Questionnaire answers lesson 2

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1. Where do text models currently have a major deficiency?

Answer: deep learning models are good in replicating the author styles even sometimes makes human confusing but the model generated text can't be compelled that it'll be always right so that at that point the model can't work

2. What are possible negative societal implications of text generation models?

Answer: there are many posts on the social media which are the highly toxic if the model get's learning from that dataset it may create something which is at that level of the toxicity

3. In situations where a model might make mistakes, and those mistakes could be harmful, what is a good alternative to automating a process?

Answer: when there are the fixed outcomes such and you know there are things that it can be dealt with the simple automation process instead of using deep learning cause the deep learning can't give us the 100% accuracy on every task it can perform so if the modules are fixed then it can be generated with the alternate automating process

4. What kind of tabular data is deep learning particularly good at?

Answer: textual , image data (computer vision) , Natural language processing (translation and text generation) , sound prediction (sound to text) , GAN's generating the drawings of the various artist style .

5. What's a key downside of directly using a deep learning model for recommendation systems?

Answer: cause the model is showing recommendation of the particular author not allowing user to explore the another set of books available

6. What are the steps of the Drivetrain Approach?

Answer:

1. **Define Objectives**: What outcome am I trying to achieve?
2. **Levers**: What inputs can we control?
3. **Data**: What data can we collect?
4. **Models**: How do the levers influence the objectives?

7. How do the steps of the Drivetrain Approach map to a recommendation system?

Answer: we want to have the recommendation system which is based on the writer the thing which he writes and the category user prefer to read ,

the inputs which we can control are the author name (one hot encoded) , category , and the books available

the data which we can collect on the runtime is the readers mood to read (what category , his shopping history etc)

it will highly influence the model cause these are the parameters on which the model is gonna predict what recommendation it should give to user

8. Create an image recognition model using data you curate, and deploy it on the web.

Answer: already done check out the streamlit food vision repo

going to try this binder jupyter to the web model converter in some time

9. What is DataLoaders ?

Answer: the dataloaders is the api from fast ai library to load the data inputs into model

10. What four things do we need to tell fastai to create DataLoaders ?

Answer: where the data is , what type of the data is , what are the lables, batch size etc , data augmentation which you want to perform on the data

11. What does the splitter parameter to DataBlock do?

Answer: splitter splits the data into training and the validation dataset

12. How do we ensure a random split always gives the same validation set?

Answer: we do val_pct = % of the validation data we want

13. What letters are often used to signify the independent and dependent variables?

Answer: while loading the data into the datablocks we define the blocks on which the first one is the independent variable and the other one is the independent variable as in DataBlock(blocks = (ImageBlock, CategoryBlock) , we use the get_y for getting the datalabels from the Image block we can give the parentlabel paramter which will take the image folders name which it's stored in as the label

14. What's the difference between the crop, pad, and squish resize approaches? When

might you choose one over the others?

Answer: crop does the cropping of the data on the size which we've provided

pad : paddinng gets added zero on the image data

Squish tries to squish the whole image in the same size which we want

15. What is data augmentation? Why is it needed?

Answer:

data augmentation is to make the data more variate if we did this the model get learns the patterns more widely

the data augmentation includes the resize, reshape, rotate, crop, etch

the data augmentation creates the data on every batch so that the batch will get the randomdata augmentation

16. Provide an example of where the bear classification model might work poorly in

production, due to structural or style differences in the training data.

Answer: when there are the images or the videos where our model is getting longer time to predict and where the bears in real life are tends to be hidden in bushes or something similar type of hiding ways it's become hard for model to detect that there is bear or not

17. What is the difference between item_tfms and batch_tfms ?

Answer: the item transformation is limited to particular items whereas the batch transformation are done for all the images in the batches

18. What is a confusion matrix?

Answer: it's the measure of the model correct vs wrong prediction plotted using interp.plot_confusion_matrix

where interp = ClassificationInterpretation.from_learner(learn)

Interp.plot_confusion_matrix()

Interp.plot_top_losses()

19. What does export save?

Answer: learner.export saves the pbl format file of the model

20. What is it called when we use a model for making predictions, instead of training?

Answer: predicting phase

We do the model predictions using learner.get_preds()

While doing this we might want to load the test data previously using the anotehr test dataloader

It can be done like this

Learner.dls.test_data(paths of the files)

21. What are IPython widgets?

Answer: they are the gui componnents by which we can convert the jupyter notebook into the web application

22. When would you use a CPU for deployment? When might a GPU be better?

Answer: when there are just 1 image on which you want to do the prediction and the gpu is not available on the user env or machine the gpu might be better if we want to do do the predictions on the data which is high in volume or it'll take much time to do it on the CPU

23. What are the downsides of deploying your app to a server, instead of to a client

(or edge) device such as a phone or PC?

Answer: the app will wait for the server to make the predictions wasting big time of the user who wants to do the predictions

24. What are three examples of problems that could occur when rolling out a bear

warning system in practice?

Answer: bears hide in the nature and the real world data may not be real good it can be blurry low pixels and we might not get the image shape on which we have our model trained

Getting the real time video data is hard task

25. What is out-of-domain data?

Answer: the real world data which is not related to the model on which it's trained on is the out of domain data

26. What is domain shift?

Answer: the type of the data which the model predict on changes over the time such as the prediction of the insurance price of the user may be too low or too high cause the salaries etc values of money get's increase or decrease over the time

27. What are the three steps in the deployment process?

Answer:

Get the jupyter notebbok

Save your model

use the ipython widget to get the image from user

Show the image which you have taken input on

Make prediction by loading the model

Display the prediction

use binder to deploy the model
or use voah to deploy it
experimented with streamlit works great