Project 2

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Question 1:

Write an OpenCV program that can detect a winking face. You may want to build your program by changing the example program DetectWink.py.

Explanation:

Created detect method using fame:

Boolean DetectWink (Frame, Location, ROI)

   Return True : if wink is detected

   Else False

Screenshots:

On old images: 19 detections, 7 non-detections.

One new Images: 19 detections, 15 non-detections.

```
E:\GitHub\computer-vision\Project2_asj170430>python DetectWink1.py newimages output_1_new
Total images:   34
Total of   19 detections
Total of   15 non_detection
```

```
E:\GitHub\computer-vision\Project2_asj170430>python DetectWink1.py oldimages output_1_old
Total images:   24
Total of   19 detections
Total of   7 non_detection
```

Question 2

The requirements for the second program are the same as the requirements for the _rst program, except that it must start by applying a _lter to the image. The _lter can be histogram equalization, smoothing, or anything else that you may consider to be useful.

Created a filter method to add filter using key.

```
def filter(frame, key):

  if key == 1:
     gray_frame = cv2.equalizeHist(gray_frame)
  elif key == 2:
     gray_frame = cv2.GaussianBlur(dummy_frame, (3, 3), 0)
  elif key == 3:
     gray_frame = cv2.equalizeHist(gray_frame)
     gray_frame = cv2.medianBlur(gray_frame, 5)
  return gray_frame
```

Results:

For old images: 20 detections, 8 non-detections

For new images: 22 detections. 12 non-detections

```
E:\GitHub\computer-vision\Project2_asj170430>python DetectWink2.py newimages output_2_new
Total images:  34
Total of  22 detections
Total of  12 non_detection
```

```
E:\GitHub\computer-vision\Project2_asj170430>python DetectWink2.py oldimages output_2_old
Total images:  24
Total of  20 detections
Total of  8 non_detection
```