Using Google Colaboratory notebooks

OK, so to do machine learning, you have to have access to a pretty powerful computer. There are a lot of options out there online for getting access to the kind of computer you need, which includes something called a GPU. It's a graphics processing unit. It was originally designed for gaming and for fast videos, but actually it can be used for machine learning, which is super cool. But you probably don't have that kind of computer around. And even if you did, getting it set up to do machine learning is kind of hard, but there's a great solution out there. There's a free solution Google provides, where you can use a computer called Google Colab Notebooks and do machine learning using a GPU all for free.

There are some limitations to this, as you might expect. There's a limit on the size of the data that you can be processing. And a very important part of it is that whenever you close your browser tab, so we'll be doing this inside the browser, if you close the browser tab, or even if you don't use the notebook for about 90 minutes, it shuts down completely. So it's not something that you have sort of ownership of. You are borrowing it from Google.

So we're going to learn how to save your work next week, so don't worry about that for now. But just remember that Google Colab Notebooks disappear after a little bit of time.

OK. So for all of these videos, I really recommend that you watch me do it in the video first, and then go back and play the video again while you try it yourself. So see what you're going to do first, and then go try it yourself. Alright. Let's get started.

So the virtual computer we're going to use is on Google. It's actually on Google Colab, and it's Colab.Research.Google.com is where we're going. We're going to load in the notebooks for each lesson right here, and we're going to load it in from the Quartz GitHub repository. So start here, switch over to the GitHub tab, and type in "Quartz," and hit enter. You'll see Quartz AI Studio Workshops. That's the one you want. And for this lesson right here, it's AA using Google Collab. And so now we are actually running a computer in the Google cloud and we need it to be a little bit more powerful than the one that they give you right off the bat. We need to turn on the GP you, which is the graphics processing unit. And we do that by clicking on this runtime menu and going to change runtime type. And we switch this to GP, you know, we're almost always going to do this when we start our notebooks and here's some instructions just in case you forget. And the way that we are going to use this notebook is that there's some parts of this where there's some words and some explanation. I'm always trying to be as clear as possible so you can read along. But then there are also some of these cells have code in them. And if you hover over this little spot right here, you'll see there's a little play button. What I want to do is hit play. Now, the first time you hit play in a notebook, it gives you this little warning and we're going to say, that's OK. Run anyway. And then it plays the code inside the notebook. That's what's going to be kind of neat about this class, is that you don't have to actually write any code. You get to see the code I write. I've already written and and play it and run it. Each one, each cell individually. So since we are using Google collab, we run that. So we skip this one. This code could be used in another platform, but we're using chrome laboratory collab. So we'll stay there. Everybody runs this cell. So run that. And in every notebook in this in the series, I usually write out a plan and talk about the data we're gonna be using. I'll give credit to anybody who who's code or resources I've been using. And then there'll be code. And I just want to give you an example of this. So, again, we can play all of these

cells. So this is Python code. Very simple. I can actually hit play here and I say a variable A equals 10.

And then I can just print A and I get 10. Then I can say A equals a plus five. So A equals 10 plus five. And that should be 15.

And what's interesting here is that it will remember the state of a the value of a all along.

So if I actually run this again. So now A equals 15 plus five. So now if I print again, it's 20 and I can actually go back and run earlier cells like that one and then I can print again. And it's back to 10 because I ran this cell, which set a equal to 10. Also, if you ever want to add cells of code or text, you can hover over here and just add them. And a lot of times you'll see I'll just write a variable name in this case. A I don't even have to say print a I can just say a. And it'll say, oh, that's 10. Just say no. So that's really all you need to know right now about using Google Chrome lab notebooks. All of the code will be here for you along the way.

So online services often change their user interface or the steps to go through to do something like this with Google code lab notebooks. So if that happens between the time I make this video and the time you watch this video, I'll update the steps at this bitterly link. So bitterly flash a dash workshops. So the latest steps will always be there. So if it's not matching up with what you're seeing here in this video, go check out that link and that'll have the latest updates. Now that you've seen how to use Google collab, notebooks will load in some code and use an open source machine learning model to identify the contents of images inside a folder. And that could be super useful.