IIT Madras

ONLINE DEGREE

Programming in Python
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Variables: A Programmer's Perspective

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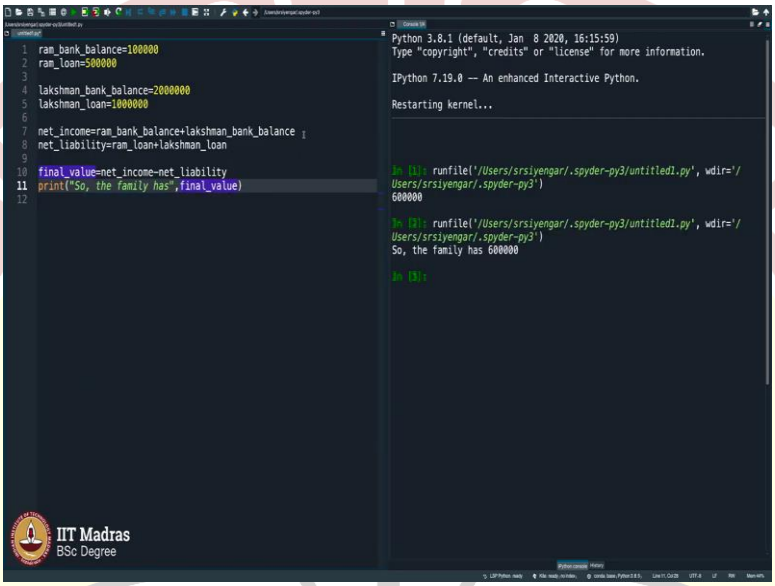

Here is an important tip that I am going to convey through a small program. So let us start with this little story of two brothers, Ram and Lakshman. Let us say Ram's bank balance is one lakh and his bank loan, Ram's bank loan is let us say 5 lakhs. Lakshman, his brother's bank loan is, his brother's bank balance is let us say 20 lakhs and his bank loan is let us say 10 lakhs.

Do you observe something here? Is it not it indeed confusing to call it A, B, C and D? Is it not important that we make the variables sort of self-explanatory? And that we need not break our head on what exactly did I say just now? Was it bank balance or loan? Was it the brother Ram or the brother Lakshman?

So it is easy if I were to simply name this as Ram bank balance, ram_bank_balance maybe and then here instead of B I can say ram_loan. Instead of C I can say lakshman_bank_balance. This character is called underscore that I am typing it looks like dash but it is a little below dash at the line level and then I will say lakshman_loan. Now with this it is sort of easy for me to calculate the, assuming that these two are brothers staying in

the same house and I would say the net income of the house is Ram's bank balance plus Lakshman's bank balance.

And let us say the net liability is what they owe. Ram's loan plus Lakshman's loan, makes sense. Now, the final value let us say whatever that is, is net_income minus net_liability and I will print the final value hoping that there are no errors right now. Let us see. So the final value is 6 lakhs. So the family has, let us say, so the family has 6 lakhs.

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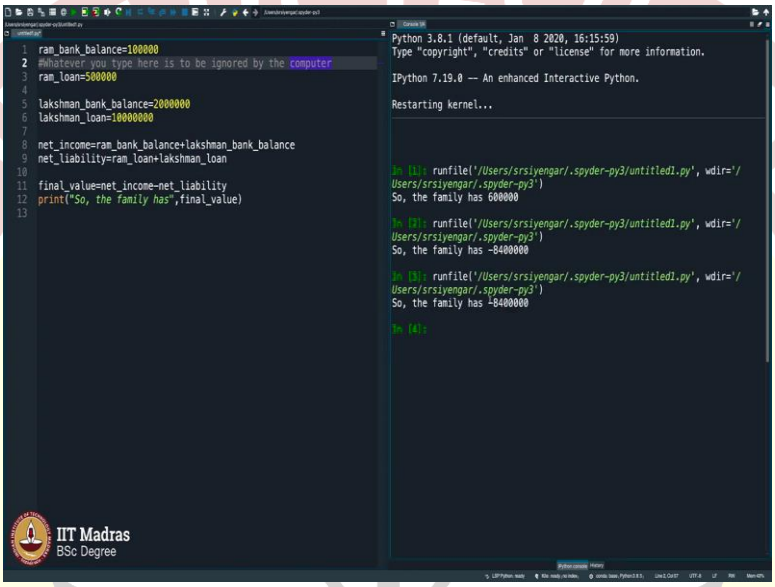

Let me restart this kernel then we re-execute it. The so, the family has 6 lakhs. If let us say Ram's loan or let us say even Lakshman's loan was a little more, then it would come 0 here thus making it how much 10 lakh, 1 crore. So the family has minus 84 lakhs loan. So, if it is minus, if it is minus it will be liability, if it is plus it is it is the surplus, it is the extra.

So is it not easy on your mind when I say, when I give the variables like this than say A, B, C and D. Here is an important tip. Tip number 1; try to make your variables self-explanatory. Second tip is add comments. How do you add comments? You add comments by putting a hash followed by whatever you type here is to be ignored by the computer. Nothing will happen when you put a hash like this. So still, you get the answer as it is, as you can see. So whatever you type after hash, the computer will ignore it.

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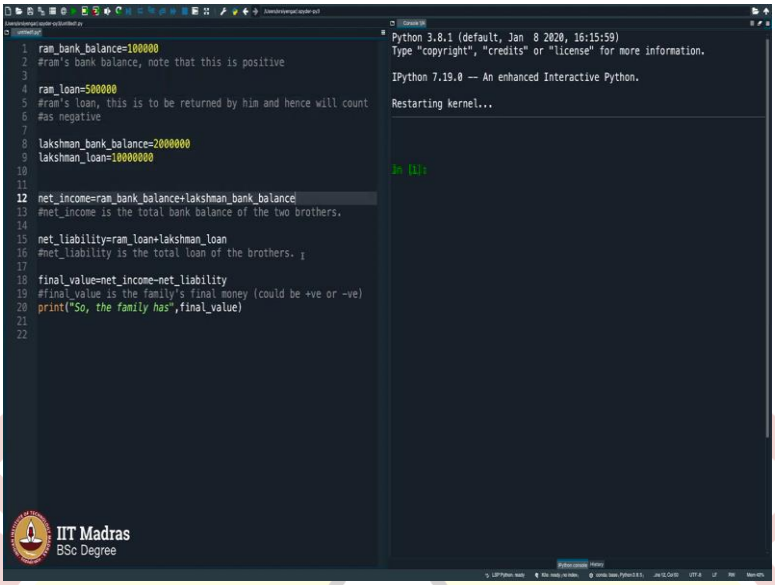

So what I will do is, then why would, so why are people mad enough to put a hash followed by something if the computer ignores, what is a need for us to put that? The need for us to put something after hash is because sometimes when we declare a variable like this; we would know what we are doing, but after a few days we will forget what exactly was the reason, why we declared this variable.

Especially if the code goes to several 1000s of lines we are bound to forget despite our being careful and giving variables that are real life like still we will forget. So what I will say is the Ram's bank balance note that this is positive. Ram's loan, this is his, this is to be returned by him and hence will count, again the next line if you want to come you should put hash once again will count as negative.

And Lakshman's bank balance is self-explanatory. Net income, generally you put the comment below it, you can also consider putting above it not a problem, net income is the total bank balance of the two brothers. Net liability is the total loan of the brothers, of the family brother. The final value is the family's final, let us say final money could be positive or negative.

So the family has so and so, as you can see, nothing changes. I am executing it to one once again and then you see nothing changes when you include comments. Comment is only for you, for your purpose, just to ensure that if you see it after a few days or weeks or months, or sometimes even years, a software engineer writes a piece of code running into several 1000s of lines and someone else takes a look at it.

It must make sense. It will make sense only if you have taken care of the variables made it very sort of human friendly, reader friendly, programmer friendly. Secondly, you have included a lot of comments. So what we will do is from now onwards, we will include a lot of comments in our program.

It is a very, very, very good programming practice, did not mean to exaggerate, it indeed is for one to put a lot of comments. It is a very good programming practice. But unfortunately, many, many people do not do it for some reason. Maybe they are lazy or they do not want to kill their flow of thoughts by including comments, but trust me, maybe you can try writing the code the way I did and then come back and then write comments before you close the compiler ensure that the code that you have written is commented. That is a good programming practice.