Major Project

- **Project Name:**

Artificial Intelligence July Major Project

- **Project Description:**

Problem statement: Create a Deep learning model to predict the different CIFAR10 images.
The CIFAR-10 data consists of 60,000 32x32 color images in 10 classes, with 6000 images per class. There are 50,000 training images and 10,000 test images in the official data. We have preserved the train/test split from the original dataset. It was collected by Alex Krizhevsky, Vinod Nair, and Geoffrey Hinton.
The classes are completely mutually exclusive. There is no overlap between automobiles and trucks. "Automobile" includes sedans, SUVs, things of that sort. "Truck" includes only big trucks. Neither includes pickup trucks.
Dataset – Dataset can be imported from tensorflow as follows
from tensorflow.keras.datasets import cifar10
(x_train, x_test),(y_train,y_test) = cifar10.load_data()
Details of datasets:
Image size: 32*32*3
Color space: Colored
Number of classes: 10
Each training and test example is assigned to one of the following labels:

- airplane
- automobile
- bird
- cat
- deer
- dog
- frog
- horse
- ship
- truck

Steps to consider:

1. Normalize images by dividing pixels by 255 (if required)
2. Convert labels to categories (if required)
3. Reshape images so as to fit them to convolution
4. Build a CNN Architecture
5. Execute the model for appropriate number of epochs
6. Depict loss vs. val_loss on line chart.
7. Depict accuracy vs. val_accuracy on line chart.
8. Generate predictions on test_data.
9. Compute Confusion matrix and classification report.