***DEEP LEARNING FOR COMPUTER VISION***

**Report**

**Model Architecture:** The CNN model consists of three convolutional layers with increasing filter sizes (32, 64, 128), each followed by batch normalization, max pooling, and dropout layers. The model ends with a fully connected layer with 128 neurons, followed by a dropout layer and an output layer with 10 neurons for classification.

**Techniques Used:**

* **Batch Normalization:** Applied after each convolutional layer to stabilize and speed up training.
* **Dropout:** Used after each max-pooling layer and the dense layer to prevent overfitting.
* **Data Augmentation:** Applied various transformations like rotation, width/height shift, shear, zoom, and horizontal flip to increase the diversity of training data.

**Results:** The model showed improvement in training and validation accuracy with the application of batch normalization, dropout, and data augmentation. The plots of accuracy and loss over epochs indicate reduced overfitting and better generalization.

**Impact of Techniques:** Batch normalization improved training stability and convergence speed. Dropout reduced overfitting by randomly omitting neurons during training. Data augmentation increased the training data's diversity, leading to better generalization to unseen data.