Programming Foundations with Python:
Learn Object Oriented Programming

Lesson 0 Notes

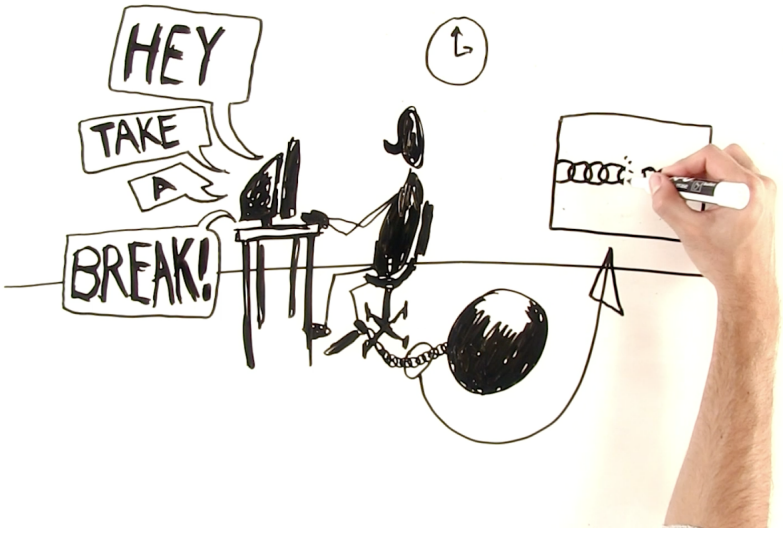
What Will We Create

Hi! My name is Kunal and I'm delighted that you are considering this course. Now, before we dive in, I want to introduce myself and also share with you two reasons why I'm really excited to teach this course.

First, I love teaching. Before joining Udacity, I was a sixth-grade science teacher in India. I remember really enjoying presenting new ideas to my students. That would make them question what they already knew. That experience lead me to pursue a Master's Degree from the School of Education at Stanford University.

The second reason, is that I love to create things with programming. Now, in this course, we are going to use the Python programming language to create a bunch of projects. And my hope is that you would want to share these projects with your friends. Here are some of them.

The first one, is project take a break.



Do you know a friend who works too many hours? Hint, that person could be you. We

will write a program that schedules breaks throughout the day, reminding that

individual to listen to music, get up and dance to their favorite song, or just walk

away from the computer every once in awhile.

Another one is called project profanity editor.

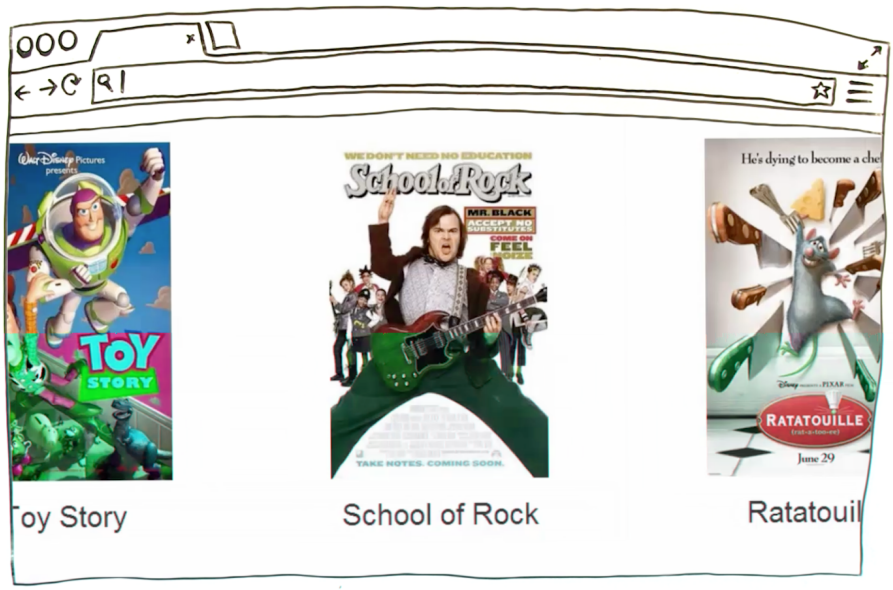
Imagine you get an email from your boss, requesting your help with something. You

reply, I can take a shot at it but accidentally you end up including an awkward word.

Oops. We will write a short Python program that detects curse words and saves you

from embarrassing moments in the future.

The final project is project movie website.



In this project we will learn how to make an awesome webpage, that lists your

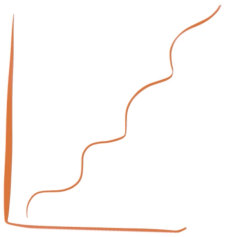
favorite movies, and shows their trailers.

/ed.

Comfort Level

Now before we make some of these projects, I want to share with you of how I learned to program.

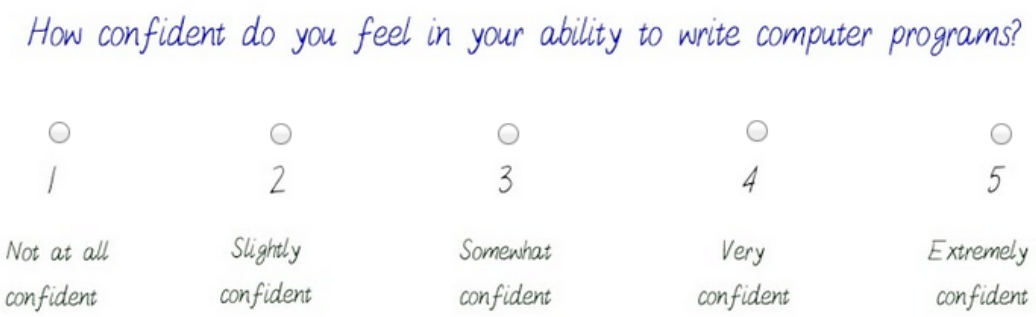
I remember in many of my introductory computer science classes. The instructor would start out slow and my friends and I, we would understand everything, but then boom, the difficulty level would skyrocket. This would make a lot of other students inside the class feel extremely frustrated and intimidated by code and ultimately they would quit. We will avoid that in this class.



In this class we will make challenging projects, but at the same time we will ensure that you're comfortable with the learning curve.

Question:

So it is in that spirit I want to ask you, how confident do you feel in your ability to write computer programs? Programs like the ones we are going to build in this class. Here are some answer choices.



What Should I Know

Thank you for sharing your response. Now, before we continue with the course, I want to make sure that you're familiar with the prerequisites for the course. We want our students to know some basic computing ideas. Ideas like, if statements, loops and function definitions. You can demonstrate that you know these ideas by continuing to watch this video. And by answering the two questions that follow. By the way, if you feel like you need a refresher on any one of these topics, there are some helpful links in the instructor notes. Okay, here is the first question.

Helpful Links

- If statements
- Loops
- Function definition

Test for Loops

Okay, so standing behind me is the official Udacity dance team and they're going to do a dance step for us. Watch closely as there is a programming question that follows. Ready team? Action.

All right, what we're going to do is three shakes to the left with three shakes to the right and we're going to repeat that. Ready?

Question:

So here's the question. Imagine you were to model this dance in code. How would you go about doing that? Here are some answer choices.

Imagine you were to model this dance in code.
How would you do that?

- num = 1
  while(num <= 5):
  shake shoulders to the left
  shake shoulders to the right

- num = 1
  while(num <= 5):
  shake shoulders to the left
  shake shoulders to the right
  num = num + 1

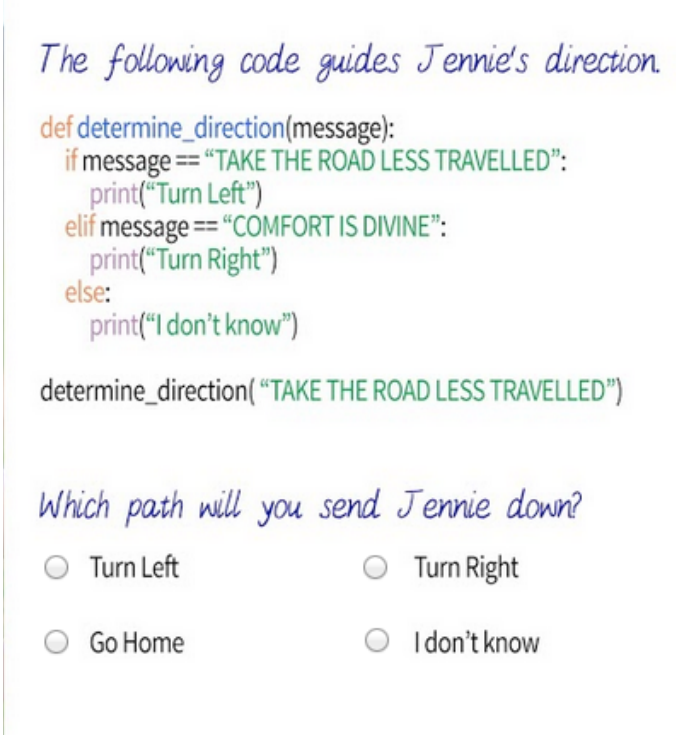
- while(num <= 5):
  shake shoulders to the left
  shake shoulders to the right

- print("I don't know")

Test for If Statements

It is a day as ordinary as the next. Jennie wakes up and decides to go for a hike. On this day, however, she goes down a path she wouldn't normally take. Before long, an unsettling feeling of being lost sets in and she comes to a fork in the road. Which way to go?

Only her trusted diary can answer this question. She opens it and there lies the answer, a message. It says take the road less travelled. Now it's up to you to help Jennie get home. All you have to do is read this piece of code, which guides the next step she will take. Now tell me, which path will you send Jennie down.



What Will We Learn

Thank you for answering those questions. Now we're going to make these projects in the next lesson really soon. But before we do, I want to address an important question, which is, what programming ideas are we going to learn in this course? Here's the answer.

Course Map

So here we are at the course map and I want to take a minute to talk about some big

ideas that we will learn together. In this course, we will start out with ideas that we are somewhat familiar with. This includes functions, functions like the simple print ("Hello World"). Soon however, we will move onto learning new ideas. These ideas include classes and object oriented programming. Now, this is a technique that's used by software engineers on a daily basis. And they can use this technique to write and share code amongst each other. Now, while we will start with functions in lesson one, we will spend most of our time in the course right here, learning about classes. Oh, but the way, all programs in this course are written in the Python programming language. So, let's begin by downloading Python.

Download Python

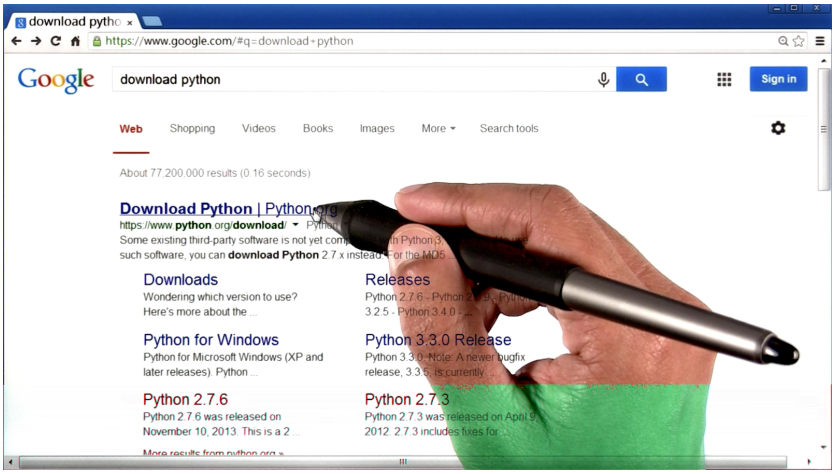
Okay, so if you're like me you've already glanced at the duration of this video and are thinking this is way too long. Don't worry. You don't have to watch the entire thing. What we are going to do in this video is work together to download Python.

Now, downloading a computer language can sometimes be a frustrating process. So what I'm going to do is go slow, and identify all of the steps in detail. By the way, if you already have Python, feel free to skip this video and move on to the next lesson.

Also if you prefer to read the instructions on how to download Python. There are a few helpful documents in the Instructor Notes section. Those documents will walk you through the exact same process that we are following in this video. Okay, now I'm going to start the download process on a Windows machine. If you're on a Mac, click here to jump ahead in the video.

Okay, so here I am on a Windows machine where I will google download Python. The first result looks good to me. You will notice that Python has two main versions. We will use version 2.7 in this course. By the way, the link to this page is also available in the instructor notes. Now, this page may look slightly different than the one you have open on your computer. That's okay, I want you to find the features that are similar between this page and the one that you may have open on your computer.

If you scroll down on this page, you will notice that there are a bunch of links. Now, the first link here will help us download Python on Windows. Notice that depending on your internet speed, this download may take a while.

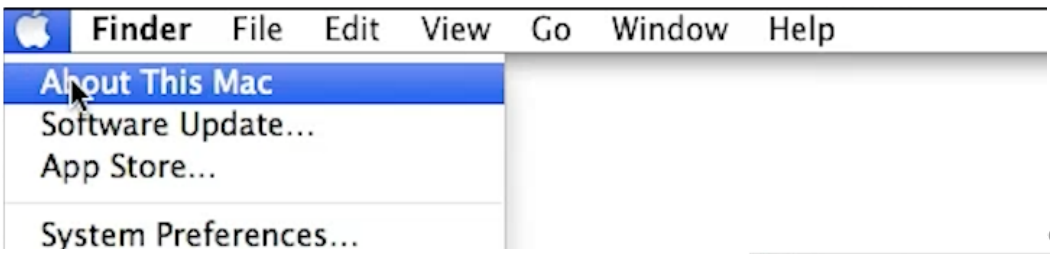


Once the file has downloaded I can click to run it. This will launch a wizard which I will go through. I will choose the default python directory under the C drive and then I will continue to hit next a few times. And boom, very quickly the installation will be done.

Now to test if Python installed correctly I can go to the Start Menu, hit All Programs, find Python 2.7, which is what we just installed and launch IDLE. IDLE is the place where we can write Python programs.

So let's write a few programs in IDLE like 2 plus 2 That seemed to work. And print “yay python”. All right, congratulations. You can skip the rest of this video and move on to the next lesson now.

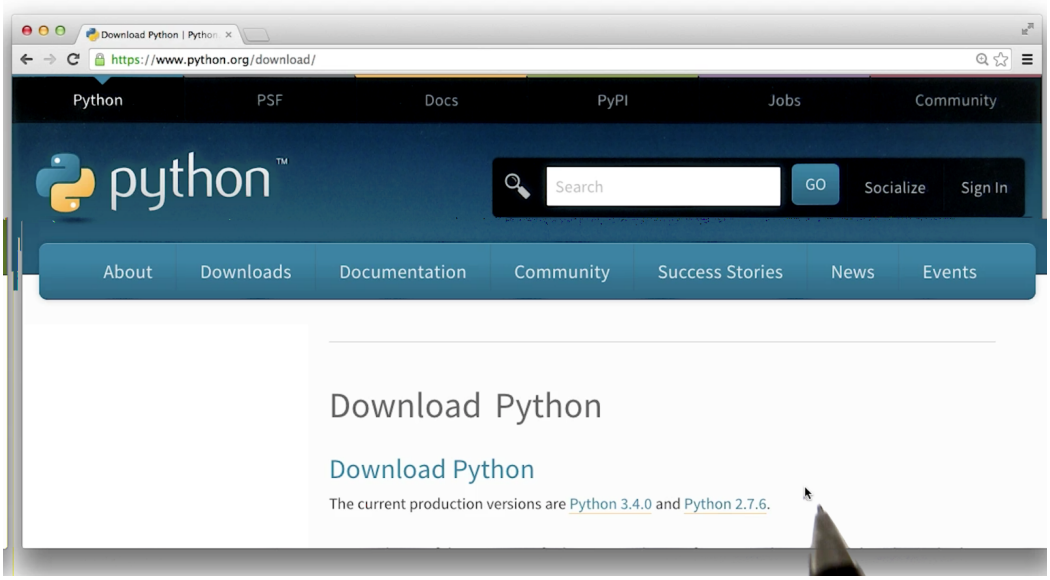
Okay, so here I'm on a Mac. Now, the first thing I will do is figure out the version of my Mac.



d.

It seems mine is 10.7, yours may be different.

Next I will Google download Python. The first result here seems good to me. You will notice that Python has two main versions. We will use version 2.7 in this course. By the way The link to this page is also available in the instructor notes. Now this page may look slightly different than the one you have open on your computer. That's okay, I want you to find features that are similar between this page and the one you may have open on your computer.



Now if you scroll down on this page you will notice a bunch of links. The first few download links are for windows. So we can safely ignore them. The next two links are

for mac. The first of those links is for mac 10.6 or later. Now since my mac was 10.7 this is the right link for me. If you have a version of Mac that came before 10.6 you should use the other link. So, I will click to download python. Note, that depending on your internet speed, this download may take a while.

Once Python has downloaded, I will run the downloaded file. I will click on this Python file while holding down the Ctrl key and then click Open. This will start the wizard. Here, I can hit Continue a few times to install Python. And boom, the installation is done. Now, to test if Python was installed correctly, I will go Spotlight and then type IDLE. IDLE is the place where we can write Python programs. Here I will hit enter to get the python prompt and then write a few really quick programs like 2 plus 2. That seemed to work and print “yay python”. Alright congratulations you are now ready to move on to the next lesson.