

Mostafa Khaled Sayed Ali 2021460 G6 cs

```
import numpy as np
```

```
import cv2
```

```
from google.colab.patches import cv2_imshow
```

```
photo=cv2.imread('/content/WhatsApp Image 2023-04-12 at 14.16.20.jpg')
```

```
cv2_imshow(photo)
```

```
def avrage_3X3(old):
```

```
    image=cv2.copyMakeBorder(old,1,1,1,1,cv2.BORDER_REFLECT)
```

```
    templetm=np.ones([3,3])
```

```
    [row,col,chw]=np.shape(old)
```

```
    new_avg=np.zeros([row,col,chw])
```

```
    for ch in range(chw):
```

```
        for r in range(row):
```

```
            for c in range(col):
```

```
                new_avg[(r,c,ch)]=int((image[(r,c,ch)]*templetm[0][0]+image[(r+1,c,ch)]*templetm[1][0]+image[(r+2,c,ch)]*templetm[2][0]+image[(r,c+1,ch)]*templetm[0][1]+image[(r,c+2,ch)]*templetm[0][2]+image[(r+1,c+1,ch)]*templetm[1][1]+image[(r+1,c+2,ch)]*templetm[1][2]+image[(r+2,c+1,ch)]*templetm[2][1]+image[(r+2,c+2,ch)]*templetm[2][2])/9)
```

```
    new_avg=np.uint8(new_avg)
```

```
    return new_avg
```

```
X=avrage_3X3(photo)
```

```
cv2_imshow(X)
```

