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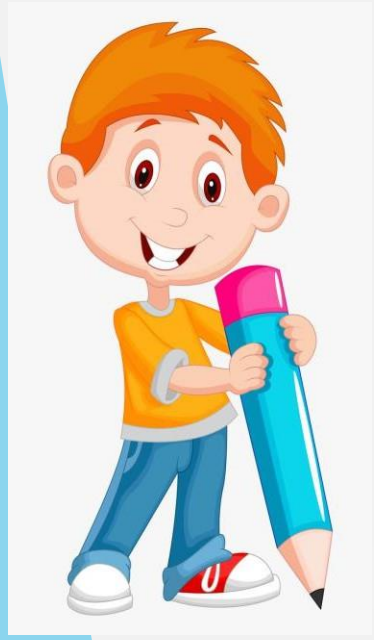
# Final Project

# PROJECT TITLE

HANDWRITTEN RECOGNITION USING CIFAR-10 DATASET

# AGENDA

1. Problem statement
2. Project overview
3. Who are the end users?
4. Solutions and its prepositions
5. The wow in your solutions
6. Modelling
7. Results



# PROBLEM STATEMENT

The problem is to reconstruct images from the CIFAR-10 dataset using an autoencoder, which is a type of neural network capable of learning efficient representations of data.

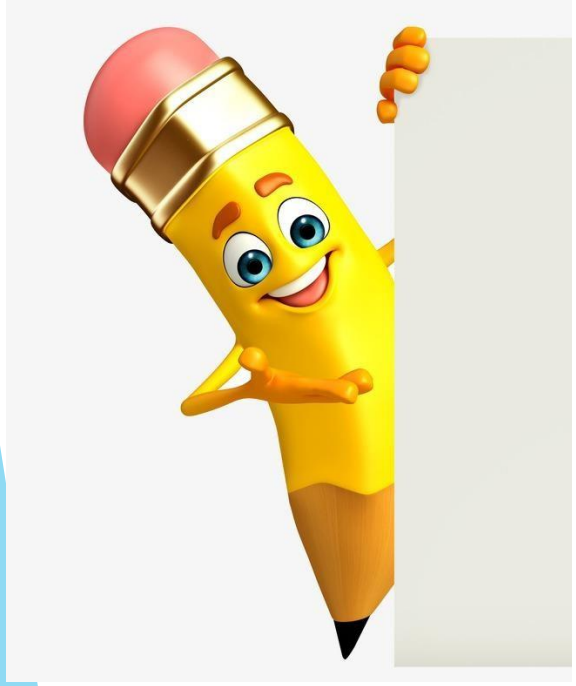
# PROJECT OVERVIEW

The project involves loading the CIFAR-10 dataset, preprocessing the images, building an autoencoder neural network architecture, training the model to reconstruct images, and evaluating the performance of the autoencoder.

# WHO ARE THE END USERS?

The end users of this project could be researchers, developers, or anyone interested in image processing and neural networks.

# YOUR SOLUTION AND ITS VALUE PROPOSITION

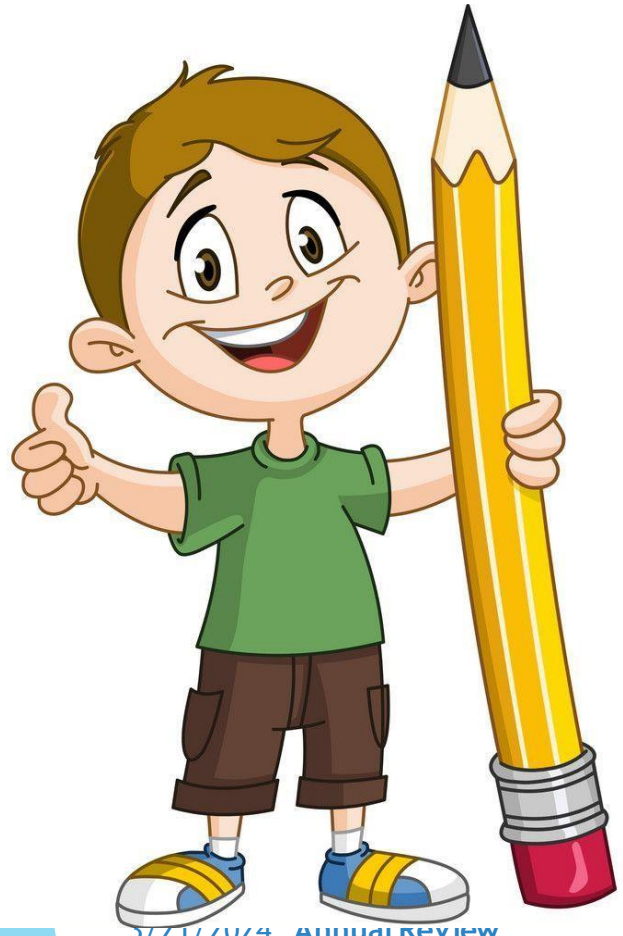


•The solution involves using an autoencoder neural network to learn a compressed representation of the input images and then reconstruct them.

•Value propositions include:

- Efficient compression and reconstruction of image data.
- Potential applications in image denoising, dimensionality reduction, and feature extraction

# THE WOW IN YOUR SOLUTION



The "wow" factor in this solution lies in the ability of the autoencoder to effectively learn and reconstruct complex visual patterns from the CIFAR-10 dataset.

# MODELLING

- The model architecture consists of multiple dense layers with LeakyReLU activation functions and batch normalization.
- It includes a bottleneck layer that learns a compressed representation of the input images.
- The autoencoder is trained using mean squared error (MSE) loss and the Adam optimizer.

# RESULTS

- During training, the autoencoder's loss is printed at regular intervals to monitor its performance.
- Additionally, reconstructed images are generated and saved periodically to visualize the quality of reconstruction over epochs.

Github link:

https://github.com/Roopadharshini/TNSDC-Generative-AI.git