**P21**

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【ask】

Please recall your recent or previous experience of learning a tool, software or technology. What was the whole process like from hearing about this technology to actually learning to use it to complete some development work?

【answer】

When I was doing this graduation thesis, I used a tool like a simulation software, so at the beginning of the language, because I was doing algorithms, it must have been ranked. When I heard about this technology, it should be 16 or 17 years. Well, wouldn't python be very popular then? I'm not actually in the computer science industry myself, eh?

, not this professional. My undergraduate major is in the direction of X X , and it also belongs to transcoding. Then, because python has more resources on the Internet, such as Liao Xuefeng, the father of python in China, and then the official python This document seems to be not very big all the time, and then as a beginner at the time, I didn't know any document system architecture, many of which were hearsay, just say, alas, you go to that Liao Xuefeng blog, and then you go to Ah station b, ah MOOC, some of the above classes, and then start from watching the class, after watching the class, um, that is to say simple grammar, logic, or writing logic can be written, such as processing a csv documentation. But when I went deeper, that is, when I was in my third year, when I was looking for a python internship, I found that through the class, or through these introductory courses and introductory blogs, I felt that these things were too superficial, and then At that time, I didn't have a very clear concept of documentation, so I found a better recommended book, that is, there is a book called fluent python , which is fluent Python, and then that book is about it. This is one of the python documents. I personally feel that it means rewriting a little bit, but the explanation is more transparent, and then he digs deeper in many places, that is, there are Some source code, including his um , there are many examples, and after reading that book, it is considered that python has a technical level like the one I applied for, and then I found an internship for development. At first, I was doing python development, and then I switched to algorithms, and then I found an internship. During the development, I was responsible for maintaining one in the company. Well, it is a network security technology company, which is to maintain this network security simulation engine, and then in the company. This is the first time I saw this kind of enterprise-level code, and then I slowly looked at some code written by others, that is, how to write code more efficiently, and then slowly I became a little familiar with python. Well, that means being able to participate in daily application development. When learning a language, my personal opinion is that many tutorials or classes or a good book are actually better than a document. Of course, this is only the first language for beginners. If I want to learn another language now, it must be to read the official documentation. After I have a certain foundation, if I migrate to another language, I must use Official documentation would be better. Then the process of learning python is basically like this. Then let's talk about a framework, is our approach a set of frameworks for deep learning? We use Pytorch more here . Then pytorch , when I was learning at the beginning , I went to his official to find the documentation first. At that time, the official python of Pytorch The API provided is very good, but its example is actually a bit unclear, that is, it does not have a big framework. That is, the big one, such a document of my design idea, he just tells you how to use this API and how to use the package. So it was rather dizzy to see, and then I got familiar with this Pytorch by looking for lessons online . Of course, it will be much easier when you go back to read the documentation of this framework after you are familiar with it, that is to say, this documentation is very convenient to do. If you are a practitioner, it is more convenient to look up the information and find what , but if you are a beginner, you will inevitably feel a little dizzy. For example, I remember when I first learned, there is a data in it loader, is to read your data set, and then it is actually an iterator, but what he wrote is that if no one tells you, my data The loader is actually an iterator that sends you data one by one. When you look at this, it will be more difficult to read. I think it is actually because there are fewer examples. This may be caused by this. . Then Pytorch follow-up, that is, after watching the class, the follow-up will be used in daily work. My current company is also, our group uses Pytorch as this daily training framework, and then we use it more often, and of course we have more source code , or more code written by masters, and then Slowly , I became familiar with it. Now I use Pytorch , that is, I use Pytorch every day for work . Well, then this is above the frame. Then there is another simulation software that I used when I was doing the final design. This is called Carla, which is a relatively small software. I sent it to you. That's it. It is an automatic driving simulation software. It can create a city, and then you can change the city map, you can generate vehicles, traffic lights in different places, and then a simulation software when doing autonomous driving. But this software is relatively new. Anyway, if you check it on the Internet, there are relatively few documents for this kind of tutorial written by others. It is basically the official document, which will be easier to use, that is, there will be less other information. . Then the graduate student did this pedestrian detection after graduation, and then the pedestrian detection combined with 2D and 3D, and then needed to use such a software. I think the documentation of this software is even, just from the content of the document, he It's good, that is, he has some examples of this kind of example, and then he also has an API query interface, which is a little python API, and then all the classes, methods, and methods in the class below him, and which category of the things returned by the method belong to, he said in more detail, and then the jump is also very convenient, you just click You can find what you want, and then this is a better point of his documentation. Then there is one more novel point he made, which I personally feel is better, that is, after he introduced the installation and configuration in this document, he first introduced such a design idea of his world. , that is to say, when my Carla is running, when it is already running, this thing is called through python, that is to call the port that is running locally, and you can get a Carla 's wor l d, which is Such an object in the whole world, and then in this world, it combines all the things in the world, such as traffic lights, pedestrians, and vehicles, all called actors, which is the actor of the actor, and then in this actor The following is subdivided into whether it is a motor vehicle or a pedestrian, or what, and then when you go to create it, it has a large library, which can be understood as these pedestrians, and vehicles can go from this library. Find, find their class, and create it in the world. Its big library is called blueprint, just blueprint. It first introduces such a design concept of his, and then you can correspond to these when you look at it later. I think this is what he did better. of a point. Then I personally have just started working, so I don't have a lot of experience, but from the time of learning, I think that if it is more friendly to beginners, it is best to have some examples, that is, some Some everyday scenes. It is best to give an example, and then if it is true, that is to say, if you do a good job in consulting the document, the document that I personally agree with is that it is more convenient to jump, and it is more convenient to query, and the class column is also more complete. Then it is listed as a class and it will tell you which class these APIs belong to, what it will get when it is called, and what input it will ask for. I think this is a better document, but Carla's document actually has a problem. , is that its version is more confusing. Because it belongs to a relatively new software, and each version and each minor version has actually changed a lot, and many function names are beyond recognition, so when you search, you mainly compare Pay attention to this version, but he didn't say, for example, he changed the function name in 0.9.6, he won't say in the 0.9.5 document, ah, we will change the function name in the next version . I didn't go to the front, I just said something to the front, which is such a situation . Because I changed the computer once in the middle, so the version of Carla was also changed once, and then I installed a more comprehensive version at the beginning, and then I used this newer version later, and then ran with the original code. No, then when I adapt this code, it will be more troublesome to change this code, and then my personal experience is basically like this, you see what else you have here .

【ask】

You said it very well, and remember it clearly. Then you can see that you have used the Carla document a lot, and you may be familiar with it. Then I want to ask you, you can learn from you. The process of Carla software is divided into one stage. For example, you can divide it into the early stage, the middle stage and the later stage. Then you can talk about the characteristics of your learning in each stage, and what are the different learning goals?

【answer】

Oh, I understand, um, in the early stage, it is a crazy torture. In fact , this document of Carla is my first project, that is, I mean to read it carefully, and then really learn this thing from the document. In fact, the main reason is that there are no other reference tutorials and materials on the Internet. It is a relatively new software, but when I read it, I found that it is ok. It follows other people's design ideas, but you can't understand it all at once, that is, when you look at the following examples, you can't immediately correspond to it, so if you say it in the early stage, it belongs to jumping all the time, and then seeing If you don't understand, go to Google to check it, and then there is no information, so you can bite the bullet and see what the document says. Of course, that document also has some drawbacks, that is, it may also be a problem of my English proficiency. In some places, I feel that what he said is very cumbersome, that is, some words are not necessary at all, and they are all modifiers. I feel that as a For a technical document, there are some unnecessary modifiers that may increase the user's reading cost . Then in the mid-term, I actually configured the software environment, and then I could just write code to create a simple car, people, sensors, and obtaining sensor information. These tasks are relatively simple. finished. At this time, the larger role of Carla's documentation is reflected, that is, I am getting started. After I can do simple tasks, I want to expand to the goal I want to achieve, which is the goal required by my project . , there will be a lot of development work in the middle, and then these development work will be more dependent on its API. Whether the API is well written or not, it will directly affect my time cost. For example, if I want to call a method to obtain the current state of a pedestrian, then the value it returns is to return a class called location in Carla. He said it very clearly that the class of this location inherits this class, and then the definition of this class of this 3d web is that its properties and methods will jump into it with a click, and it is more convenient to obtain. But there are some documents. I have seen a package that uses Python for fuzzy control. It seems to be a package called pyfu zy . The documentation of that package is quite confusing. It only tells you that when I return, it is The introduction is the same. I tell you that I return an important thing, but I don't explain where the source code of this class definition of your thing is, what properties it has, and what methods it has. It's very difficult. Compared with Carla, Carla has done a better job in this area. You can see it at a glance. If you can get started, you can quickly expand from this simple beginner to the code that can meet the project requirements. Just write this part of the code. be more clear. Then there is some work in the later stage. The later stage is mainly the simulation done in Carla. For example, when I do pedestrian detection, I need to acquire the learning of the sensor in real time and control it from time to time. It is better to be able to visualize it. . But for example, for the visualization of data such as location in python itself, visualization is more difficult to achieve, and it is more troublesome . R VIZ above does his visualization. At this time, it involves a Carla's sensor learning to be transmitted to rose through the rose bridge. It is equivalent to doing an inter-process communication, passing his information to the rose side in real time, and then after the rose side parses it, put your model on it, where is it when it is parsed? What are the coordinates of a person? Then you visualize it in real time in rose. Well, then this part is that Carla's API will also have some comparisons, that is, there is another one that is relatively complete. For example, Carla uses this rose bridge as a communication channel and sends messages to rose. These processes are official. It is also a document, and there is also an example of some examples, and then you basically follow his example, and then change your needs, and then this part will be easier to do. The entire project cycle should be like this.

【ask】

Well, let me summarize, your early stage should be that you can't understand it at first, and you also feel struggling to read this document, right? Then the goal should be to understand the software by reading the document. Then in the mid-term, I will try to write some relatively simple codes to implement some small functions, and in the later stage, I will implement some more in-depth functions, right?

【answer】

Mmmmm yes.

【ask】

Well, okay, the next question is the Carla document you are looking at. What types of documents are there? Our documents can actually be divided into conceptual categories, and then teach you how to do such step-based documents. There are also some reference types, such as API documentation and some other types. Can you roughly divide it into several types? You see this Carla documentation.

【answer】

I feel that Carla integrates these aspects better, so that's one of the reasons why I think I recognize this cheerfulness, the main reason. That is, at the beginning, he was a conceptual class like you said, that is, how to introduce his design ideas, what is the implementation logic of this code, that is the whole design, from the world to this blueprint, this library, to You go to create an action or , what is the whole step or data logic. Then go down, he gave a relatively complete API, that is, it supports python and C ++ , and then these two parts of the API are relatively complete, and then written better, as I mentioned just now, he put What class is required for each method input, then what class is returned, and then what attribute methods are included in each class , he wrote in more detail. Then include, for example, a class that returns a 3D and then a location, then the location is inherited from this 3D , and its parent class will also be written clearly for you. Then include the jump link that I remember seems to have the source code, or he seems to give you a part of the source code on it. So after the second part of the API has passed, it is implemented by some simple examples in the third part. For example, he will have this. How do you link with this client of Carla? Get this world , such a step. It is the simplest, he will give it to you, and then include some daily use, such as generating that pedestrian or generating that motor vehicle, ah, including that you write one yourself, that is, you can use the keyboard, that is, through the That PY game is just like a small game, you use WS D to control the car to run back and forth, left and right, and then such a visual window is to write such a window and create such a car in the world of Carla, Then you can use this keyboard to control it in real time, and he will also give you an example that is a little more difficult. Then this is very convenient. In fact, most of the basic requirements can be changed according to some of his examples. In fact, all we need to do is to DIY some of the requirements of our project on the examples. It's a lot easier, because he gave these simple examples, as well as some examples that are commonly used in daily life. So I think the Carla document is a good document from this concept, then the API to this example of this practice.

【ask】

Hmm, okay, very well said, the next question is about the source of your information, that is, where do you usually study and use these documents and materials in your work? Besides the official documentation, is there any other way besides going directly to his official website to find it?

【answer】

Well, let me talk about work first, that is, in work, there are actually many internal documents on my side, but to be honest, the quality of this internal document is really not too high, but fortunately he is still relatively standardized, that is What he wrote is not particularly useful, but she can probably give you anything she wants, that is, she can give you such a simple answer. That is to say, our internal documents are generally divided into three categories: design instructions, usage instructions, and development instructions. The design specification is like a concept . I will introduce the world view of my project, then the user manual will provide some examples, and then the development specification will talk about some differences between the versions. But it is a pity, because this internal document changes very quickly, so the example will give less, unless it is a large project, that is, a project that many people are using, he will maintain a document with There are many examples of such a novice document, and then in this case , the internal document will be available to the new student, that is, it is difficult to do a lot of things when he goes in, because the code is written internally, He went to the Internet to find him and couldn't find it. Then he went to the document and there was no good example. He could only go to his mentor and let him teach him hands-on. I also came here at the time, so this is my internal A cognition of the document. And then another is to say that technically, for example, I have to choose to learn some new things, or I have published a new paper, and I want to learn about its implementation. This is the main channel. At present, there may be more knowledge , because the possibility of our algorithm and development is not special, that is, csdn is Chase anyway , basically will not touch that thing, and then XX cloud XX cloud is directly searching The engine is blocked, and it won't look at these things. In terms of tutorials, I feel that there are still some high-quality tutorials on Zhihu. Of course, there are also some mixed things, and then there are some well-known up masters of station B, that is, in the algorithm category, he will record some by himself. An implementation video of some novel algorithms, and then including it will open the source code on GitHub. Then generally, based on this video of him, the source code he provided, this new technology, these individuals, and of course some big names in the industry, for example, Mr. Li Feng, he has opened a lot of series on the B station. All kinds of implementation courses, from the simplest foundation to the corresponding implementation of the most cutting-edge paper, he will give it here. Because um, I personally feel that there may be a difference between doing algorithms and doing development. If you have good experience in development, you can understand a lot of things just by looking at the text, but when doing algorithms, In many cases, you may still need someone with a higher level than you to tell you how to achieve this, so I actually prefer to watch videos to learn newer technologies. But for example, when I was preparing for the interview, it was relatively common. This technology has been launched for several years, and I just want to summarize. For example, there is a series called y olo in testing , so he has V 1 V2 V3, V4, V5 , and many versions including V hart now , so during the interview, some interviewers often ask you to tell me the difference between V 3 and V 5. It takes a long time to launch like this. And then into a series of this kind of thing, in fact, the summary of the text will be better. Because it helps with memory, that is, video may be more helpful for comprehension, and text is more helpful for memory. Then I will look at this kind of question on this Zhihu. It is such a summary document of others. The basic situation is like this.

【ask】

Well, well, the video you mentioned just now, then I want to ask, when you are getting started with a new technology, when you are just learning , do you prefer to watch videos or texts Woolen cloth?

【answer】

Well, I think this has something to do with the difficulty. In fact, if it is a newly learned thing that is more difficult, and it needs more understanding, it may be more helpful to watch the video, because it is equivalent to bringing With you, he told you every step very clearly. But the text is often a little more concise. So if it is for, for example, manual labor, for example, I want to process a csv file now, and then I want to replace some strings in this csv file, and then extract some information of this file, and then put some guidelines here Kind of, that feeling like this is going to read this development document. Because I know very well what this task is, what the process of this task is, and how it is implemented, then I actually just need to know these interfaces, how to adjust these methods, what the input is, and what the return is. In this case, I think it may be more convenient and time-saving to develop documentation. But if it is for example that a new paper has been published recently, and then the point of view he put forward is relatively advanced, it is difficult to understand this kind of thing, then maybe you will still watch this kind of video, as he said. Might be more detailed. Another advantage of this kind of video tutorial is that if the level of the instructor is relatively high, such as Mr. Li Feng, he will not only introduce the technology itself, but it may also talk to you. Talk about his views on the industry, or the current development status of the industry. For newcomers, this information is relatively difficult to obtain, because these relatively high-level people are rarely there, and it cannot be said that there are very few. Well, anyway, there are not a lot of texts on the Internet, but they may make some videos, so I think this is another advantage compared to videos.

【ask】

I also noticed that you seem to have mentioned XX cloud just now, XX cloud is there, that is, when you search with a search engine, it will be automatically blocked. What does this mean?

【answer】

It is to block these search results, that is, the search results with XX and XX.

【ask】

Do you mean searching in Baidu? Where are you still searching?

【answer】

Well, it's Baidu, Google , don't let it show when you go to search, search results with keywords such as XX and XX, because there is generally no information on these two sections.

【ask】

Mmm Good. Well, okay, the next question is about your reading style. I just want to ask how you usually read after you open a document, and how to quickly locate the information if you need to quickly locate the ringtone.

【answer】

Ah, if you read it, it's um. Usually, it's the conceptual one in front of him. Then I think this is a must-see, that is, you must first understand what other people's entire world view is like and what the design concept is like. Then another one, the second step is to be based on the actual needs, if I already have a certain understanding of this, I just want to check one thing now, um, then jump directly to the API part to find I think The API you want will do. If I just talk about learning this thing in general terms, then I will look at this example first in the second step, that is, if his example is better, you don't even need to look at the API , just change it directly. Example, and then search for the key API, and if the example is written in general, then you may turn around and look at the API , and then select some key points for the API , which is often used daily This scene, such as this Carla , if his example is not very good, then when I look at the API, it must be the first to pay attention to my use of your house. I must install two cars first, I will go Look at what this car is, where it came from, and how to create it. First, look at an API of these situations . Then, do I want to make this car move? How to control it? Then look at these. It is based on Task requirements, and then look at it step by step. Then the second one you said is to locate this keyword. I feel that most of them are now, but I can't say most of them. Anyway, some documents are in this search function. If there is no search function, then CTRL + F , search manually.

【ask】

Understand, then the next question is about when you encounter some problems, you have encountered some problems in your work, such as failures and the like, and how did you solve them?

【answer】

Well, there must be this. For example, the most common faults encountered in making algorithms are data problems, because the models are basically imported directly from the academic world. Then, in terms of data, sometimes you will encounter this kind of dirty data, and then you can judge whether your model has dirty data. This is a lot of things from experience, that is, I can only distinguish this result from the beginning. Is it normal or abnormal, and if this is abnormal, is it the result of dirty data ? I can't tell the difference. This may be based on experience, just ask, ask your mentor, he tells you that this may be dirty data, and then why does he think it is. This is an algorithmic technique. Another is engineering technology. When I package a data set, such as image data, the image comes from this online web page, and then the online web page, that is, I give a URL, download it, and after downloading it, package it . Then during the packaging process, the packaging may fail due to various reasons such as the inability to access the URL or the network restrictions of the development machine or the fact that the AP N is not connected. Then when there is a problem with packaging, you must first look at the standard error output. Then find some clues in it. The clues in our company are relatively complete. Basically, the problem can be located. However, when the problem is located and solved, it is often troublesome. For example, the situation that the URL I just mentioned cannot be accessed is actually quite good. You can know what the situation is when you post the URL to the browser, but there are some, for example, it is not a URL, it exists in your company. One of the database, and then you can go to the database to check with this, and then find her. At this time, it will not be displayed, or if I go to the browser, I will know if it is right or not, then I have to go. Turn on the debug mode, find a huge machine, debug it when it executes, and then print out the current information to see if the data has been successfully taken out of the library and taken out successfully. If so, have you successfully obtained it locally, and if you have successfully obtained it locally, have you successfully packaged it? Read it again in the packaged data set to see if it is already in the data set. This is the way to check step by step, but there must be some cases that cannot be checked, and there are cases that cannot be checked out. At this time, on call , Find the staff on duty. The solution process is like this, but there are also some that involve reading documents, that is, you will not use this thing at all, it is the first time you use it, and then your mentor will send you this simple data link, then at this time you You must find this. For example, if you send a document to you, in this case, you must find the API document of the packaging project to see what his input was when the video was packaged. The configuration is how is it like.

【ask】

Well, that's good, very good, then I'll delay you for a few more minutes. Another question is to know the developer's expectations for this document experience. I just want to ask you, what kind of document do you think is a document? Good developer documentation, in fact, you have already said a lot when you talked about Carla just now, and I would like to ask you to summarize it a little now.

【answer】

Well, it’s good, so it’s actually easy to use, so how can it be useful? First tell me how this is designed, I can’t let me pick up those APIs with a hammer and a hammer, you have to understand This interface, understand that interface. First of all , you must have a general idea of how you plan the project and what the overall structure is. Then another one is to have better examples, and then it will be very friendly to novices, and then it is best to have some simple introductory examples, combined with some examples of daily use scenarios, that is, combined with this project . For example, the example in the Carla document is the example of using the project I just mentioned. For example, if you want to teach me how to create a car, how to move the car and how to create sensors is combined with this project. , which is a level that most developers use this product on a daily basis. Then another is to have a relatively complete API , and the best thing in this API is to have the form of this hyperlink, the attribute method of each class, which class is returned, and what attribute method does this class have? these foundations. I think this will be much more friendly to developers when they use it. Most of the time it's not confusing. Then you must avoid the python library that does fuzzy control in the pytorch I just mentioned. It says that it returns something , but it doesn't give you a specific explanation at all, which is very inconvenient for developers. friendly.

【ask】

What do you expect from the organization and interaction design of this document?

【answer】

I don’t think this problem is a big one. It’s the organizational structure. In fact, you have everything you should have. How you organize it doesn’t really matter to developers. Then there is the interaction design, which is the minimum search function, if you have it, and then the function of selecting the version. In fact, other functions are not necessary for developers in many cases, they just need to meet our most basic needs, just a little more advanced , because we are also developers, we can only do it ourselves Adapt to this document. I don't think interaction design is too big of a problem, it's mainly the content quality of the document itself.