you make automatic translation by matching the word to the word . For detailed correspondence , it is more accurate to use the dictionary method to do it . Uh-huh. This is the humanizing part , and this one can certainly do a lot. Well, but the main thing is to say that your structure should be complete , well, the core things should be written. Well, what users you are targeting, you have to be reasonable , and the entire structure must be reasonable . As for comprehensive, it is very difficult to be comprehensive. It is difficult to be comprehensive because you encounter different developers. The problem is really different . Well, it is impossible to be comprehensive, so you need the core , that is, the biggest and most important problem , and you need to reflect some of the most critical problems . If you can't find it. Then you go to the search engine blog to find it, this is the other, and it plays an auxiliary role . In this document , you must play a central role, and the main things must be reflected, right? As for the details, then these search engines, others may also encounter , um, or forums, right, I may be stuck , and then others , I also encounter this problem, how to solve it . Another good point is that you can use some pictures , not all text , pictures and texts, this is relatively common, generally speaking, they will draw some beautiful structural things, and then add some cases , right, um, this is more important .

【ask】

You mentioned this translation just now . The translation you mentioned is that you have encountered some examples of foreign software and documents. It has this translation function . Are there any in China ?

【answer】

In fact, it is more common in China to speak two languages, um, if this is China, you can write Chinese, and then if it is English, you can write one English, um, just write two versions, and then you can directly Point , there are also some projects I wrote myself that are like this. Well, yes, it means to give 2 buttons, if you want to read Chinese , then you can read Chinese. This is all written and translated by myself. Generally speaking, there are only two languages you can write by yourself. If there are too many languages, you will use corresponding tools and do some internationalization conversions. Well, yes, because it's not a lot of work to write two languages by myself, and then it's more adequate if I write it myself. Is there any problem with this ?

【arts】

I think what you said is very good, that is , you answered all the answers that should be answered, and then I did find some special points. It should really be from the developer's own experience, we can better clarify your needs. What is it, because we haven't done development, and we don't know whether this document is good or not, and after listening to you, I feel that there is indeed progress in the current document , and there is indeed a bad place, and we need to consider more. improvement . \_ There is room for improvement. Well, there is another question that I would like to add, which is the type of the document just now. What documents do developers need to use? In fact, it is also one of our research questions. Then, the feeling is based on the literature research I did before, and there are some things that have not been mentioned, such as API documentation.

【answer】

The API document refers to a document for developers, and the API refers to some descriptions of the parameter of the calling function. Well, this is generally automatically generated , that is, you wrote this function to it , or wrote this class, and then, you write a comment below to describe it , what is this parameter for, and then use it to automatically Survival will get the API document , which is generally automatically generated . Like the one for users , you generally have to write it yourself. Well, including those pictures, I have to draw them myself. Generally speaking, when you go to write this API documentation , it's not too difficult, right? Because you can all survive , the workload is not much. Well, the difficulty is in how you design the software. Well, the API of your software should be well designed. This is a question of the details of your software . Well, some of them are so well designed that you can see what it's doing just by looking at the name. The overall architecture is so well designed that you don't even have to look at the documentation , you can see what it does when you look at it. Well, yes, some of them may be very complicated by themselves. This problem , the developer's design is not good, and you ca n't understand it even if you look at it . At this time, you want to have some textual things , architectural something to solve this problem for you. Well, it is. Well, then if it's really good it's going to be on all sides, right? Well, it has to do well on its own. Well, here's the API documentation, eh.

【ask】

Well, well, basically no other issues. I think you answered quite well today , there are some things I haven't heard before .

【answer】

This is not an interview, this is just taking a set of your own things, and there are many more, anyway, you have to have , that is, after in-depth development, you can have such things to experience and realize. But in fact, I haven't written a lot of code for a long time. I wrote it when I was an undergraduate. Well, this is actually not a particularly rigid kind of programmer . It has its own community and some things that I like. . Yep.

【ask】

When it comes to the community, there are such things as csdn , Zhihu in China, and Stack Overflow in foreign countries . These are also used in ordinary times , right?

【answer】

That's right, it's just sticky code , and sometimes when you encounter problems, go to it . Well, that is actually used a lot like GitHub. It can go to it to raise some issues and ask some questions . There are some better software, it will build some. Some developers will build some instant messaging, such as building a QQ group, but the QQ group is actually inefficient, because it is full of water groups . Well, it sometimes builds a platform similar to , anyway , an online and instant communication platform. I remember being particularly impressed. It was when I developed it before, and then I encountered a problem, and then I just looked for it. If it doesn't, then I'll look at this, it has a group chat , which is roughly like this , you can ask questions , and then I will stick to my problem, and then I will tell you how to solve this problem, and then someone will restore it immediately, that is Say you change this piece, OK, and then it's really solved .

【ask】

this group chat the software's own website , the official website ?

【answer】

No, generally it will use a third-party one similar to QQ, but it will be more professional. Yep. Then there are some professional people in it, it will go to operation and maintenance , you are like open source , it should have a better atmosphere. Well, it can be played at this time. If it doesn't have a blog forum and it is not well-known, then the software may be well designed, or it may die. So now a problem is, in fact, there is no shortage of software. Um. But because there are too many software, you can see that on GitHub, it is not like before. You open source a software , you are very happy, you are very proud, you can do anything , I can play GitHub , you can get an internship in a big factory , then Everyone does now. Well, then you have to continue to have one . Maybe the one with a higher star mark must have a star number , right, then the star can also be bought now. Well, if you swipe the star on the Internet , the number of stars is not enough, you need something really influential. Well, the documentation, how to run and maintain the release , this must be managed one by one throughout the whole process. Well, like you didn't actually ask just now, just in case a problem with this version. Well, it's constantly iterating because of your documentation and software , right? Well, you, as soon as your software is changed , the document should be changed accordingly, and there will be V1 , V2 , V3 , V4, and then there will be all kinds of them, and they have to correspond. Well, you are like some ancient code . You bring a document and it ca n't solve it for you . The code has been changed , and you don't know what it changed. Well, a process of a change now is the whole process that you want as a whole. One to manage it , one to develop quickly and agilely . Well, that kind of pressure will be even greater .

【ask】

Even the documentation has to keep up with the software iteration process.

【answer】

Yes, to be synchronized. Well, it's a very related thing .