In [1]:
```
import numpy as np
```

In [2]:
```
import matplotlib.pyplot as plt
```

In [3]:
```
from PIL import Image
```

In [4]:
```
EGA=Image.open(r'C:\Users\LENOVO\Desktop\EGA.jpg')
EGA
```

Out[4]:

In [5]:
```
type(EGA)
```

Out[5]:
```
PIL.JpegImagePlugin.JpegImageFile
```

In [6]:
```
EGA_arr=np.asarray(EGA)
EGA_arr
```

Out[6]:
```
array([[[154, 134, 110],
        [154, 134, 110],
        [154, 134, 110],
        ...,
        [144, 141, 124],
        [138, 135, 118],
        [131, 128, 111]],

       [[164, 144, 120],
        [164, 144, 120],
        [164, 144, 120],
        ...,
        [142, 139, 122],
        [135, 132, 115],
        [128, 125, 108]],

       [[179, 159, 134],
        [178, 158, 133],
        [178, 158, 133],
        ...,
        [137, 135, 114],
        [130, 128, 107],
        [123, 121, 100]],

       ...,

       [[252, 252, 252],
        [252, 252, 252],
        [252, 252, 252],
        ...,
        [251, 241, 250],
        [247, 240, 248],
        [243, 236, 244]],

       [[252, 251, 249],
        [252, 251, 249],
        [252, 251, 249],
        ...,
        [255, 252, 251],
        [254, 248, 248],
        [228, 222, 222]],

       [[252, 251, 249],
        [252, 251, 249],
        [252, 251, 249],
        ...,
        [255, 252, 251],
        [254, 248, 248],
        [228, 222, 222]]], dtype=uint8)
```

In [7]:
```
type(EGA_arr)
```

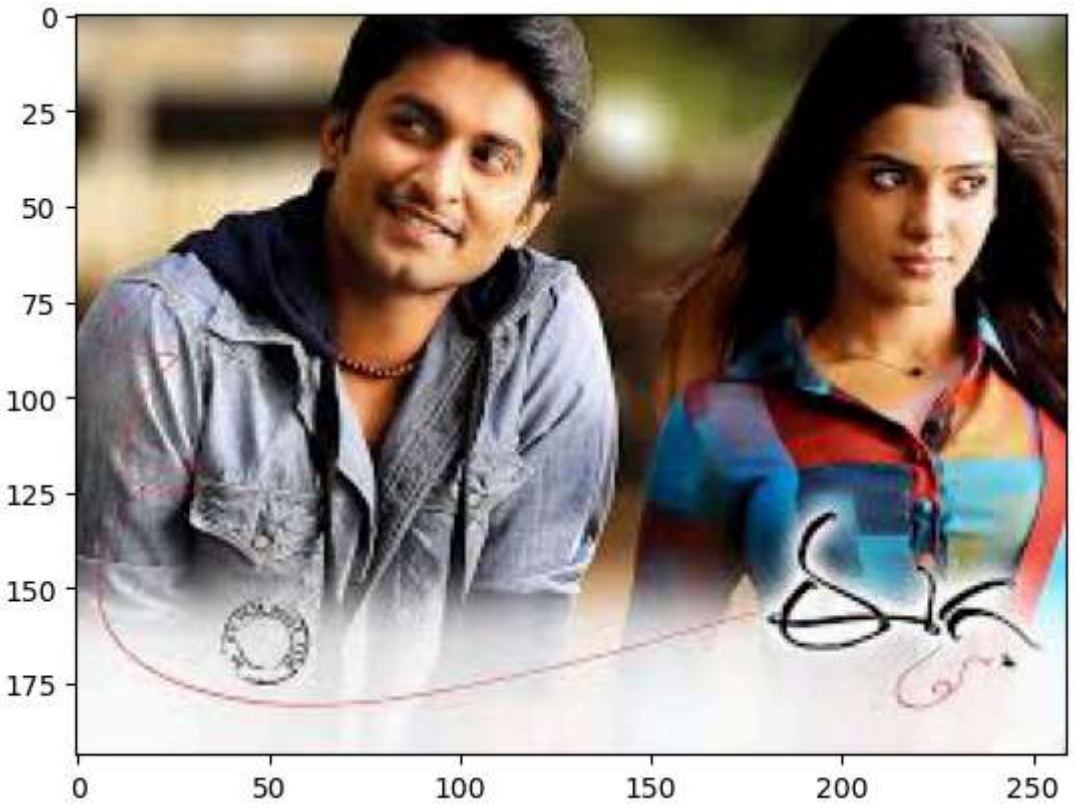
Out[7]:
```
numpy.ndarray
```

In [9]:
```
EGA_arr.shape
```

Out[9]: (194, 259, 3)

In [10]:
```
plt.imshow(EGA_arr)
```

Out[10]: <matplotlib.image.AxesImage at 0x2578e4a2fc0>



In [11]:
```
EGA_red=EGA_arr.copy()
```

In [12]:
```
EGA_red
```

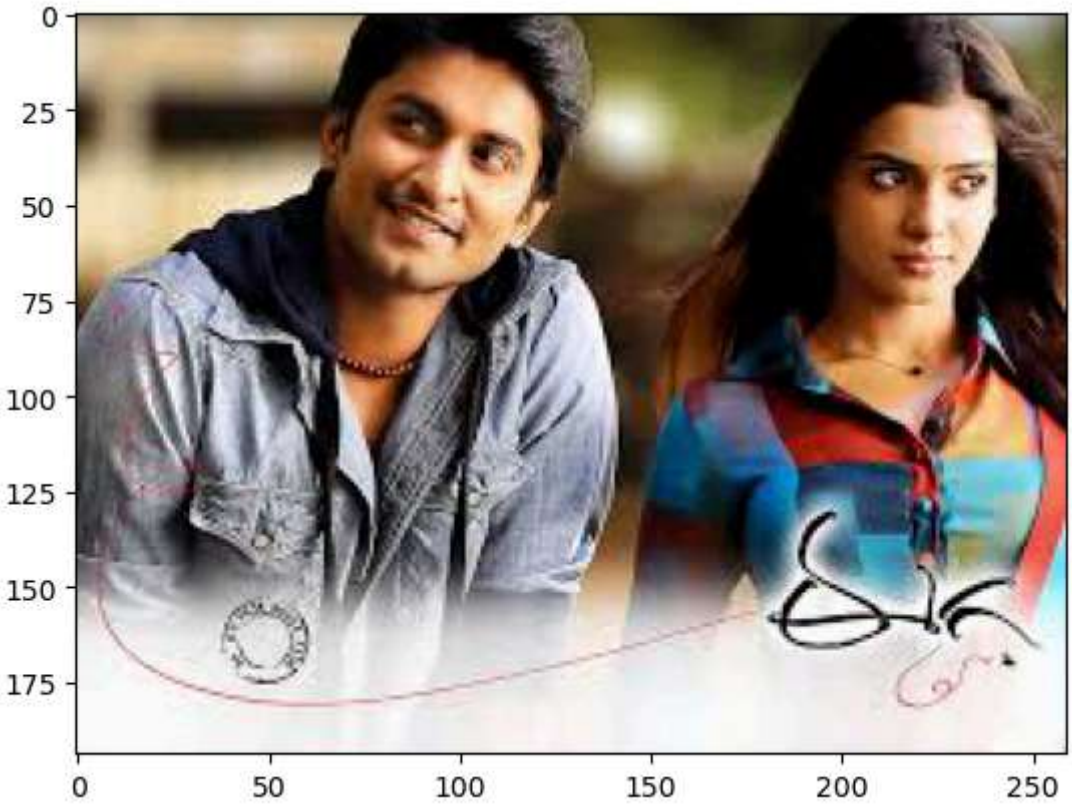
Out[12]:
```
array([[[154, 134, 110],
        [154, 134, 110],
        [154, 134, 110],
        ...,
        [144, 141, 124],
        [138, 135, 118],
        [131, 128, 111]],

       [[164, 144, 120],
        [164, 144, 120],
        [164, 144, 120],
        ...,
        [142, 139, 122],
        [135, 132, 115],
        [128, 125, 108]],

       [[179, 159, 134],
        [178, 158, 133],
        [178, 158, 133],
        ...,
        [137, 135, 114],
        [130, 128, 107],
        [123, 121, 100]],

       ...,

       [[252, 252, 252],
        [252, 252, 252],
        [252, 252, 252],
        ...,
        [251, 241, 250],
        [247, 240, 248],
        [243, 236, 244]],

       [[252, 251, 249],
        [252, 251, 249],
        [252, 251, 249],
        ...,
        [255, 252, 251],
        [254, 248, 248],
        [228, 222, 222]],

       [[252, 251, 249],
        [252, 251, 249],
        [252, 251, 249],
        ...,
        [255, 252, 251],
        [254, 248, 248],
        [228, 222, 222]]], dtype=uint8)
```

In [13]:
```
EGA_arr==EGA_red
```

Out[13]:
```
array([[[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]],

       [[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]],

       [[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]],

       ...,

       [[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]],

       [[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]],

       [[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]]])
```

In [14]:
```
plt.imshow(EGA_red)
```

Out[14]:
```
<matplotlib.image.AxesImage at 0x25790ce3140>
```

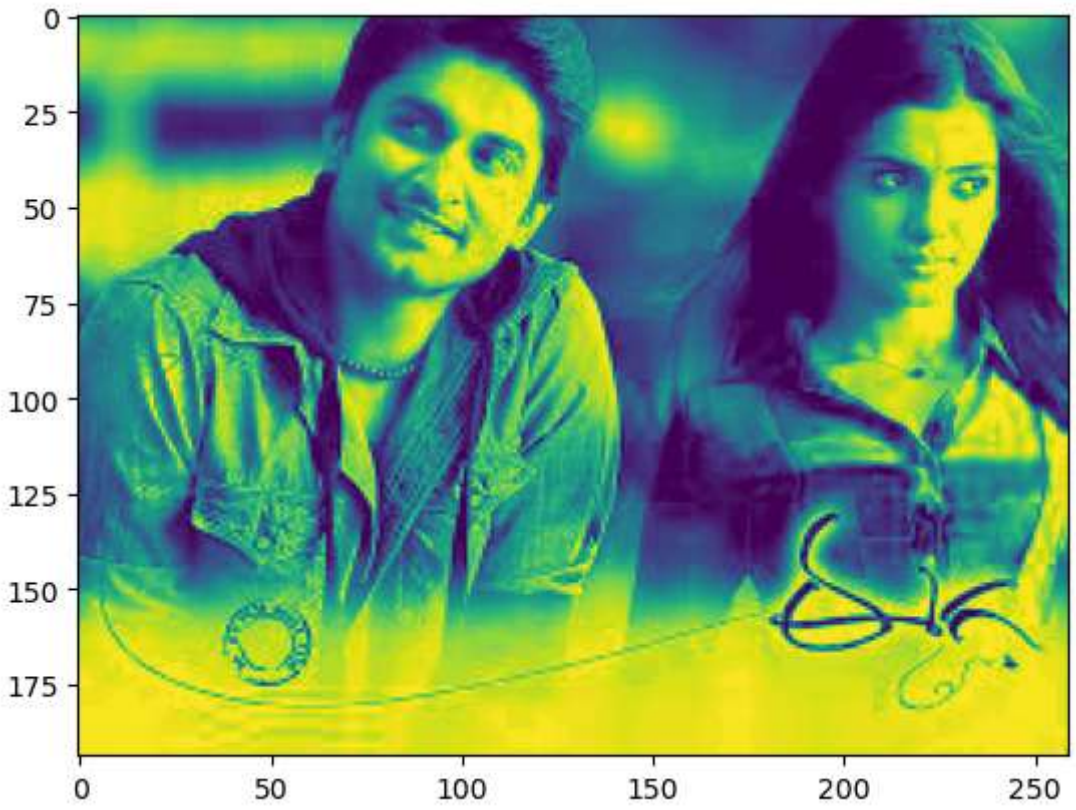


In [15]:
```
EGA_red.shape
```

Out[15]:
```
(194, 259, 3)
```

In [18]:
```
# R G B
plt.imshow(EGA_red[:,:,0])
```

Out[18]:
```
<matplotlib.image.AxesImage at 0x25790517cb0>
```

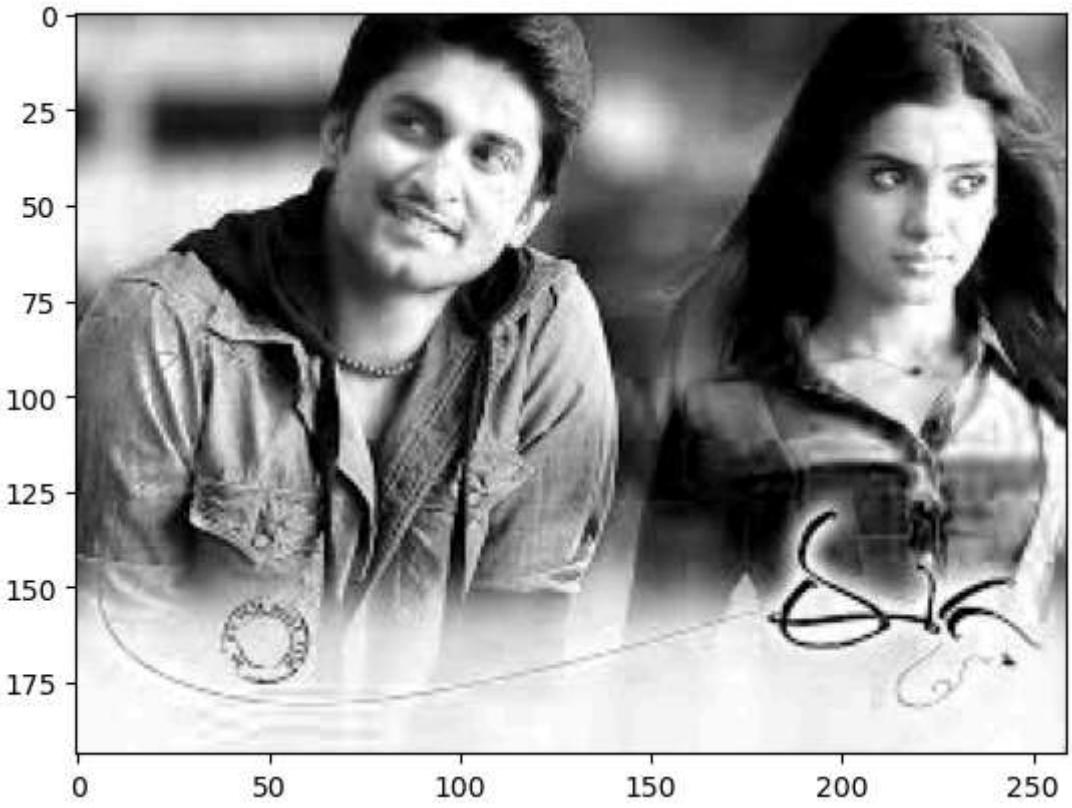


In [19]:
```
EGA_red[:,:,0]
```

Out[19]:
```
array([[154, 154, 154, ..., 144, 138, 131],
       [164, 164, 164, ..., 142, 135, 128],
       [179, 178, 178, ..., 137, 130, 123],
       ...,
       [252, 252, 252, ..., 251, 247, 243],
       [252, 252, 252, ..., 255, 254, 228],
       [252, 252, 252, ..., 255, 254, 228]], dtype=uint8)
```

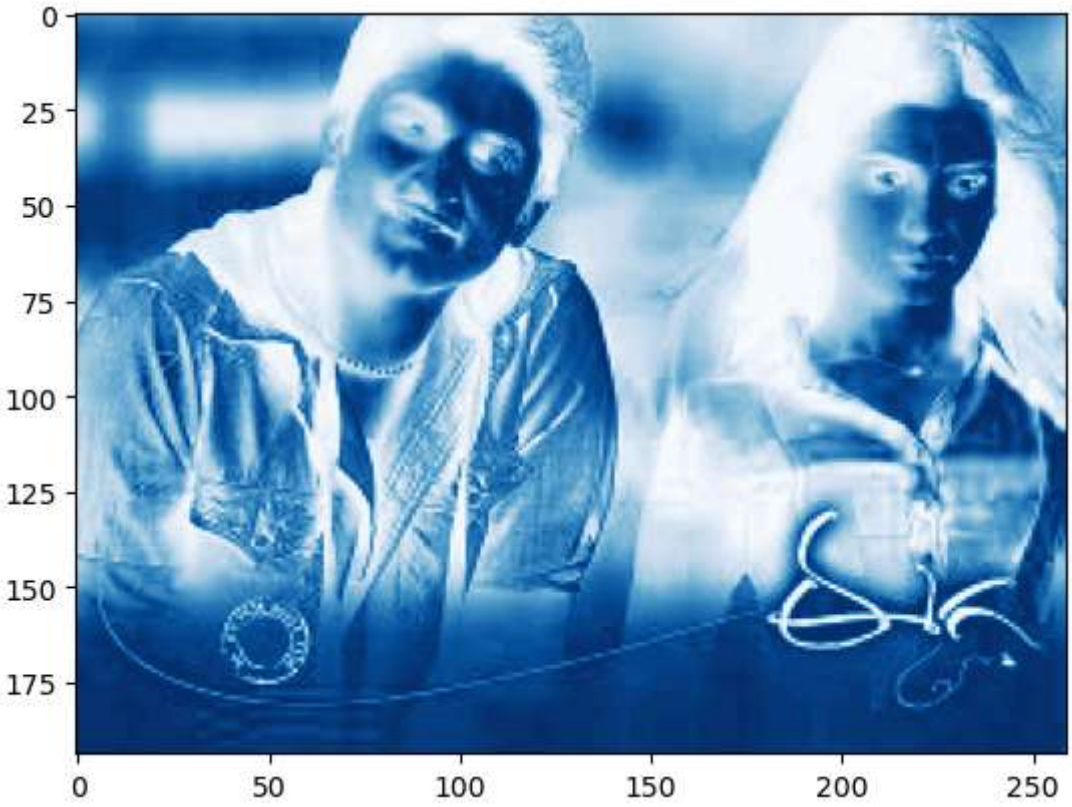
In [22]:
```
plt.imshow(EGA_red[:,:,0],cmap='gray')
```

Out[22]:
```
<matplotlib.image.AxesImage at 0x257955f3d40>
```



In [23]:
```
plt.imshow(EGA_red[:,:,0],cmap='Blues')
```

Out[23]: <matplotlib.image.AxesImage at 0x257955f1a00>



In [25]:
```
plt.imshow(EGA_red[:,:,0],cmap='Greys')
```

Out[25]: <matplotlib.image.AxesImage at 0x257957d4200>

In [27]:
```
plt.imshow(EGA_red[:,:,1],cmap='grey')
```

Out[27]: <matplotlib.image.AxesImage at 0x257957ec560>

In [28]:
```
EGA_red[:,:,0]
```

Out[28]:
```
array([[154, 154, 154, ..., 144, 138, 131],
       [164, 164, 164, ..., 142, 135, 128],
       [179, 178, 178, ..., 137, 130, 123],
       ...,
       [252, 252, 252, ..., 251, 247, 243],
       [252, 252, 252, ..., 255, 254, 228],
       [252, 252, 252, ..., 255, 254, 228]], dtype=uint8)
```

In [29]:
```
EGA_red[:,:,1]
```

Out[29]:
```
array([[134, 134, 134, ..., 141, 135, 128],
       [144, 144, 144, ..., 139, 132, 125],
       [159, 158, 158, ..., 135, 128, 121],
       ...,
       [252, 252, 252, ..., 241, 240, 236],
       [251, 251, 251, ..., 252, 248, 222],
       [251, 251, 251, ..., 252, 248, 222]], dtype=uint8)
```

In [30]:
```
EGA_red[:,:,2]
```

Out[30]:
```
array([[110, 110, 110, ..., 124, 118, 111],
       [120, 120, 120, ..., 122, 115, 108],
       [134, 133, 133, ..., 114, 107, 100],
       ...,
       [252, 252, 252, ..., 250, 248, 244],
       [249, 249, 249, ..., 251, 248, 222],
       [249, 249, 249, ..., 251, 248, 222]], dtype=uint8)
```

In [32]:
```
EGA_red[:,:,1]=0
```

In [33]:
```
EGA_red[:,:,1]
```

Out[33]:
```
array([[0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       ...,
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0]], dtype=uint8)
```

In [34]:
```
plt.imshow(EGA_red)
```

Out[34]:
```
<matplotlib.image.AxesImage at 0x257957d4680>
```

In [35]:
```
EGA_red[:,:,2]
```

Out[35]:
```
array([[110, 110, 110, ..., 124, 118, 111],
       [120, 120, 120, ..., 122, 115, 108],
       [134, 133, 133, ..., 114, 107, 100],
       ...,
       [252, 252, 252, ..., 250, 248, 244],
       [249, 249, 249, ..., 251, 248, 222],
       [249, 249, 249, ..., 251, 248, 222]], dtype=uint8)
```

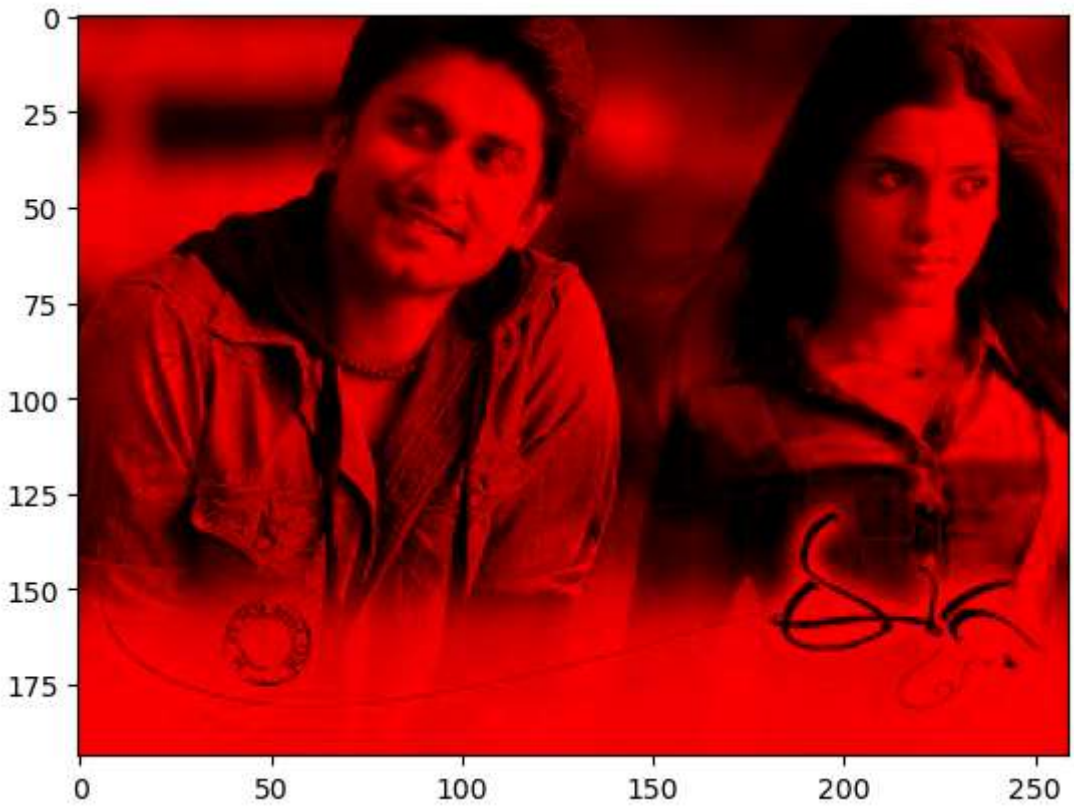
In [36]:
```
EGA_red[:,:,2]=0
```

In [37]:
```
EGA_red[:,:,2]
```

Out[37]:
```
array([[0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       ...,
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0]], dtype=uint8)
```

In [38]:
```
plt.imshow(EGA_red)
```

Out[38]:
```
<matplotlib.image.AxesImage at 0x25795a66e40>
```



In [39]:
```
EGA_arr
```

Out[39]:
```
array([[[154, 134, 110],
        [154, 134, 110],
        [154, 134, 110],
        ...,
        [144, 141, 124],
        [138, 135, 118],
        [131, 128, 111]],

       [[164, 144, 120],
        [164, 144, 120],
        [164, 144, 120],
        ...,
        [142, 139, 122],
        [135, 132, 115],
        [128, 125, 108]],

       [[179, 159, 134],
        [178, 158, 133],
        [178, 158, 133],
        ...,
        [137, 135, 114],
        [130, 128, 107],
        [123, 121, 100]],

       ...,

       [[252, 252, 252],
        [252, 252, 252],
        [252, 252, 252],
        ...,
        [251, 241, 250],
        [247, 240, 248],
        [243, 236, 244]],

       [[252, 251, 249],
        [252, 251, 249],
        [252, 251, 249],
        ...,
        [255, 252, 251],
        [254, 248, 248],
        [228, 222, 222]],

       [[252, 251, 249],
        [252, 251, 249],
        [252, 251, 249],
        ...,
        [255, 252, 251],
        [254, 248, 248],
        [228, 222, 222]]], dtype=uint8)
```

In [40]:
```
EGA_red
```

Out[40]:
```
array([[[154,   0,   0],
        [154,   0,   0],
        [154,   0,   0],
        ...,
        [144,   0,   0],
        [138,   0,   0],
        [131,   0,   0]],

       [[164,   0,   0],
        [164,   0,   0],
        [164,   0,   0],
        ...,
        [142,   0,   0],
        [135,   0,   0],
        [128,   0,   0]],

       [[179,   0,   0],
        [178,   0,   0],
        [178,   0,   0],
        ...,
        [137,   0,   0],
        [130,   0,   0],
        [123,   0,   0]],

       ...,

       [[252,   0,   0],
        [252,   0,   0],
        [252,   0,   0],
        ...,
        [251,   0,   0],
        [247,   0,   0],
        [243,   0,   0]],

       [[252,   0,   0],
        [252,   0,   0],
        [252,   0,   0],
        ...,
        [255,   0,   0],
        [254,   0,   0],
        [228,   0,   0]],

       [[252,   0,   0],
        [252,   0,   0],
        [252,   0,   0],
        ...,
        [255,   0,   0],
        [254,   0,   0],
        [228,   0,   0]]], dtype=uint8)
```

In [41]:
```
EGA_red
```

Out[41]:
```
array([[[154,   0,   0],
        [154,   0,   0],
        [154,   0,   0],
        ...,
        [144,   0,   0],
        [138,   0,   0],
        [131,   0,   0]],

       [[164,   0,   0],
        [164,   0,   0],
        [164,   0,   0],
        ...,
        [142,   0,   0],
        [135,   0,   0],
        [128,   0,   0]],

       [[179,   0,   0],
        [178,   0,   0],
        [178,   0,   0],
        ...,
        [137,   0,   0],
        [130,   0,   0],
        [123,   0,   0]],

       ...,

       [[252,   0,   0],
        [252,   0,   0],
        [252,   0,   0],
        ...,
        [251,   0,   0],
        [247,   0,   0],
        [243,   0,   0]],

       [[252,   0,   0],
        [252,   0,   0],
        [252,   0,   0],
        ...,
        [255,   0,   0],
        [254,   0,   0],
        [228,   0,   0]],

       [[252,   0,   0],
        [252,   0,   0],
        [252,   0,   0],
        ...,
        [255,   0,   0],
        [254,   0,   0],
        [228,   0,   0]]], dtype=uint8)
```

In [42]:
```
EGA_red
```

Out[42]:
```
array([[[154,   0,   0],
        [154,   0,   0],
        [154,   0,   0],
        ...,
        [144,   0,   0],
        [138,   0,   0],
        [131,   0,   0]],

       [[164,   0,   0],
        [164,   0,   0],
        [164,   0,   0],
        ...,
        [142,   0,   0],
        [135,   0,   0],
        [128,   0,   0]],

       [[179,   0,   0],
        [178,   0,   0],
        [178,   0,   0],
        ...,
        [137,   0,   0],
        [130,   0,   0],
        [123,   0,   0]],

       ...,

       [[252,   0,   0],
        [252,   0,   0],
        [252,   0,   0],
        ...,
        [251,   0,   0],
        [247,   0,   0],
        [243,   0,   0]],

       [[252,   0,   0],
        [252,   0,   0],
        [252,   0,   0],
        ...,
        [255,   0,   0],
        [254,   0,   0],
        [228,   0,   0]],

       [[252,   0,   0],
        [252,   0,   0],
        [252,   0,   0],
        ...,
        [255,   0,   0],
        [254,   0,   0],
        [228,   0,   0]]], dtype=uint8)
```

In [44]:
```
EGA
```

Out[44]:

In [46]:
```
arr1=np.asarray(EGA)
```

In [47]:
```
type(arr1)
```

Out[47]:
```
numpy.ndarray
```

In [49]:
```
arr1.shape
```

Out[49]:
```
(194, 259, 3)
```

In [50]:
```
plot.imsow(arr1)
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[50], line 1
----> 1 plot.imsow(arr1)

NameError: name 'plot' is not defined
```

In [51]:
```
EGA1=arr1.copy()
```

In [52]:
```
EGA1[:,:,0]=0
```

In [54]:
```
plt.imshow(EGA1)
```

Out[54]:
```
<matplotlib.image.AxesImage at 0x257958478c0>
```

In [55]:
```
EGA1[::,1]
```

Out[55]:
```
array([[  0, 134, 110],
       [  0, 144, 120],
       [  0, 158, 133],
       [  0, 171, 144],
       [  0, 181, 151],
       [  0, 190, 158],
       [  0, 200, 167],
       [  0, 206, 173],
       [  0, 204, 171],
       [  0, 205, 172],
       [  0, 204, 172],
       [  0, 203, 171],
       [  0, 199, 169],
       [  0, 192, 165],
       [  0, 187, 162],
       [  0, 183, 159],
       [  0, 172, 146],
       [  0, 164, 138],
       [  0, 151, 125],
       [  0, 137, 111],
       [  0, 122,  99],
       [  0, 105,  82],
       [  0,  87,  64],
       [  0,  75,  54],
       [  0,  57,  36],
       [  0,  49,  28],
       [  0,  39,  20],
       [  0,  34,  15],
       [  0,  35,  16],
       [  0,  37,  18],
       [  0,  37,  18],
       [  0,  36,  17],
       [  0,  46,  15],
       [  0,  58,  25],
       [  0,  74,  41],
       [  0,  89,  56],
       [  0, 104,  71],
       [  0, 120,  87],
       [  0, 136, 101],
       [  0, 146, 111],
       [  0, 162, 127],
       [  0, 169, 132],
       [  0, 181, 144],
       [  0, 194, 157],
       [  0, 208, 168],
       [  0, 218, 178],
       [  0, 224, 184],
       [  0, 228, 188],
       [  0, 226, 188],
       [  0, 226, 188],
       [  0, 226, 188],
       [  0, 226, 186],
       [  0, 226, 186],
       [  0, 226, 184],
       [  0, 226, 184],
       [  0, 226, 183],
```

```
[  0, 228, 183],
[  0, 228, 183],
[  0, 227, 180],
[  0, 224, 175],
[  0, 219, 170],
[  0, 213, 163],
[  0, 207, 157],
[  0, 204, 154],
[  0, 197, 152],
[  0, 191, 143],
[  0, 181, 129],
[  0, 172, 115],
[  0, 162, 101],
[  0, 149,  83],
[  0, 134,  66],
[  0, 123,  57],
[  0, 104,  43],
[  0,  97,  43],
[  0,  89,  44],
[  0,  67,  33],
[  0,  51,  29],
[  0,  61,  48],
[  0,  55,  48],
[  0,  21,  19],
[  0,  38,  40],
[  0, 100, 104],
[  0, 136, 142],
[  0, 144, 150],
[  0, 126, 134],
[  0, 113, 122],
[  0, 121, 131],
[  0, 110, 120],
[  0, 103, 113],
[  0, 100, 108],
[  0,  95, 101],
[  0,  90,  94],
[  0,  87,  87],
[  0,  86,  85],
[  0,  87,  84],
[  0,  88,  84],
[  0,  77,  76],
[  0,  80,  79],
[  0,  83,  82],
[  0,  84,  84],
[  0,  82,  82],
[  0,  77,  77],
[  0,  70,  71],
[  0,  65,  66],
[  0,  85,  86],
[  0,  83,  84],
[  0,  80,  81],
[  0,  76,  77],
[  0,  72,  74],
[  0,  70,  72],
[  0,  69,  71],
[  0,  68,  70],
```

```
[  0,  66,  67],
[  0,  65,  66],
[  0,  63,  64],
[  0,  60,  61],
[  0,  57,  58],
[  0,  53,  54],
[  0,  51,  53],
[  0,  49,  51],
[  0,  49,  51],
[  0,  48,  52],
[  0,  51,  55],
[  0,  50,  54],
[  0,  45,  50],
[  0,  49,  54],
[  0,  58,  63],
[  0,  61,  66],
[  0,  77,  79],
[  0,  72,  74],
[  0,  65,  67],
[  0,  61,  63],
[  0,  62,  64],
[  0,  67,  69],
[  0,  71,  73],
[  0,  73,  75],
[  0,  75,  77],
[  0,  62,  64],
[  0,  65,  67],
[  0,  58,  60],
[  0,  59,  61],
[  0,  46,  48],
[  0, 133, 135],
[  0, 108, 110],
[  0,  95,  94],
[  0,  99,  98],
[  0, 109, 108],
[  0, 117, 116],
[  0, 119, 118],
[  0, 125, 122],
[  0, 144, 141],
[  0, 165, 162],
[  0, 185, 180],
[  0, 188, 183],
[  0, 195, 190],
[  0, 202, 194],
[  0, 203, 195],
[  0, 206, 198],
[  0, 222, 214],
[  0, 240, 232],
[  0, 227, 228],
[  0, 230, 231],
[  0, 236, 236],
[  0, 241, 240],
[  0, 244, 243],
[  0, 246, 244],
[  0, 246, 243],
[  0, 246, 243],
```

```
[  0, 250, 247],
[  0, 249, 247],
[  0, 249, 248],
[  0, 248, 248],
[  0, 248, 249],
[  0, 247, 249],
[  0, 246, 249],
[  0, 246, 250],
[  0, 249, 249],
[  0, 250, 250],
[  0, 250, 250],
[  0, 250, 250],
[  0, 251, 251],
[  0, 251, 251],
[  0, 252, 252],
[  0, 252, 252],
[  0, 252, 252],
[  0, 252, 252],
[  0, 252, 252],
[  0, 252, 252],
[  0, 252, 252],
[  0, 252, 252],
[  0, 252, 252],
[  0, 252, 252],
[  0, 251, 249],
[  0, 251, 249]], dtype=uint8)
```

In [56]:
```
EGA1[::,1]=0
```

In [57]:
```
EGA1
```

Out[57]:
```
array([[[  0, 134, 110],
        [  0,   0,   0],
        [  0, 134, 110],
        ...,
        [  0, 141, 124],
        [  0, 135, 118],
        [  0, 128, 111]],

       [[  0, 144, 120],
        [  0,   0,   0],
        [  0, 144, 120],
        ...,
        [  0, 139, 122],
        [  0, 132, 115],
        [  0, 125, 108]],

       [[  0, 159, 134],
        [  0,   0,   0],
        [  0, 158, 133],
        ...,
        [  0, 135, 114],
        [  0, 128, 107],
        [  0, 121, 100]],

       ...,

       [[  0, 252, 252],
        [  0,   0,   0],
        [  0, 252, 252],
        ...,
        [  0, 241, 250],
        [  0, 240, 248],
        [  0, 236, 244]],

       [[  0, 251, 249],
        [  0,   0,   0],
        [  0, 251, 249],
        ...,
        [  0, 252, 251],
        [  0, 248, 248],
        [  0, 222, 222]],

       [[  0, 251, 249],
        [  0,   0,   0],
        [  0, 251, 249],
        ...,
        [  0, 252, 251],
        [  0, 248, 248],
        [  0, 222, 222]]], dtype=uint8)
```

In [58]:
```
EGA1[::,1]=0
```

In [59]:
```
plt.imshow(EGA1)
```

Out[59]:
```
<matplotlib.image.AxesImage at 0x25790514680>
```

In [ ]: