# PART ONE (OBJECT DETECTION)

THE DOMAIN

- Health sector

THE CHOSEN TASK

- Creating a dataset containing apples which can be used for object detection.

SIGNIFICANCE:

- the detection of apples and fruits in general would help in facilitating education.
    - By allowing interactive learning with the aid of the machine in which case it could be a personal computer, a mobile phone or an interactive robot.

STEPS INVOLVED

**I. <u>Data collection:</u>**

- We used beautiful soup and requests modules in python to extract a zip file containing a dataset from *Kaggle.*
- We extracted images for a sample using *opencv* library and the *os* module in python.

**II. <u>Preprocessing and feature engineering:</u>**

- We resized all the images and performed augmentation by rotating some of the images.
- We did not do normalization firsthand because the coloring of the images looked fairly balanced.

**III. <u>Labeling the data:</u>**

- We used manual annotation with *VVG* annotator as our annotation tool of choice.
- The challenge we faced was on the formatting of the images after annotation. we decided to save the annotated data as *JSON* files which can also be loaded into a machine.

CHALLENGES AND SOLUTIONS:

- In implementing augmentation by rotation, we initially had challenges with the loops whereby one image would be processed more than once. We backtracked the steps while the loop and fixed the issue in the loop.