Go to https://playground.tensorflow.org/.

1. Learn about all the toggles you have! Understand the visualizations. Explore! Have fun! Some useful definitions:
    1. Batch: The number of training observations we use at each step to update the model (usually we use a subset of the data at any one point)
    2. Epoch: The number of times we have iterated over *all* the training data
    3. Learning rate: How much we change the model parameters at each batch.
    4. Noise: How much additional noise is inserted
2. Let's start with the classification dataset with the concentric circles.
    1. If you were to fit a linear model for this data, which of the given features would you use? Now figure out how to fit a linear/logistic model using the toggles and test it.
    2. Now let's build a "deep" neural network to do the same task. Try adding lots of features, layers, and hidden nodes.
    3. Compare differences between fitting the linear model and the deep learning model. For example, how many epochs do you need for their test losses to converge, and how much do their test losses differ?
    4. How do the fitted neural networks differ when you use different activation functions?
    5. What happens when you don't have a lot of data and the data is very noisy? Compare what happens when you fit linear/logistic models vs. neural networks.
        1. Try adding L1 or L2 regularization to improve the neural network and vary with the regularization rates. Does it improve the test loss? For L1 regularization, which features does the model select?
    6. Play around with the other toggles and learn how they change things.
3. Play around with the other classification examples. Play around with regression as well. Try to get a sense of what types of network architectures you should use in different settings.