**Smart Technology CA1**

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**Data:**

From cifar10 and cifar100, we filtered the dataset to have the needed dataset such as automobile, bird etc. After, we combined the two datasets together. We combined all the tree classes into one to have as a superclass.

Format: No. Class name – Class label (cifar label)

1. Automobile – 1
2. Bird – 2
3. Cat – 3
4. Deer – 4
5. Dog – 5
6. Horse – 7
7. Truck – 9
8. Baby – 12
9. Bicycle – 18
10. Boy – 21
11. Bus – 23
12. Cattle – 29
13. Fox – 44
14. Girl – 45
15. Lawn mower – 51
16. Man – 56
17. Motorcycle – 58
18. Pickup truck – 68
19. Rabbit – 75
20. Squirrel – 90
21. Tractor – 99
22. Train – 100
23. Woman – 108
24. Trees(superclass) – 111

**Pre-processing:**

For each data images, we added multiple techniques such as:

1. Grayscale: Reduces the dimensionality of the data by converting colour images to grayscale.
2. Blur: Reduces noise and high-frequency details in the image.
3. Resizing: Adjusts the size of the images to a standard or desired format.
4. Equalisation: Enhances the contrast of images by spreading out the intensity values.
5. Scale-down class data: Balances the class distribution by reducing the number of samples in over-represented classes.
6. Data scale: Brings pixel values to a common scale.

**Data Exploration:**