**ASSINGMENT 8**

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**Use Case Description:**

**LeNet5, AlexNet, Vgg16, Vgg19**

**1. Training the model**

**2. Evaluating the model**

**Programming elements:**

**1. About CNN**

**2. Hyperparameters of CNN**

**3. Image classification with CNN**

**In class programming:**

**1. Tune hyperparameter and make necessary addition to the baseline model to improve validation accuracy and reduce validation loss.**

**2. Provide logical description of which steps lead to improved response and what was its impact on architecture behavior.**

**3. Create at least two more visualizations using matplotlib (Other than provided in the source file)**

**4. Use dataset of your own choice and implement baseline models provided.**

**5. Apply modified architecture to your own selected dataset and train it. 6. Evaluate your model on testing set.**

**7. Save the improved model and use it for prediction on testing data**

**8. Provide plot of confusion matric**

**9. Provide Training and testing Loss and accuracy plots in one plot using subplot command and history object.**

**10. Provide at least two more visualizations reflecting your solution.**

**11. Provide logical description of which steps lead to improved response for new dataset when compared with baseline model and enhance architecture and what was its impact on architecture behavior.**

**Screenshots of the output:**

**Graphical user interface, text, application, email

Description automatically generated**

**Graphical user interface, text, application, email

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**Graphical user interface, text, table

Description automatically generated with medium confidence**

**Graphical user interface, application

Description automatically generated**

**Graphical user interface, table

Description automatically generatedText

Description automatically generated with medium confidence**

**Graphical user interface

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**Graphical user interface, application

Description automatically generated**

**A picture containing table

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**Graphical user interface, text, application

Description automatically generated**

**A picture containing calendar

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**Graphical user interface, text, application, email

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**Graphical user interface

Description automatically generated with medium confidence**

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**Description:** In this use case, I have Tuned hyperparameter and made

necessary addition to the baseline model in order to improve validation accuracy and reduce validation loss.

and provided logical description of steps that lead to improved response and its impact on architecture behavior and also, Created two more visualizations using matplotlib.

Used dataset and implemented baseline models. Applied modified architecture dataset and trained it. Evaluated model on testing set. Saved the improved model and used it for prediction on testing data

then Provided plot of confusion matric, after that, Provided Training and testing Loss and accuracy plots in one plot using subplot command and history object.

Provided two more visualizations reflecting solution. These steps lead to improved response for new dataset when compared with baseline model and enhanced architecture.

**Video Link:** **https://drive.google.com/file/d/1fr6ir0Ie\_hqJj4JSa3As066ZNrVj5rzS/view?usp=sharing**

**GitHub Link:** https://github.com/VarnaNemulla/Assignment8