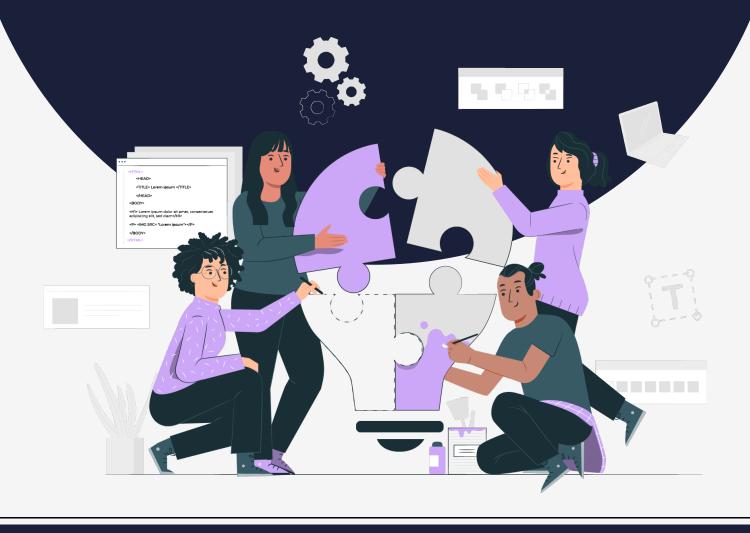
CNN Architecture

Assignment Questions





Assignment



TOPIC: Understanding Pooling and Padding in CNN

- 1. Describe the purpose and benefits of pooling in CNN.
- 2. Explain the difference between min pooling and max pooling.
- 3. Discuss the concept of padding in CNN and its significance.
- 4. Compare and contrast zero-padding and valid-padding in terms of their effects on the output feature map size.

TOPIC: Exploring LeNet

- 1. Provide a brief overview of LeNet-5 architecture.
- 2. Describe the key components of LeNet-5 and their respective purposes.
- 3. Discuss the advantages and limitations of LeNet-5 in the context of image classification tasks.
- 4. Implement LeNet-5 using a deep learning framework of your choice (e.g., TensorFlow, PyTorch) and train it on a publicly available dataset (e.g., MNIST). Evaluate its performance and provide insights.

TOPIC: Analyzing AlexNet

- 1. Present an overview of the AlexNet architecture.
- 2. Explain the architectural innovations introduced in AlexNet that contributed to its breakthrough performance.
- 3. Discuss the role of convolutional layers, pooling layers, and fully connected layers in AlexNet.
- 4. Implement AlexNet using a deep learning framework of your choice and evaluate its performance on a dataset of your choice.

Submission Guidelines:

- Answer all the questions in a single Jupyter Notebook file (.ipynb).
- Include necessary code, comments, and explanations to support your answers and implementation.
- Ensure the notebook runs without errors and is well-organized.
- Create a GitHub repository to host your assignment files.
- Rename the Jupyter Notebook file using the format "date_month_topic.ipynb" (e.g., "12_July_CNN_Bascics.ipynb").
- Place the Jupyter Notebook file in the repository.
- Commit and push any additional files or resources required to run your code (if applicable) to the repository.
- Ensure the repository is publicly accessible.
- Submit the link to your GitHub repository as the assignment submission.



Grading Criteria:

- 1. Understanding and completeness of answers: 40%
- 2. Clarity and depth of explanations: 25%
- 3. Correct implementation and evaluation of optimizer techniques: 15%
- 4. Analysis and comparison of different optimizers: 10%
- 5. Proper code implementation and organization: 10%

Note: Create your assignment in Jupyter notebook and upload it to GitHub & share that uploaded assignment file link through your dashboard. Make sure the repository is public.

