DSAA Project Report

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Observations Used:

- The frames and slides can be coloured, therefore to ease the calculations rgb to gray conversion has been performed to reduce the calculations from 3 channels to 1 channel.
- The given frames are blurred and therefore matching directly is not a good approach. To solve this problem, a sobel filter (Edge detection filter) has been used which is independent of blur.

Procedure Used

1. Firstly all slides and frames are read from their supplied directories and stored in their lists.
2. All the slides are converted from rgb to gray (from 3 to 1 channel).
3. Sobel filter is used along both x and y direction for edge detection and later normalized with the normalization function:

$$x = \frac{(x - \mu)}{\sigma}$$

4. Similar procedure is followed for each frame, on which sobel step is significant since it helps to reduce the error introduced due to blurring and only stores the edges.
5. For each frame correlation is performed with each slide and the slide which gives maximum correlation with the frame is matched with it.

Performance on given dataset

Correct Mappings	:	782
Incorrect Mappings	:	43
Percentage Accuracy	:	94.7878 %