In [1]:
```
import matplotlib.pyplot as plt
```

In [2]:
```
%matplotlib inline
```

In [3]:
```
from PIL import Image # python imaging library
```

In [24]:
```
horse_img = Image.open(r'C:\Users\suras\OneDrive\Desktop\Hourse_jpg.jpg')
```

In [25]:
```
horse_img
```

Out[25]:

In [21]:
```
type(horse_img)
```

Out[21]:
```
PIL.JpegImagePlugin.JpegImageFile
```

In [26]:
```
lion_img = Image.open(r'C:\Users\suras\OneDrive\Desktop\lion.jpg')
lion_img
```

Out[26]:

In [44]:
```
Elephant_img = Image.open(r'C:\Users\suras\OneDrive\Desktop\Elephant.jpg')
Elephant_img
```

Out[44]:

In [45]:
```
import numpy as np
horse_arr = np.asarray(horse_img)
horse_arr
```

Out[45]:
```
array([[[33, 55, 78],
        [34, 54, 78],
        [36, 54, 78],
        ...,
        [ 9, 21, 35],
        [ 9, 21, 35],
        [ 9, 21, 35]],

       [[33, 55, 78],
        [34, 54, 78],
        [36, 54, 78],
        ...,
        [10, 22, 36],
        [10, 22, 36],
        [10, 22, 36]],

       [[33, 55, 78],
        [34, 54, 78],
        [36, 54, 78],
        ...,
        [11, 23, 39],
        [11, 23, 39],
        [11, 23, 39]],

       ...,

       [[ 7, 11, 20],
        [ 7, 11, 20],
        [ 7, 11, 20],
        ...,
        [ 8,  8, 18],
        [ 8,  8, 18],
        [ 8,  8, 18]],

       [[12, 15, 24],
        [12, 15, 24],
        [12, 15, 24],
        ...,
        [ 8,  8, 18],
        [ 8,  8, 18],
        [ 8,  8, 18]],

       [[23, 23, 31],
        [23, 23, 31],
        [23, 23, 31],
        ...,
        [ 8,  8, 18],
        [ 8,  8, 18],
        [ 8,  8, 18]]], dtype=uint8)
```

In [46]:
```
type(horse_arr)
```

Out[46]:
```
numpy.ndarray
```

In [47]:
```
horse_arr.shape
```

Out[47]: (360, 540, 3)

In [48]:
```
plt.imshow(horse_arr)
plt.show()
```

In [49]:
```
horse_red = horse_arr.copy()
horse_red
```

Out[49]:
```
array([[[33, 55, 78],
        [34, 54, 78],
        [36, 54, 78],
        ...,
        [ 9, 21, 35],
        [ 9, 21, 35],
        [ 9, 21, 35]],

       [[33, 55, 78],
        [34, 54, 78],
        [36, 54, 78],
        ...,
        [10, 22, 36],
        [10, 22, 36],
        [10, 22, 36]],

       [[33, 55, 78],
        [34, 54, 78],
        [36, 54, 78],
        ...,
        [11, 23, 39],
        [11, 23, 39],
        [11, 23, 39]],

       ...,

       [[ 7, 11, 20],
        [ 7, 11, 20],
        [ 7, 11, 20],
        ...,
        [ 8,  8, 18],
        [ 8,  8, 18],
        [ 8,  8, 18]],

       [[12, 15, 24],
        [12, 15, 24],
        [12, 15, 24],
        ...,
        [ 8,  8, 18],
        [ 8,  8, 18],
        [ 8,  8, 18]],

       [[23, 23, 31],
        [23, 23, 31],
        [23, 23, 31],
        ...,
        [ 8,  8, 18],
        [ 8,  8, 18],
        [ 8,  8, 18]]], dtype=uint8)
```

In [50]:
```
horse_arr == horse_red
```

Out[50]:
```
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 [51]:
```
plt.imshow(horse_red)
plt.show()
```

In [52]:
```
horse_red.shape
```

Out[52]:
```
(360, 540, 3)
```

In [53]:
```
plt.imshow(horse_red[:,:,0])
```

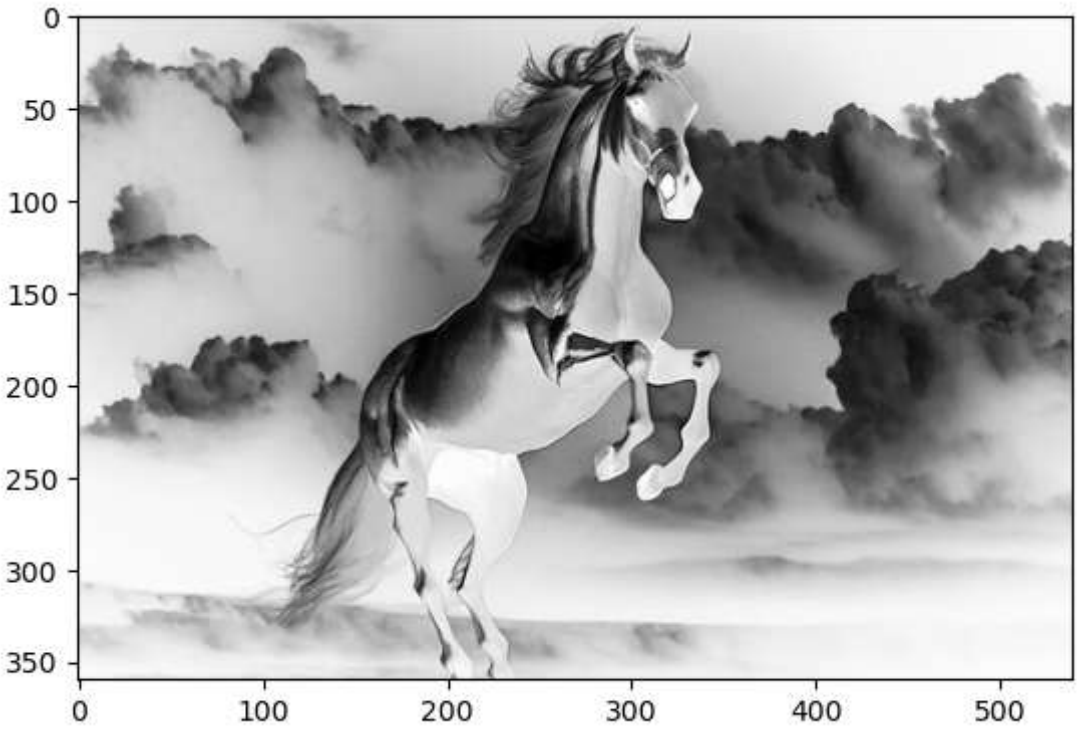
Out[53]:
```
<matplotlib.image.AxesImage at 0x1a610804230>
```

In [54]:
```
plt.show()
```

In [55]:
```
horse_red[:,:,0]
```

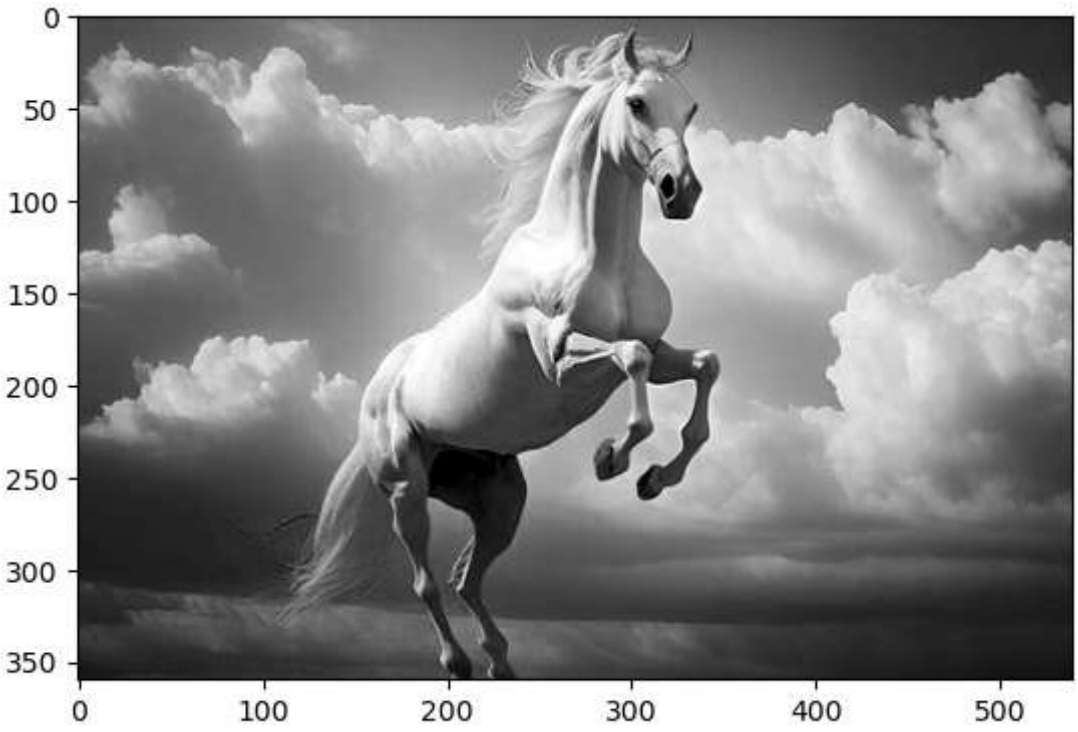
Out[55]:
```
array([[33, 34, 36, ...,  9,  9,  9],
       [33, 34, 36, ..., 10, 10, 10],
       [33, 34, 36, ..., 11, 11, 11],
       ...,
       [ 7,  7,  7, ...,  8,  8,  8],
       [12, 12, 12, ...,  8,  8,  8],
       [23, 23, 23, ...,  8,  8,  8]], dtype=uint8)
```

In [57]:
```
plt.imshow(horse_red[:,:,0], cmap='Greys')
plt.show()
```



In [60]:
```
plt.imshow(horse_red[:,:,1], cmap='grey')
plt.show()
```

In [62]:
```
plt.imshow(horse_red[:,:,2], cmap='grey')
plt.show()
```



In [63]:
```
horse_red[:,:,1]
horse_red[:,:,2]
horse_red[:,:,1] = 0
horse_red[:,:,1]
```

Out[63]:
```
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 [65]:
```
plt.imshow(horse_red)
plt.show()
```

In [67]:
```
horse_red[:,:,2]
horse_red[:,:,2] = 0
horse_red[:,:,2]
```

Out[67]:
```
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 [80]:
```
plt.imshow(horse_red)
plt.show()
```

In [85]:
```
plt.imshow(horse_arr)
plt.show()
```

In [86]:
```
plt.imshow(horse_red)
plt.show()
```

In [71]:
```
horse_img
```

Out[71]:

In [72]:
```
arr1 = np.asarray(horse_img)
```

In [73]:
```
arr1
```

Out[73]:
```
array([[[33, 55, 78],
        [34, 54, 78],
        [36, 54, 78],
        ...,
        [ 9, 21, 35],
        [ 9, 21, 35],
        [ 9, 21, 35]],

       [[33, 55, 78],
        [34, 54, 78],
        [36, 54, 78],
        ...,
        [10, 22, 36],
        [10, 22, 36],
        [10, 22, 36]],

       [[33, 55, 78],
        [34, 54, 78],
        [36, 54, 78],
        ...,
        [11, 23, 39],
        [11, 23, 39],
        [11, 23, 39]],

       ...,

       [[ 7, 11, 20],
        [ 7, 11, 20],
        [ 7, 11, 20],
        ...,
        [ 8,  8, 18],
        [ 8,  8, 18],
        [ 8,  8, 18]],

       [[12, 15, 24],
        [12, 15, 24],
        [12, 15, 24],
        ...,
        [ 8,  8, 18],
        [ 8,  8, 18],
        [ 8,  8, 18]],

       [[23, 23, 31],
        [23, 23, 31],
        [23, 23, 31],
        ...,
        [ 8,  8, 18],
        [ 8,  8, 18],
        [ 8,  8, 18]]], dtype=uint8)
```

In [74]:
```
type(arr1)
```

Out[74]:
```
numpy.ndarray
```

In [75]:
```
arr1.shape
```

Out[75]:
```
(360, 540, 3)
```

In [76]:
```
plt.imshow(arr1)
```

Out[76]:
```
<matplotlib.image.AxesImage at 0x1a60f44fc80>
```

In [87]:
```
horse_img1 = arr1.copy()
```

In [ ]:
```

```