



IIT Madras

ONLINE DEGREE

Programming in Python
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Introduction

We have taken up BSc in programming and data sciences and let us pick the word programming from there and ask this question, what is programming all about. Why do programming? Programming is all about, let us say you go to a place, new country, namely Germany, and to talk to people in Germany you may want to know German, go to France, you got to know French to speak to people in France.

You come to India, there are so many languages spoken here, but then you can manage with Hindi and English to a very good extent. So, if you want to talk to a computer you should know a language and just like the languages of our country India, there are umpteen number of languages, there are so many languages in computer science and we chose to teach you Python particularly for a simple reason, that this language called Python is today very widely spoken, number 1.

Number 2, it is very easy to learn and number 3, it is very powerful. Today we are in 2021, where programming with time should intuitively become difficult to learn, back in 1970s and today computers have advanced tremendously but if you observe the effort involved in learning a programming language has diminished tremendously in the sense that it has, it is very easy for one to start learning how to code.

I would say back then in the 80s or 90s, coding was not very easy, Pascal, COBOL, C, C plus plus, it would take a few weeks if not months to start writing code and write some not so straightforward code would take at least a few weeks of practice but today with Python you can learn programming in less than a few hours according to me.

In fact, we will teach you, you will be seeing that you will be coding from the very first minute of this session, I mean as we progress the classes. So, why programming? You need to learn a language to communicate with your computer. And why do you choose Python? We chose Python because Python is powerful, easy to understand and very much spoken.

So, coming to the word 'programming' once again, programming we think is fun and you will see that readily as we progress with the classes. Programming is fun because you get to talk to the computer to do complex things really fast. There are three things here you may want to note, one is you talk to the computer, you make a computer understand to do seemingly complex things and really fast, by really fast, I mean, really-really fast.

You will see that things that humans do with a lot of effort and time is done in a fraction of second, sometimes even at the speed of sound or even light for that matter. So, we will go very slowly, we will go step by step, we will assume nothing from you, except maybe basic English understanding.

We will not assume any computer science knowledge from your end, we will start diving into our first program in our very first session that is coming ahead. Assume you want to learn how to drive a car, what would you do today? You would probably open YouTube videos and start watching on the basics of driving a car or maybe you will rent a book, buy a book and start reading it, or even browse an article on how to drive?

As you know none of these will be of great help. So, to learn a car, learn how to drive a car you probably should hold the steering and keep your feet on the pedal and start driving, probably slowly though, but you should start driving. The point is you cannot be reading books and trying to theoretically understand how to drive a car but never drive a car.

It does not help. Of course, theoretical knowledge helps to some extent to begin with but then your real learning starts when you hold the steering. On very analogously speaking, programming also starts when you start touching the keyboard and start coding than keep reading what is programming all about.

So, we urge, we push, we want to request you all to start coding alongside with us as we open the terminal and then teach you how to program. The whole of this course will mostly be with the terminal and with me and Omkar, trying to code and tell you what is what and we will take you step by step incrementally and we suggest that you keep your terminal open and code with us.

So, during the first week of the course, we are going to keep it bare minimum and very simple. All we will be doing is code not beyond, let us say half a page size, so I will be

explaining what I am typing and I will be telling you what the output is and also I will be showing you the output and we will be coding very-very slowly.

In fact, if you know programming you may even find it a little repetitive and even maybe boring but then please bear with us, with time you will see the pace pickup. But a word of advice, we would like to see you also open a terminal and code alongside as we are coding.

