Questionnaire answers

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1. Do you need these for deep learning?
   - Lots of math T / F
   - Lots of data T / F
   - Lots of expensive computers T / F
   - A PhD T / F

   Answer : nope you don't need any of these for machine learning

2. Name five areas where deep learning is now the best in the world.
   Answer: 1. Robotics, 2. computer vision , 3. self driving cars, 4, image recog , 5. stocks prediction

3. What was the name of the first device that was based on the principle of the artificial neuron?
   Answer: mark 1 Perceptron

4. Based on the book of the same name, what are the requirements for parallel distributed processing (PDP)?
   Answer : so the human brain doesn't perform actions sequentially it performs in parallel that in turn results in great actions / solutions

5. What were the two theoretical misunderstandings that held back the field of neural networks?
   Answer : in the book which was published first since they are using just one neuron which is not having that much capability that's why it didn't get the recog which It should have if they've used multiple neurons over there GPU's was not developed that's why the neural networks were so slow

6. What is a GPU?
   Answer : GPU's are the Graphical processing Units which does the graphical and mathematical problems with great ease

7. Open a notebook and execute a cell containing: `1+1`. What happens?
   Answer : returns output as 2

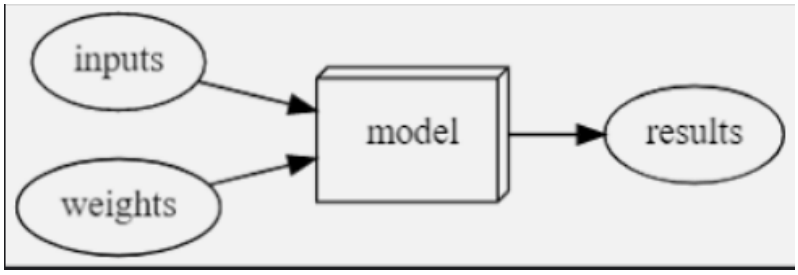
8. Follow through each cell of the stripped version of the notebook for this chapter. Before executing each cell, guess what will happen.
   Answer: executes the cells sequntially and gives us outputs

9. Complete the Jupyter Notebook online appendix.
   Answer : Completed on the repo already

10. Why is it hard to use a traditional computer program to recognize images in a photo?
    Answer: cause we can't just tell computer this are the mountains this are the dog's legs etc we don't know how to properly tell them because of that problem neural networks are getting into a field

11. What did Samuel mean by "weight assignment"?
    Answer: you can create the function for any problem and then assign some proper weights to it in turn it gives good outputs to every problem which we will try to solve with that function

12. What term do we normally use in deep learning for what Samuel called "weights"?
Answer: learnable parameters they are the values which are being learned by neural networks

13. Draw a picture that summarizes Samuel's view of a machine learning model.
Answer:


14. Why is it hard to understand why a deep learning model makes a particular prediction?
Answer : Because it's in layers and we can have multidimensional data so that it can be really hard to debug what model is debugging and there can be millions of neuons which can be doing computation inside one model

15. What is the name of the theorem that shows that a neural network can solve any mathematical problem to any level of accuracy?
Answer: Universal Approximation Theorem

16. What do you need in order to train a model?
Answer: In order to train the model you have to define the model first after that you can have to compile and for that you need the data which is already predefined with the labels

17. How could a feedback loop impact the rollout of a predictive policing model?
Answer : It tells the model where it's performing wrong in turn it's giving out the rewards which can be positive or negative in turn leads the model to have good results

18. Do we always have to use 224×224-pixel images with the cat recognition model?
Answer: it's good size cause it's divisible by 8 and GPU can do the calculations much faster if it's not 224,224 shape then we may have a batch which will contain some incomplete data
and again the pixels are normalized then it got better for model to predict on new images by scaling it to same scale cause we need to have uniform size of images for learning more patterns

19. What is the difference between classification and regression?
Answer: classification : where we have to determine that image / something has in this class or some other class
regression : when we want to predict some value such as the stock prices or something in regression will be house prices prediction (predicting actual value)

20. What is a validation set? What is a test set? Why do we need them?
Answer: validation set is the set of the data on which the model evaluates itself how it's learning
test set is the unseen data on which we have to do some prediction having

the test and validation sets makes the model to be more normalized

21. What will fastai do if you don't provide a validation set?
    Answer : the model will be training on the more training data but since it doesn’t have the validation data we can ignore the accuracy matrix but having the validation data is good cause it'll help us to determine the accuracy of the model

Thank you !