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In [2]: #Name:Twinkal Bandwal  
#Task4 IMAGE TO PENCIL SKETCH
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```
In [3]: !pip install imageio
```

Requirement already satisfied: imageio in c:\programdata\anaconda3\lib\site-packages (2.9.0)

Requirement already satisfied: pillow in c:\programdata\anaconda3\lib\site-packages (from imageio) (8.2.0)

Requirement already satisfied: numpy in c:\programdata\anaconda3\lib\site-packages (from imageio) (1.20.1)

```
In [4]: %matplotlib inline  
import imageio  
import requests  
import matplotlib.pyplot as plt  
import IPython.display as dp
```

```
In [5]: img = 'https://i.pinimg.com/originals/3f/59/73/3f5973f80eaaddf353879b1cafc0b050.p  
dp.Image(requests.get(img).content)
```

Out[5]:

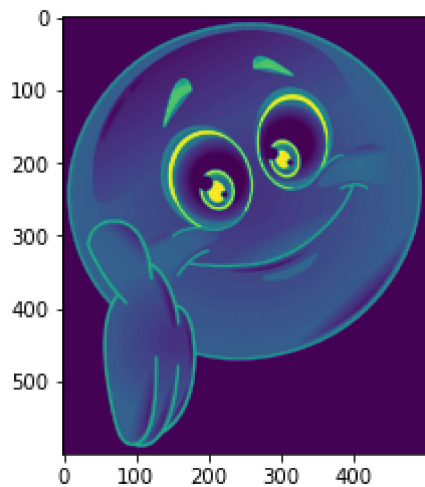


```
In [6]: source_img = imageio.imread(img)
```

```
In [7]: import numpy as np  
def grayscaleing(rgb):  
    return np.dot(rgb[...,:3],[0.299,0.587,0.114])  
grayscale_img = grayscaleing(source_img)
```

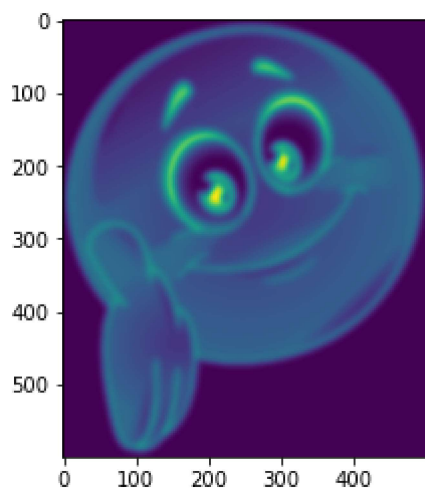
```
In [8]: inv_img = (255 - grayscale_img)
plt.imshow(inv_img)
```

Out[8]: <matplotlib.image.AxesImage at 0x236c1d778e0>



```
In [9]: import scipy.ndimage
blurred_img = scipy.ndimage.filters.gaussian_filter(inv_img, sigma=5)
plt.imshow(blurred_img)
```

Out[9]: <matplotlib.image.AxesImage at 0x236c3356130>



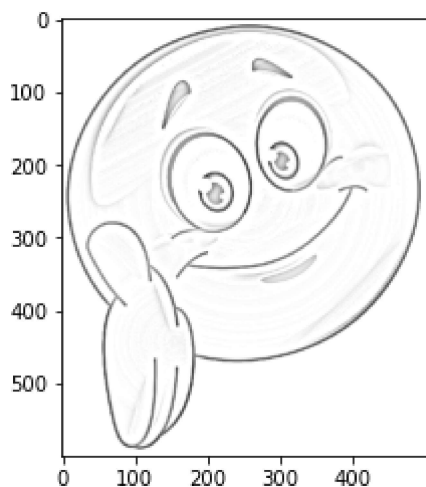
```
In [10]: def dodging(blur_img,grysc1_img):
          resultant_dodge=blur_img*255/(255-grysc1_img)
          resultant_dodge[resultant_dodge>255]=255
          resultant_dodge[grysc1_img==255]=255
          return resultant_dodge.astype('uint8')
```

```
In [11]: target_img= dodging(blurred_img, grysc1_img)
```

```
<ipython-input-10-60d986cb5308>:2: RuntimeWarning: divide by zero encountered in true_divide
      resultant_dodge=blur_img*255/(255-grysc1_img)
<ipython-input-10-60d986cb5308>:2: RuntimeWarning: invalid value encountered in true_divide
      resultant_dodge=blur_img*255/(255-grysc1_img)
```

```
In [12]: %matplotlib inline
          import matplotlib.pyplot as plt
          plt.imshow(target_img, cmap='gray')
```

```
Out[12]: <matplotlib.image.AxesImage at 0x236c360c730>
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In [ ]:
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In [ ]:
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