Deep Learning Exam Questions

[Time: 5 hrs]

[Total Marks: 100]

Attempt any one case study.

Part I: ANN [Total Marks - 50]

A famous 30 year old pizza brand which has outlets in more than 90 countries started home delivery services a couple of years ago and the business has grown much faster than expected. However, outlet vendors are very much disappointed with few customers for their cheating activities. This is because vendors, shockingly, came to know that few customers after receiving the delivery are raising tickets for refund in the name of burnt pizzas. Even though customers received a good pizza but still few customers are trying to cheat vendors. To overcome this issue, Franchise has come up with an idea to integrate a pizza detection model in their application where customers can upload images for the burnt pizzas delivered. For example, if I have received a burnt pizza then I can upload a couple of images of the pizza to the application and it will classify the pizza as burnt or good in order to process my refund ticket.

Goal: You are hired as Deep Learning Engineer by a famous pizza franchise. You are asked to build a model where it accepts the images of pizza and detects as burnt pizza or good pizza.

Constraints: You should be using only ANN and shouldn't be using CNN or any other rule based model to generate results.

Data Description: Data is in the form of images collected from multiple sources of the internet.

Provided Files:
Train set: Train set is divided into burnt pizza and good pizza categories. While training the model you can label images of good pizza as 1 and burnt pizza as 0.
Test: Test set contains mixed images of both burnt pizzas and good pizzas.

Instructions:
1. Train set should be used to feed the model.
2. Test set should be used to predict labels for test data.

Evaluation Criteria: The evaluation metric for this problem statement is the Accuracy score where each image label is matched with the actual image label.

OR

Part II: CNN [Total Marks - 50]

E-commerce has rapidly grown and their business strategies are completely based on user actions and user experiences. Although it is completely based on users, we should also not forget to say that there is a technology bridge in between users and growth in business. It may be Machine Learning or Deep Learning. Companies apply many image classification techniques on data to improve their catalog and give best suggestions to the users. They need accurate product classification on their platforms for better user experience. But when you talk about products, there exists a huge variety and classifying within varieties is really challenging. As a Deep Learning engineer, you should always try cracking these kinds of challenges by classifying things within a product itself.

Goal: Given the images of a product with multiple categories, train a model which can classify the type of a product.

Data Description: Data is all about images of shoes with multiple categories and data is collected from a popular Ecommerce site. Data set consists of two folders train and test.

Provided Files:
Train: train set consists of images belonging to 3 different categories of shoes in 3 different folders: Boots, Sandals and Slippers.
Test: test set consists of images belonging to all 3 categories of shoes into a single folder.

Instructions:
1. Train set should be used to feed the model.
2. Test set should be used to predict labels for test data.

Evaluation Criteria: The evaluation metric for this problem statement is the Accuracy score where each shoe category is matched with the actual shoe label.