```
import numpy as np
```

```
ones_arr=np.ones((5,5))
```

```
ones_arr
```

```
array([[1., 1., 1., 1., 1.],
       [1., 1., 1., 1., 1.],
       [1., 1., 1., 1., 1.],
       [1., 1., 1., 1., 1.],
       [1., 1., 1., 1., 1.]])
```

```
ones_arr=np.ones((5,5),dtype=int)
```

```
ones_arr
```

```
array([[1, 1, 1, 1, 1],
       [1, 1, 1, 1, 1],
       [1, 1, 1, 1, 1],
       [1, 1, 1, 1, 1],
       [1, 1, 1, 1, 1]])
```

```
zeros_arr=np.zeros((3,3),dtype=int)
```

```
zeros_arr
```

```
array([[0, 0, 0],
       [0, 0, 0],
       [0, 0, 0]])
```

```
zeros_arr
```

```
array([[0, 0, 0],
       [0, 0, 0],
       [0, 0, 0]])
```

```
ones_arr
```

```
array([[1, 1, 1, 1, 1],
       [1, 1, 1, 1, 1],
       [1, 1, 1, 1, 1],
       [1, 1, 1, 1, 1],
       [1, 1, 1, 1, 1]])
```

```
ones_arr*255
```

```
array([[255, 255, 255, 255, 255],
       [255, 255, 255, 255, 255],
       [255, 255, 255, 255, 255],
       [255, 255, 255, 255, 255],
       [255, 255, 255, 255, 255]])
```

```
!pip install matplotlib
```

```
Requirement already satisfied: matplotlib in /usr/local/lib/python3.11/dist-packages (3.10.0)
Requirement already satisfied: contourpy>=1.0.1 in /usr/local/lib/python3.11/dist-packages (from matplotlib) (1.3.2)
Requirement already satisfied: cycler>=0.10 in /usr/local/lib/python3.11/dist-packages (from matplotlib) (0.12.1)
Requirement already satisfied: fonttools>=4.22.0 in /usr/local/lib/python3.11/dist-packages (from matplotlib) (4.57.0)
Requirement already satisfied: kiwisolver>=1.3.1 in /usr/local/lib/python3.11/dist-packages (from matplotlib) (1.4.8)
Requirement already satisfied: numpy>=1.23 in /usr/local/lib/python3.11/dist-packages (from matplotlib) (2.0.2)
Requirement already satisfied: packaging>=20.0 in /usr/local/lib/python3.11/dist-packages (from matplotlib) (24.2)
Requirement already satisfied: pillow>=8 in /usr/local/lib/python3.11/dist-packages (from matplotlib) (11.2.1)
Requirement already satisfied: pyparsing>=2.3.1 in /usr/local/lib/python3.11/dist-packages (from matplotlib) (3.2.3)
Requirement already satisfied: python-dateutil>=2.7 in /usr/local/lib/python3.11/dist-packages (from matplotlib) (2.9.0.post0)
Requirement already satisfied: six>=1.5 in /usr/local/lib/python3.11/dist-packages (from python-dateutil>=2.7->matplotlib) (1.17.0)
```

```
import matplotlib.pyplot as plt
```

```
%matplotlib inline
```

```
from PIL import Image
```

```
Horse_img=Image.open(r'/content/horse.jpg')
```

```
Start coding or generate with AI.
```

Double-click (or enter) to edit

```
Horse_img
```

```
type(Horse_img)
```

```
PIL.JpegImagePlugin.JpegImageFile
def __init__(fp: StrOrBytesPath | IO[bytes], filename: str | bytes | None=None) -> None

Base class for image file format handlers.
```

```
horse_arr=np.asarray(Horse_img)
horse_arr
```

```
array([[[15, 17, 29],
        [15, 17, 29],
        [15, 17, 29],
        ...,
        [23, 38, 35],
        [19, 34, 31],
        [14, 30, 27]],

       [[15, 17, 29],
        [15, 17, 29],
        [15, 17, 29],
        ...,
        [24, 39, 36],
        [22, 37, 34],
```

```
        [20, 36, 33]],

       [[15, 17, 29],
        [15, 17, 29],
        [15, 17, 29],
        ...,
        [26, 41, 38],
        [25, 40, 37],
        [24, 40, 37]],

       ...,

       [[49, 50, 44],
        [40, 41, 33],
        [35, 34, 29],
        ...,
        [14, 30, 29],
        [13, 25, 25],
        [11, 23, 23]],

       [[45, 50, 44],
        [38, 43, 36],
        [33, 35, 30],
        ...,
        [11, 25, 25],
        [12, 24, 24],
        [16, 26, 27]],

       [[33, 40, 33],
        [33, 40, 33],
        [33, 38, 32],
        ...,
        [12, 26, 26],
        [16, 26, 27],
        [22, 32, 33]]], dtype=uint8)
```

```
type(horse_arr)
```

```
numpy.ndarray
```

```
horse_arr.shape
```

```
(2334, 3502, 3)
```

```
plt.imshow(horse_arr)
```

```
<matplotlib.image.AxesImage at 0x7f2e25011850>
```


```
horse_red=horse_arr.copy()
```

```
horse_red
```

```
array([[[15, 17, 29],
        [15, 17, 29],
        [15, 17, 29],
        ...,
        [23, 38, 35],
        [19, 34, 31],
        [14, 30, 27]],

       [[15, 17, 29],
        [15, 17, 29],
```

```
       [15, 17, 29],
       ...,
       [24, 39, 36],
       [22, 37, 34],
       [20, 36, 33]],

      [[15, 17, 29],
       [15, 17, 29],
       [15, 17, 29],
       ...,
       [26, 41, 38],
       [25, 40, 37],
       [24, 40, 37]],

      ...,

      [[49, 50, 44],
       [40, 41, 33],
       [35, 34, 29],
       ...,
       [14, 30, 29],
       [13, 25, 25],
       [11, 23, 23]],

      [[45, 50, 44],
       [38, 43, 36],
       [33, 35, 30],
       ...,
       [11, 25, 25],
       [12, 24, 24],
       [16, 26, 27]],

      [[33, 40, 33],
       [33, 40, 33],
       [33, 38, 32],
       ...,
       [12, 26, 26],
       [16, 26, 27],
       [22, 32, 33]]], dtype=uint8)
```

```
horse_arr==horse_red
```

```
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]]])
```

```
plt.imshow(horse_red)
```

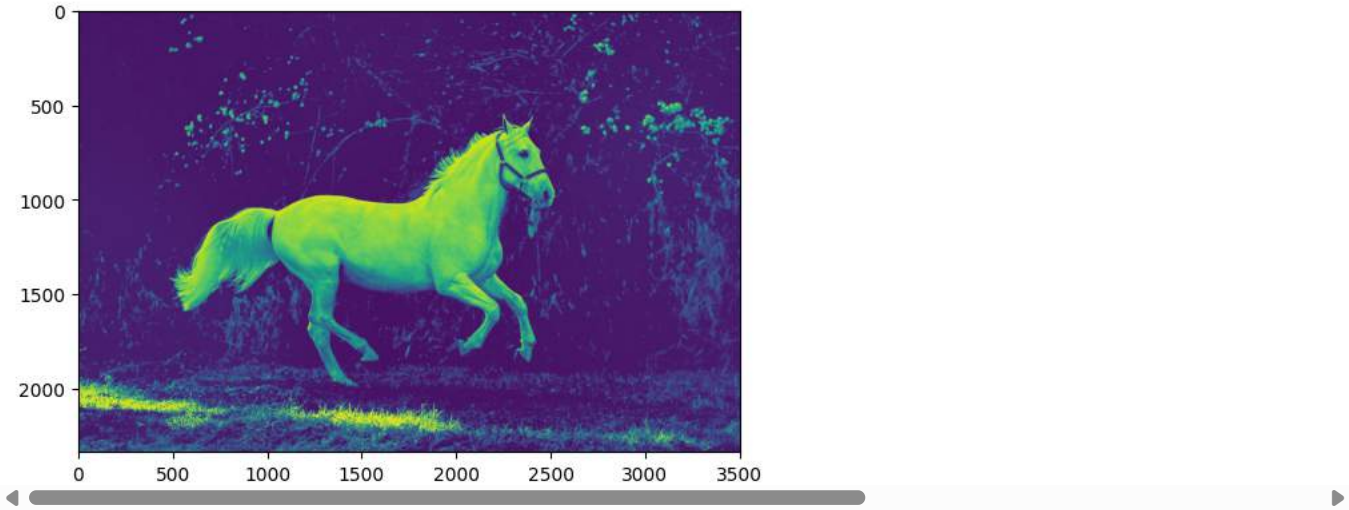
```
<matplotlib.image.AxesImage at 0x7f2e441d3490>
```


```
horse_red.shape
```

```
(2334, 3502, 3)
```

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

```
<matplotlib.image.AxesImage at 0x7f2e1ab57d50>
```



Start coding or generate with AI.

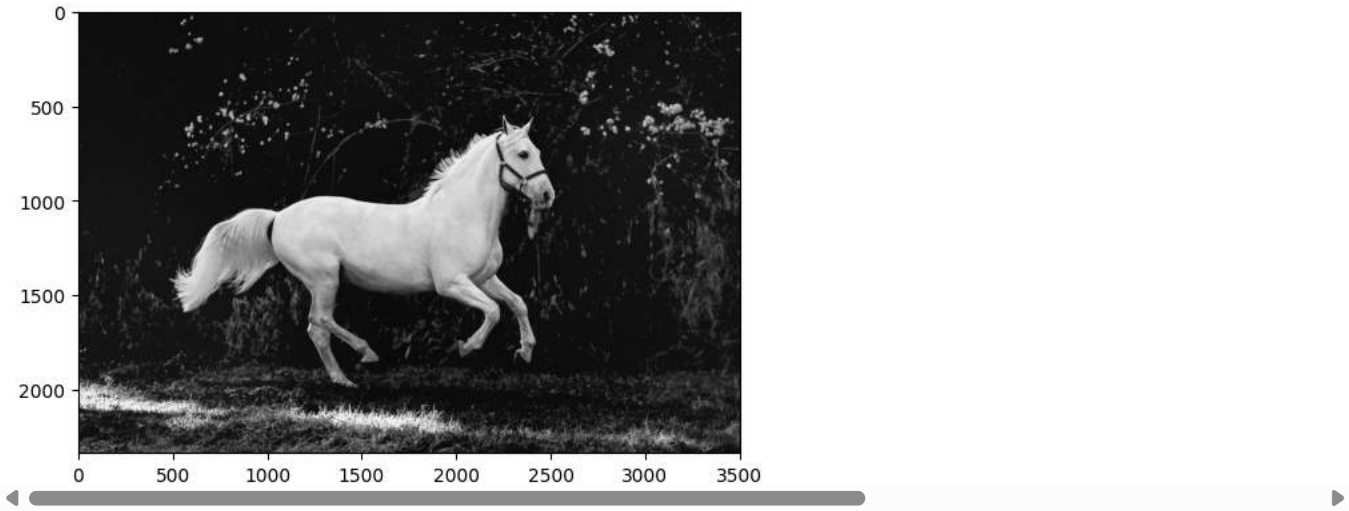
```
horse_red[:,:,0]
```

```
array([[15, 15, 15, ..., 23, 19, 14],
       [15, 15, 15, ..., 24, 22, 20],
       [15, 15, 15, ..., 26, 25, 24],
       ...,
       [49, 40, 35, ..., 14, 13, 11],
       [45, 38, 33, ..., 11, 12, 16],
       [33, 33, 33, ..., 12, 16, 22]], dtype=uint8)
```

Start coding or generate with AI.

```
plt.imshow(horse_red[:,:,0],cmap='grey')
```

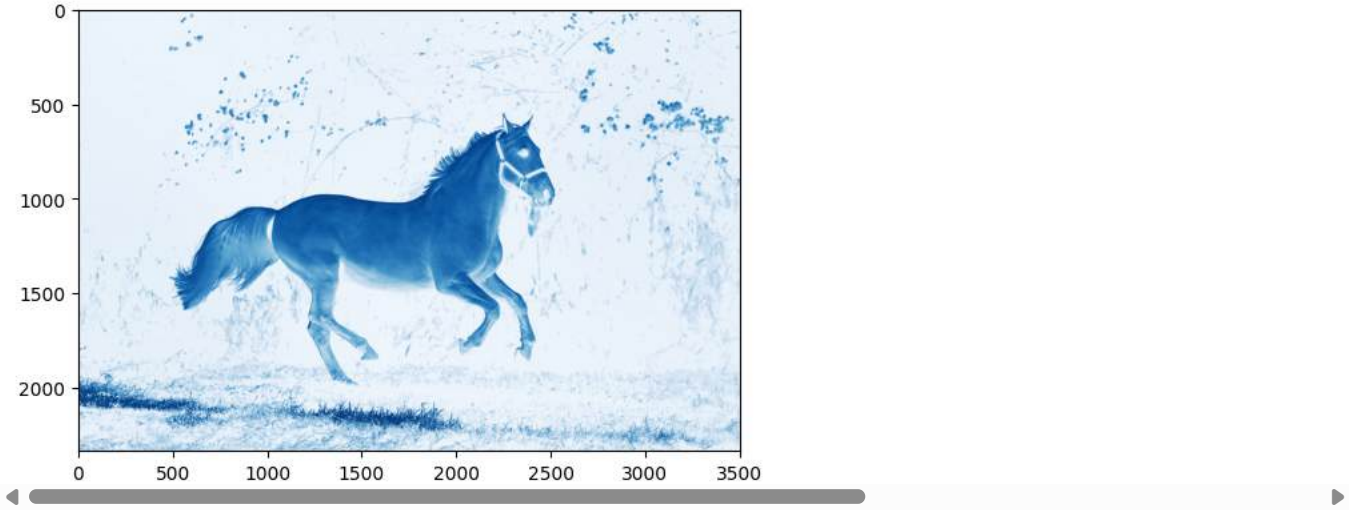
```
<matplotlib.image.AxesImage at 0x7f2e1b0c22d0>
```



Start coding or generate with AI.

```
plt.imshow(horse_red[:,:,0],cmap='Blues')
```

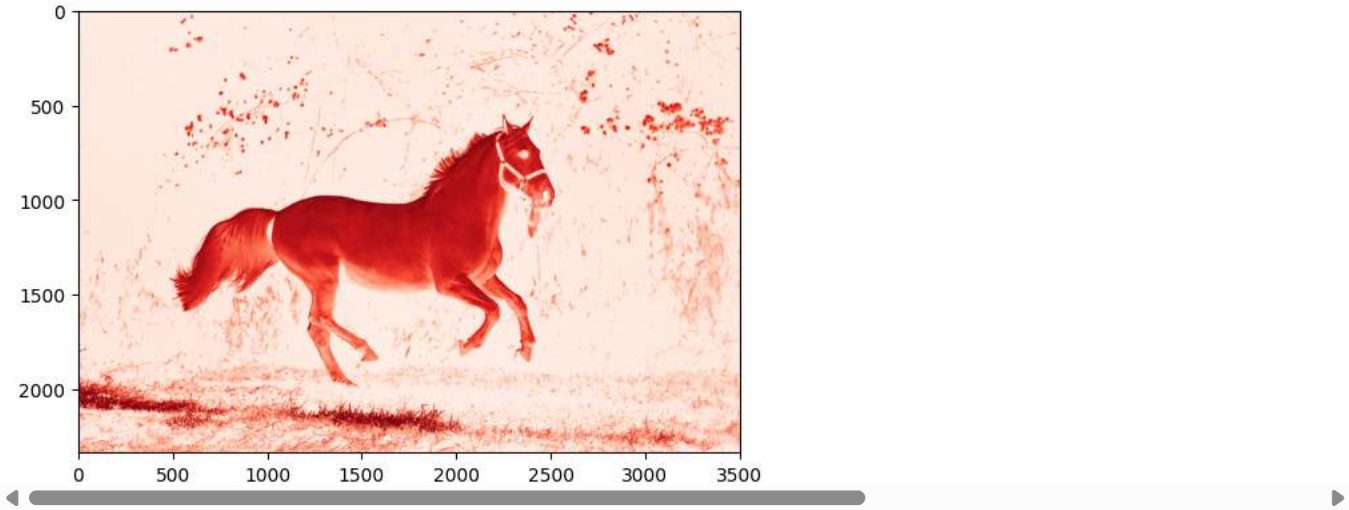
```
<matplotlib.image.AxesImage at 0x7f2e1aca6410>
```



Start coding or generate with AI.

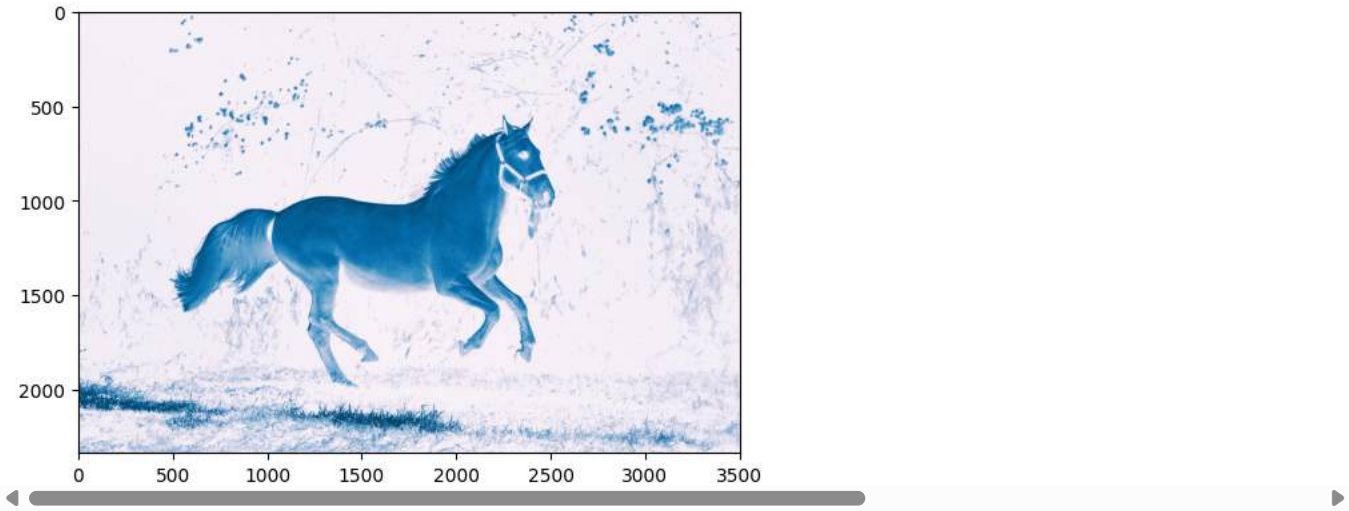
```
plt.imshow(horse_red[:,:,0],cmap='Reds')
```

```
<matplotlib.image.AxesImage at 0x7f2e1ad3c490>
```




```
plt.imshow(horse_red[:,:,0],cmap='PuBu')
```

```
<matplotlib.image.AxesImage at 0x7f2e1ad56410>
```




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

```
<matplotlib.image.AxesImage at 0x7f2e1ad12e10>
```


```
plt.imshow(horse_red[:,:,1],cmap='Greys')
```

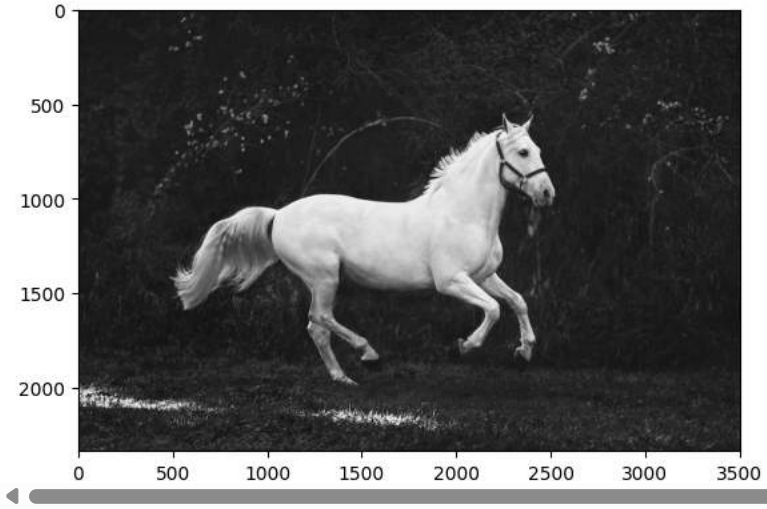
```
<matplotlib.image.AxesImage at 0x7f2e1ac55d10>
```


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

```
<matplotlib.image.AxesImage at 0x7f2e1aeba950>
```


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

```
<matplotlib.image.AxesImage at 0x7f2e1ae66410>
```




```
horse_red[:,:,0]
```

```
array([[15, 15, 15, ..., 23, 19, 14],
       [15, 15, 15, ..., 24, 22, 20],
       [15, 15, 15, ..., 26, 25, 24],
       ...,
       [49, 40, 35, ..., 14, 13, 11],
       [45, 38, 33, ..., 11, 12, 16],
       [33, 33, 33, ..., 12, 16, 22]], dtype=uint8)
```

```
horse_red[:,:,1]
```

```
array([[17, 17, 17, ..., 38, 34, 30],
       [17, 17, 17, ..., 39, 37, 36],
       [17, 17, 17, ..., 41, 40, 40],
       ...,
       [50, 41, 34, ..., 30, 25, 23],
       [50, 43, 35, ..., 25, 24, 26],
       [40, 40, 38, ..., 26, 26, 32]], dtype=uint8)
```

```
horse_red[:,:,2]
```

```
array([[29, 29, 29, ..., 35, 31, 27],
       [29, 29, 29, ..., 36, 34, 33],
       [29, 29, 29, ..., 38, 37, 37],
       ...,
       [44, 33, 29, ..., 29, 25, 23],
       [44, 36, 30, ..., 25, 24, 27],
       [33, 33, 32, ..., 26, 27, 33]], dtype=uint8)
```

```
horse_red[:,:,1]=0
```

```
horse_red[:,:,1]
```

```
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)
```

```
plt.imshow(horse_red)
```

```
<matplotlib.image.AxesImage at 0x7f2e1aa592d0>
```

Start coding or generate with AI.

```
horse_red[:,:,2]
```

```
array([[29, 29, 29, ..., 35, 31, 27],
       [29, 29, 29, ..., 36, 34, 33],
       [29, 29, 29, ..., 38, 37, 37],
       ...,
       [44, 33, 29, ..., 29, 25, 23],
       [44, 36, 30, ..., 25, 24, 27],
       [33, 33, 32, ..., 26, 27, 33]], dtype=uint8)
```

Start coding or generate with AI.

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

Start coding or generate with AI.

```
horse_red[:,:,2]
```

```
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)
```

Start coding or generate with AI.

```
plt.imshow(horse_red)
```

```
<matplotlib.image.AxesImage at 0x7f2e1acc5fd0>
```


```
horse_arr
```

```
array([[[15, 17, 29],
        [15, 17, 29],
        [15, 17, 29],
        ...,
        [23, 38, 35],
        [19, 34, 31],
        [14, 30, 27]],

       [[15, 17, 29],
        [15, 17, 29],
        [15, 17, 29],
        ...,
        [24, 39, 36],
        [22, 37, 34],
        [20, 36, 33]],

       [[15, 17, 29],
        [15, 17, 29],
        [15, 17, 29],
        ...,
        [26, 41, 38],
        [25, 40, 37],
        [24, 40, 37]],

       ...,

       [[49, 50, 44],
        [40, 41, 33],
        [35, 34, 29],
        ...,
        [14, 30, 29],
        [13, 25, 25],
        [11, 23, 23]],

       [[45, 50, 44],
        [38, 43, 36],
        [33, 35, 30],
        ...,
        [11, 25, 25],
        [12, 24, 24],
        [16, 26, 27]],

       [[33, 40, 33],
        [33, 40, 33],
        [33, 38, 32],
        ...,
        [12, 26, 26],
        [16, 26, 27],
        [22, 32, 33]]], dtype=uint8)
```

```
horse_red
```

```
array([[[15,  0,  0],
        [15,  0,  0],
        [15,  0,  0],
        ...,
        [23,  0,  0],
        [19,  0,  0],
        [14,  0,  0]],

       [[15,  0,  0],
        [15,  0,  0],
```

```
                [15,  0,  0],
                ...,
                [24,  0,  0],
                [22,  0,  0],
                [20,  0,  0]],

               [[15,  0,  0],
                [15,  0,  0],
                [15,  0,  0],
                ...,
                [26,  0,  0],
                [25,  0,  0],
                [24,  0,  0]],

               ...,

               [[49,  0,  0],
                [40,  0,  0],
                [35,  0,  0],
                ...,
                [14,  0,  0],
                [13,  0,  0],
                [11,  0,  0]],

               [[45,  0,  0],
                [38,  0,  0],
                [33,  0,  0],
                ...,
                [11,  0,  0],
                [12,  0,  0],
                [16,  0,  0]],

               [[33,  0,  0],
                [33,  0,  0],
                [33,  0,  0],
                ...,
                [12,  0,  0],
                [16,  0,  0],
                [22,  0,  0]]], dtype=uint8)
```

```
Horse_img
```

```
arr1=np.asarray(Horse_img)
```

```
arr1
```

```
array([[[15, 17, 29],
        [15, 17, 29],
        [15, 17, 29],
        ...,
        [23, 38, 35],
        [19, 34, 31],
        [14, 30, 27]],

       [[15, 17, 29],
        [15, 17, 29],
        [15, 17, 29],
        ...,
        [24, 39, 36],
        [22, 37, 34],
        [20, 36, 33]],

       [[15, 17, 29],
        [15, 17, 29],
        [15, 17, 29],
        ...,
        [26, 41, 38],
        [25, 40, 37],
        [24, 40, 37]],

       ...,

       [[49, 50, 44],
        [40, 41, 33],
```

```
                [35, 34, 29],
                ...,
                [14, 30, 29],
                [13, 25, 25],
                [11, 23, 23]],

               [[45, 50, 44],
                [38, 43, 36],
                [33, 35, 30],
                ...,
                [11, 25, 25],
                [12, 24, 24],
                [16, 26, 27]],

               [[33, 40, 33],
                [33, 40, 33],
                [33, 38, 32],
                ...,
                [12, 26, 26],
                [16, 26, 27],
                [22, 32, 33]]], dtype=uint8)
```

```
type(arr1)
```

```
numpy.ndarray
```

```
arr1.shape
```

```
(2334, 3502, 3)
```

```
plt.imshow(arr1)
```

```
<matplotlib.image.AxesImage at 0x7f2e1ab5be90>
```


```
Horse_img1=arr1.copy()
```

```
Horse_img1[:,:,0]=0
```