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

In [2]:
```
ones_arr = np.ones((5,5))
ones_arr
```

Out[2]:
```
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.]])
```

In [3]:
```
ones_arr= np.ones((5,5) , dtype=int)
```

In [4]:
```
ones_arr
```

Out[4]:
```
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]])
```

In [5]:
```
zeros_arr = np.zeros((4,4),dtype = int)
zeros_arr
```

Out[5]:
```
array([[0, 0, 0, 0],
       [0, 0, 0, 0],
       [0, 0, 0, 0],
       [0, 0, 0, 0]])
```

In [6]:
```
ones_arr * 255
```

Out[6]:
```
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]])
```

In [7]:
```
import matplotlib.pyplot as plt
```

In [8]:
```
%matplotlib inline
```

In [9]:
```
from PIL import Image
```

In [10]:
```
dog_image = Image.open(r"C:\Users\mohan\OneDrive\Desktop\Python for datascience\dog
```

In [11]:
```
dog_image
```

Out[11]:

In [12]:
```
type(dog_image)
```

Out[12]:
```
PIL.JpegImagePlugin.JpegImageFile
```

In [13]:
```
dog_arr = np.asarray(dog_image )
```

In [14]:
```
dog_arr
```

Out[14]:
```
array([[[ 43,  30,  24],
        [ 48,  35,  29],
        [ 49,  36,  30],
        ...,
        [ 36,  27,  28],
        [ 27,  21,  23],
        [ 61,  55,  59]],

       [[ 44,  31,  25],
        [ 49,  36,  30],
        [ 50,  37,  31],
        ...,
        [ 32,  26,  26],
        [ 29,  23,  25],
        [ 67,  61,  65]],

       [[ 46,  33,  25],
        [ 51,  38,  30],
        [ 52,  39,  31],
        ...,
        [ 37,  31,  31],
        [ 38,  32,  34],
        [ 81,  76,  80]],

       ...,

       [[ 67,  46,  25],
        [ 88,  67,  48],
        [118,  97,  78],
        ...,
        [ 49,  28,   9],
        [ 52,  31,  12],
        [ 55,  34,  15]],

       [[ 43,  24,   7],
        [ 34,  15,   0],
        [ 77,  58,  41],
        ...,
        [ 45,  24,   5],
        [ 49,  28,   9],
        [ 52,  31,  12]],

       [[ 24,   7,   0],
        [ 19,   2,   0],
        [ 56,  39,  23],
        ...,
        [ 40,  22,   2],
        [ 43,  25,   5],
        [ 45,  27,   7]]], dtype=uint8)
```

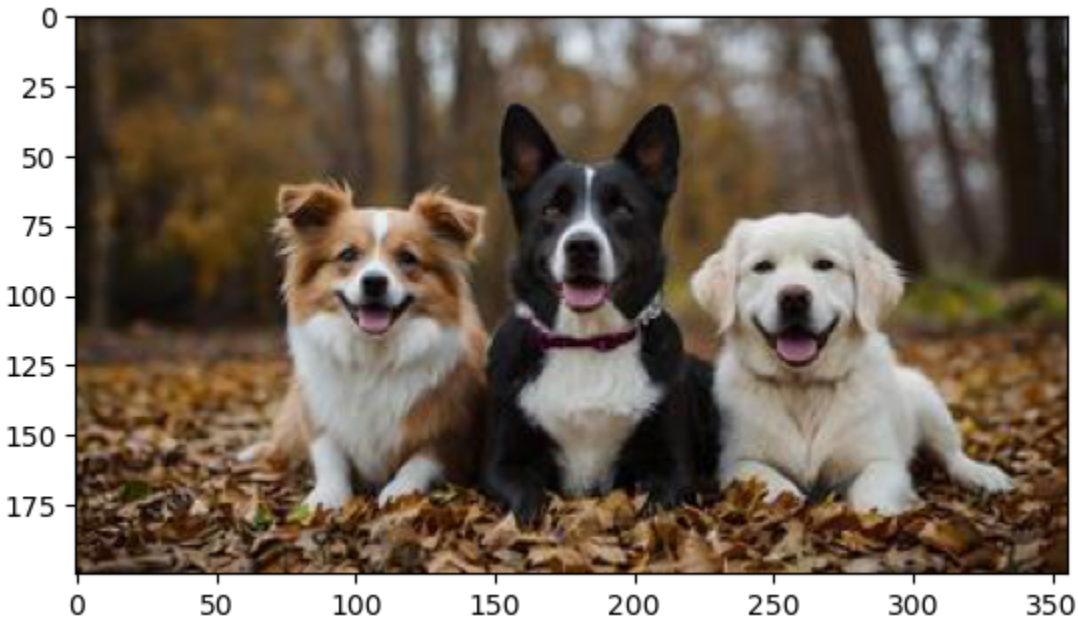
In [15]:
```
type(dog_arr )
```

Out[15]:
```
numpy.ndarray
```

In [16]:
```
dog_arr .shape
```

Out[16]: (200, 356, 3)

In [22]:
```
plt.imshow(dog_arr)
plt.show()
```



In [23]:
```
dog_red = dog_arr.copy()
```

In [24]:
```
dog_red
```

Out[24]:
```
array([[[ 43,  30,  24],
        [ 48,  35,  29],
        [ 49,  36,  30],
        ...,
        [ 36,  27,  28],
        [ 27,  21,  23],
        [ 61,  55,  59]],

       [[ 44,  31,  25],
        [ 49,  36,  30],
        [ 50,  37,  31],
        ...,
        [ 32,  26,  26],
        [ 29,  23,  25],
        [ 67,  61,  65]],

       [[ 46,  33,  25],
        [ 51,  38,  30],
        [ 52,  39,  31],
        ...,
        [ 37,  31,  31],
        [ 38,  32,  34],
        [ 81,  76,  80]],

       ...,

       [[ 67,  46,  25],
        [ 88,  67,  48],
        [118,  97,  78],
        ...,
        [ 49,  28,   9],
        [ 52,  31,  12],
        [ 55,  34,  15]],

       [[ 43,  24,   7],
        [ 34,  15,   0],
        [ 77,  58,  41],
        ...,
        [ 45,  24,   5],
        [ 49,  28,   9],
        [ 52,  31,  12]],

       [[ 24,   7,   0],
        [ 19,   2,   0],
        [ 56,  39,  23],
        ...,
        [ 40,  22,   2],
        [ 43,  25,   5],
        [ 45,  27,   7]]], dtype=uint8)
```

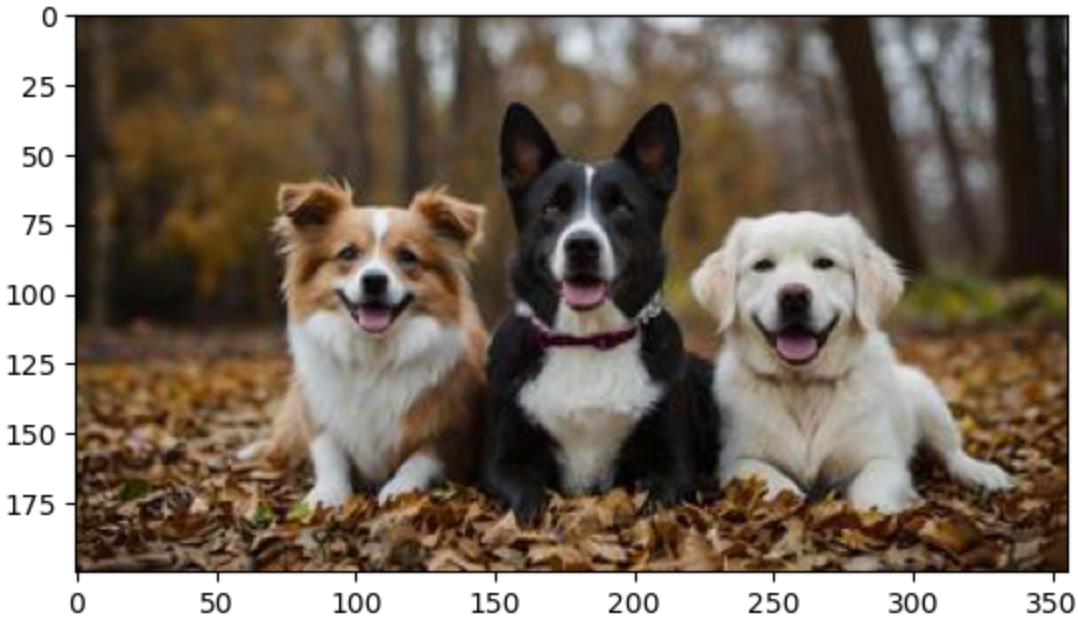
In [25]:
```
dog_red == dog_arr
```

Out[25]:
```
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 [31]:
```
plt.imshow(dog_red)
```

Out[31]:
```
<matplotlib.image.AxesImage at 0x1e1b598ce60>
```

In [32]:
```
plt.show()
```



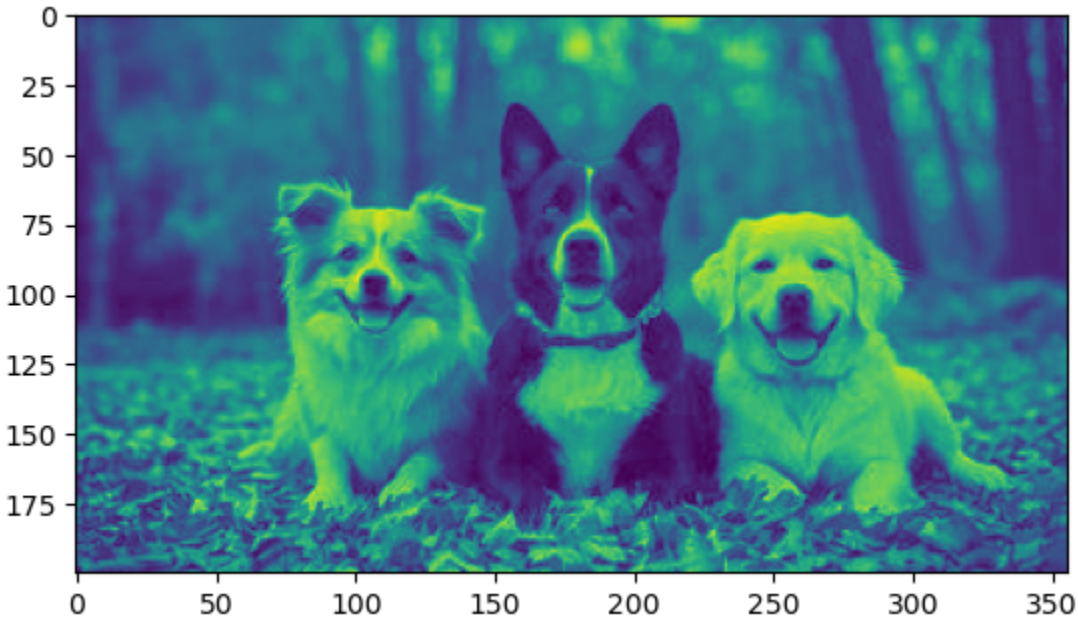
In [33]:
```
dog_red.shape
```

Out[33]: (200, 356, 3)

In [34]:
```
plt.imshow(dog_red[:,:,0])
```

Out[34]: <matplotlib.image.AxesImage at 0x1e1b4f4eb10>

In [35]:
```
plt.show()
```



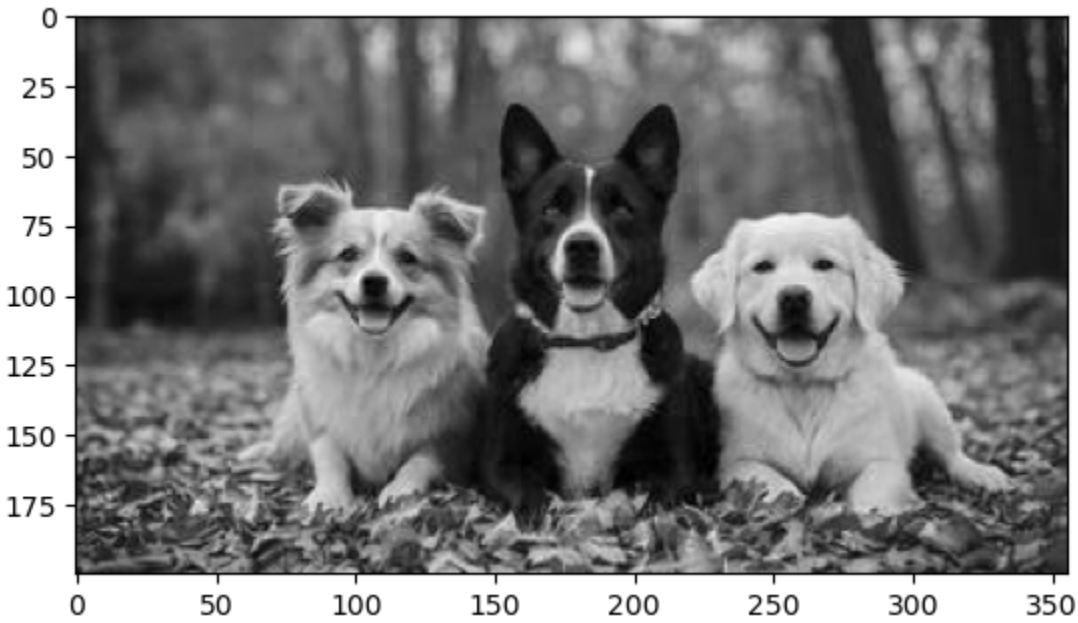
In [36]:
```
dog_red[:,:,0]
```

Out[36]:
```
array([[ 43,  48,  49, ...,  36,  27,  61],
       [ 44,  49,  50, ...,  32,  29,  67],
       [ 46,  51,  52, ...,  37,  38,  81],
       ...,
       [ 67,  88, 118, ...,  49,  52,  55],
       [ 43,  34,  77, ...,  45,  49,  52],
       [ 24,  19,  56, ...,  40,  43,  45]], dtype=uint8)
```

In [37]:
```
plt.imshow(dog_red[:,:,0],cmap='gray')
```

Out[37]:
```
<matplotlib.image.AxesImage at 0x1e1b4f4eb40>
```

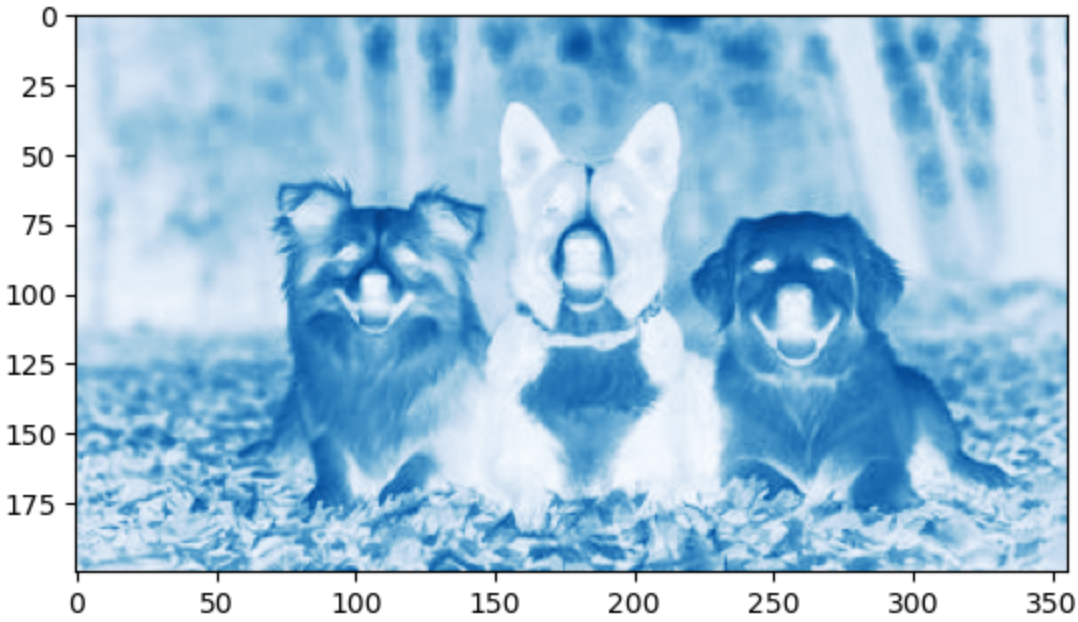
In [38]:
```
plt.show()
```



In [39]:
```
plt.imshow(dog_red[:,:,0],cmap='Blues')
```

Out[39]:
```
<matplotlib.image.AxesImage at 0x1e1b6c875f0>
```

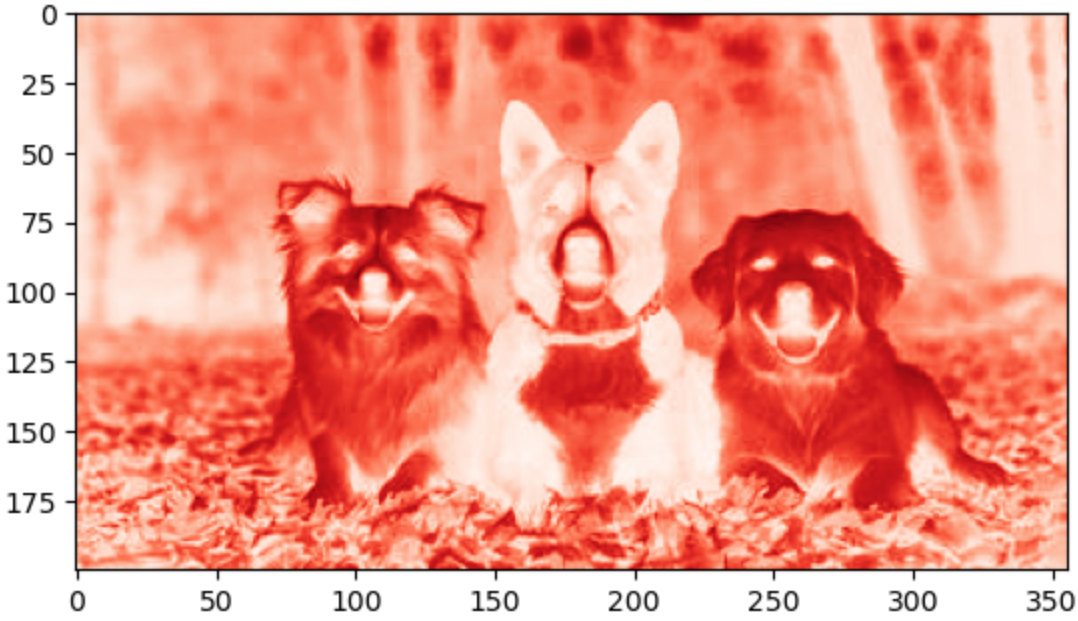
In [40]:
```
plt.show()
```



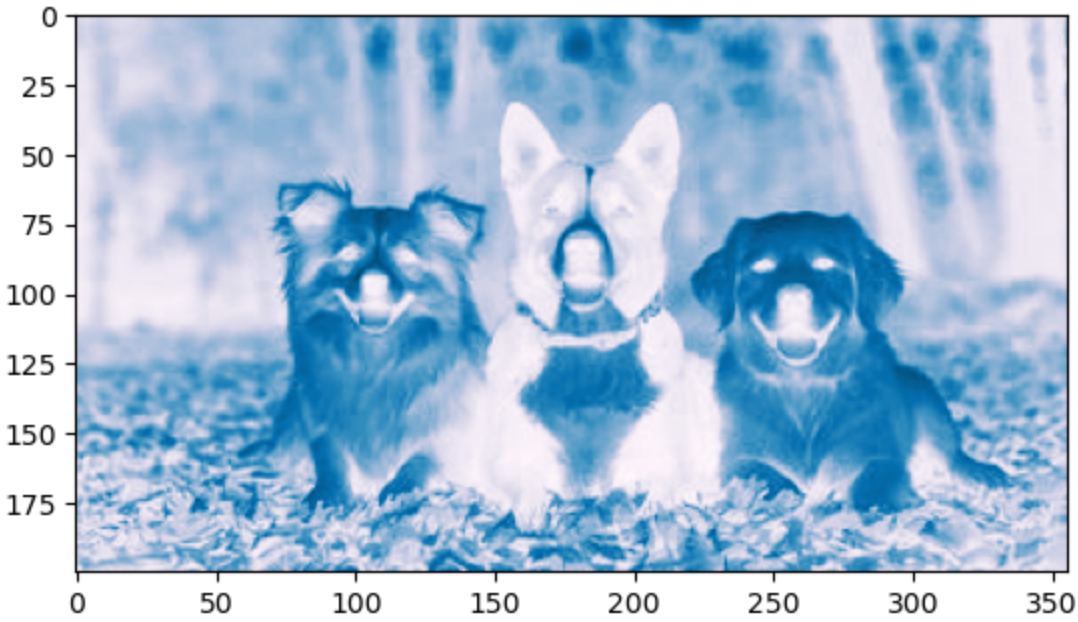
In [41]:
```
plt.imshow(dog_red[:,:,0],cmap='Reds')
```

Out[41]: <matplotlib.image.AxesImage at 0x1e1b6ca83b0>

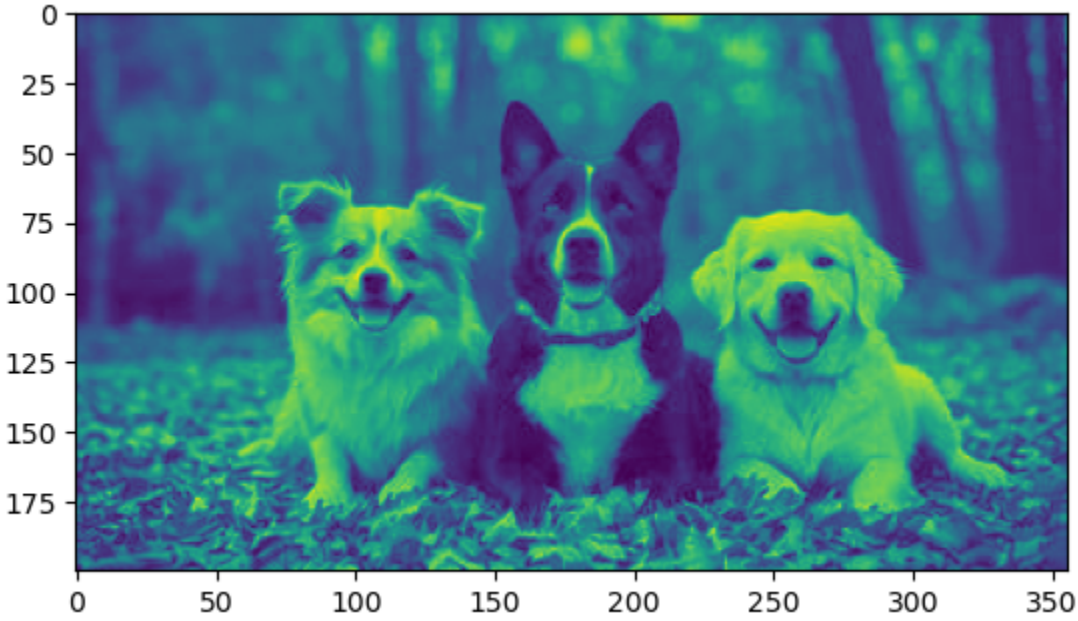
In [42]:
```
plt.show()
```



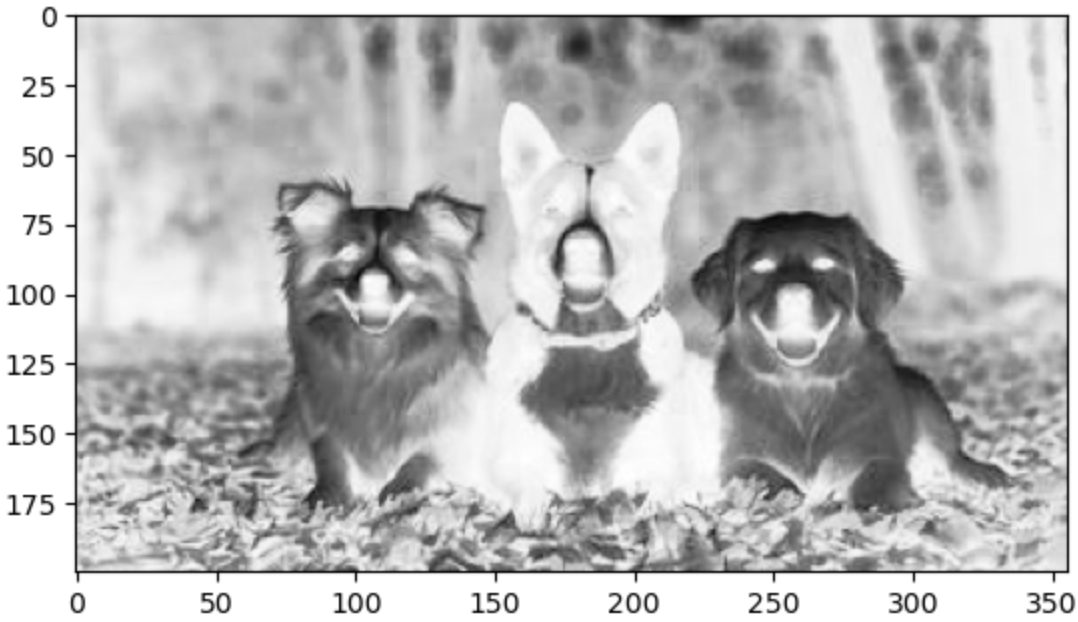
In [43]:
```
plt.imshow(dog_red[:,:,0],cmap='PuBu')
plt.show()
```



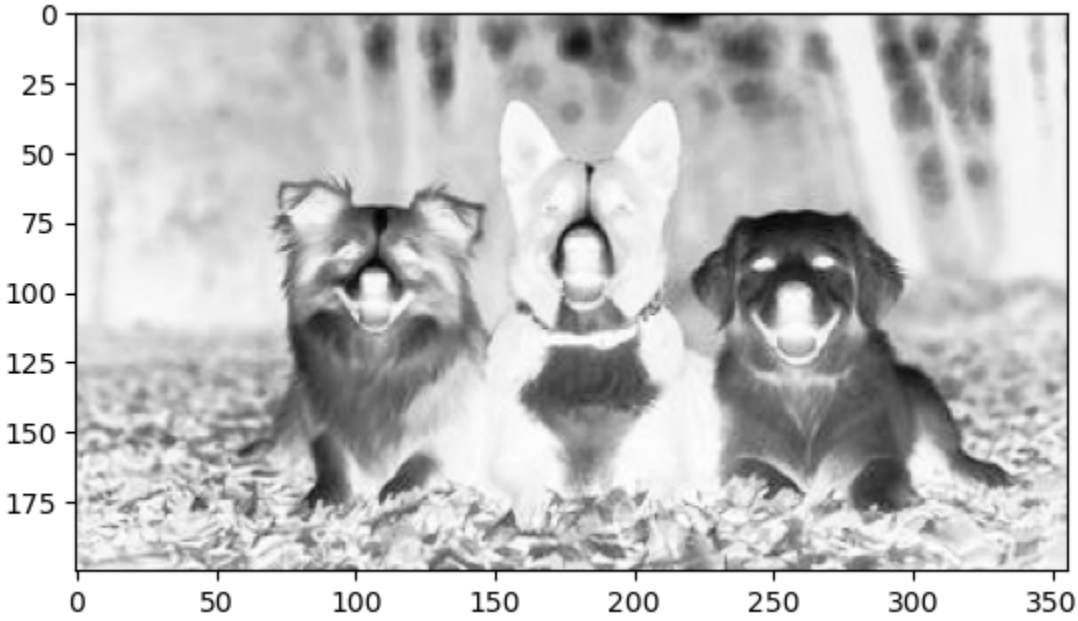
In [44]:
```
plt.imshow(dog_red[:,:,0],cmap='viridis')
plt.show()
```



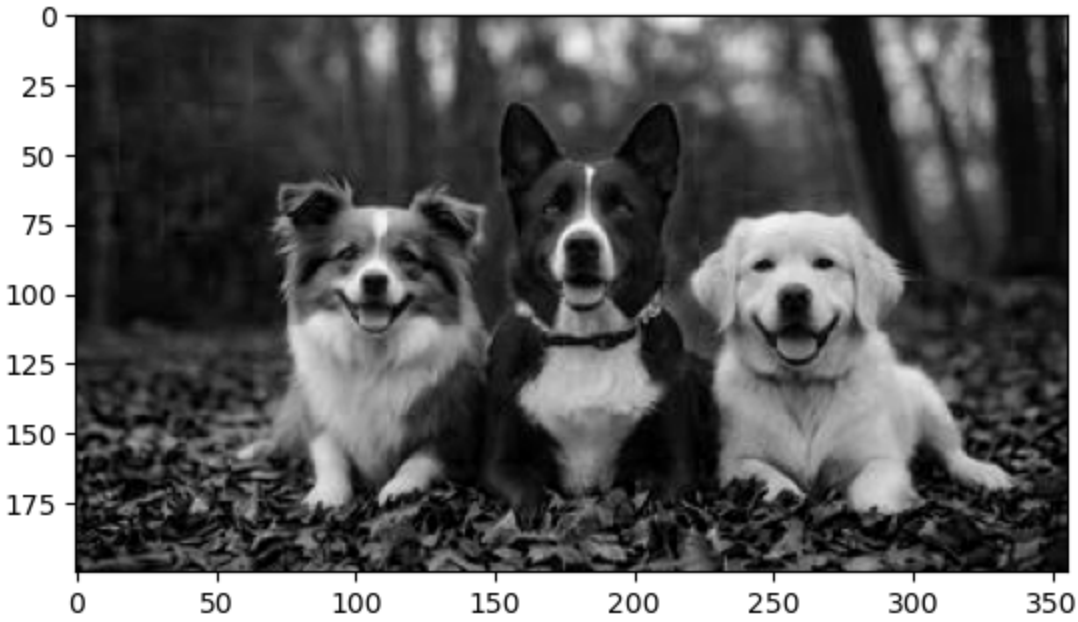
In [46]:
```
plt.imshow(dog_red[:,:,0],cmap='Greys')
plt.show()
```



In [47]:
```
plt.imshow(dog_red[:,:,1],cmap='Greys')
plt.show()
```



In [49]:
```
plt.imshow(dog_red[:,:,2],cmap='grey')
plt.show()
```



In [50]:
```
dog_red[:,:,0]
```

Out[50]:
```
array([[ 43,  48,  49, ...,  36,  27,  61],
       [ 44,  49,  50, ...,  32,  29,  67],
       [ 46,  51,  52, ...,  37,  38,  81],
       ...,
       [ 67,  88, 118, ...,  49,  52,  55],
       [ 43,  34,  77, ...,  45,  49,  52],
       [ 24,  19,  56, ...,  40,  43,  45]], dtype=uint8)
```

In [51]:
```
dog_red[:,:,1]
```

Out[51]:
```
array([[30, 35, 36, ..., 27, 21, 55],
       [31, 36, 37, ..., 26, 23, 61],
       [33, 38, 39, ..., 31, 32, 76],
       ...,
       [46, 67, 97, ..., 28, 31, 34],
       [24, 15, 58, ..., 24, 28, 31],
       [ 7,  2, 39, ..., 22, 25, 27]], dtype=uint8)
```

In [52]:
```
dog_red[:,:,2]
```

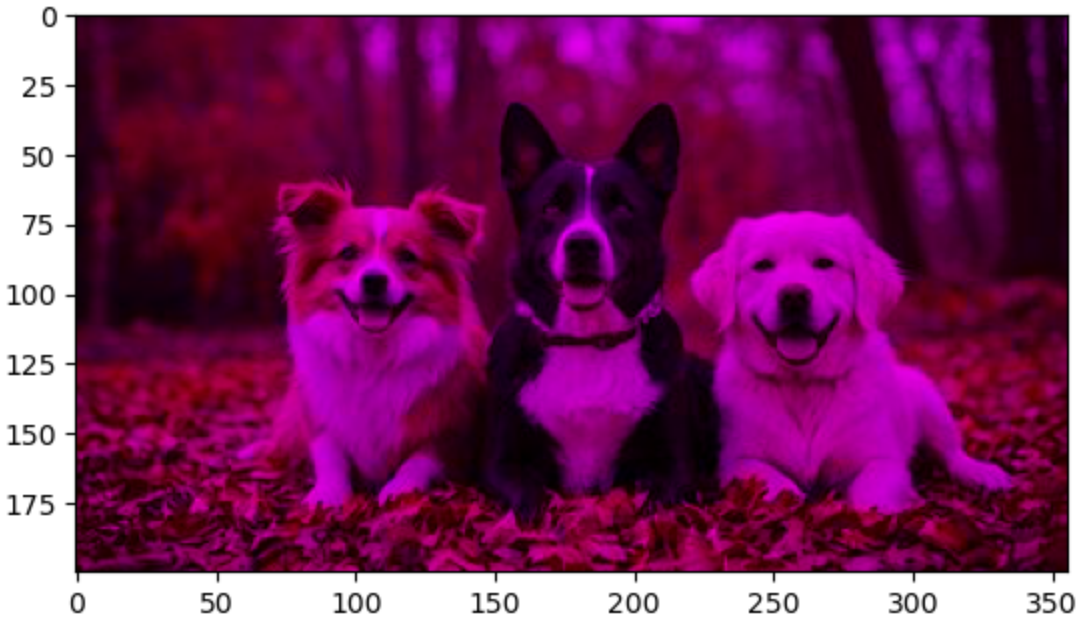
Out[52]:
```
array([[24, 29, 30, ..., 28, 23, 59],
       [25, 30, 31, ..., 26, 25, 65],
       [25, 30, 31, ..., 31, 34, 80],
       ...,
       [25, 48, 78, ...,  9, 12, 15],
       [ 7,  0, 41, ...,  5,  9, 12],
       [ 0,  0, 23, ...,  2,  5,  7]], dtype=uint8)
```

In [53]:
```
dog_red[:,:,1] = 0
```

In [54]:
```
dog_red[:,:,1]
```

Out[54]:
```
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 [57]:
```
plt.imshow(dog_red)
plt.show()
```



In [58]:
```
dog_red[:,:,2]
```

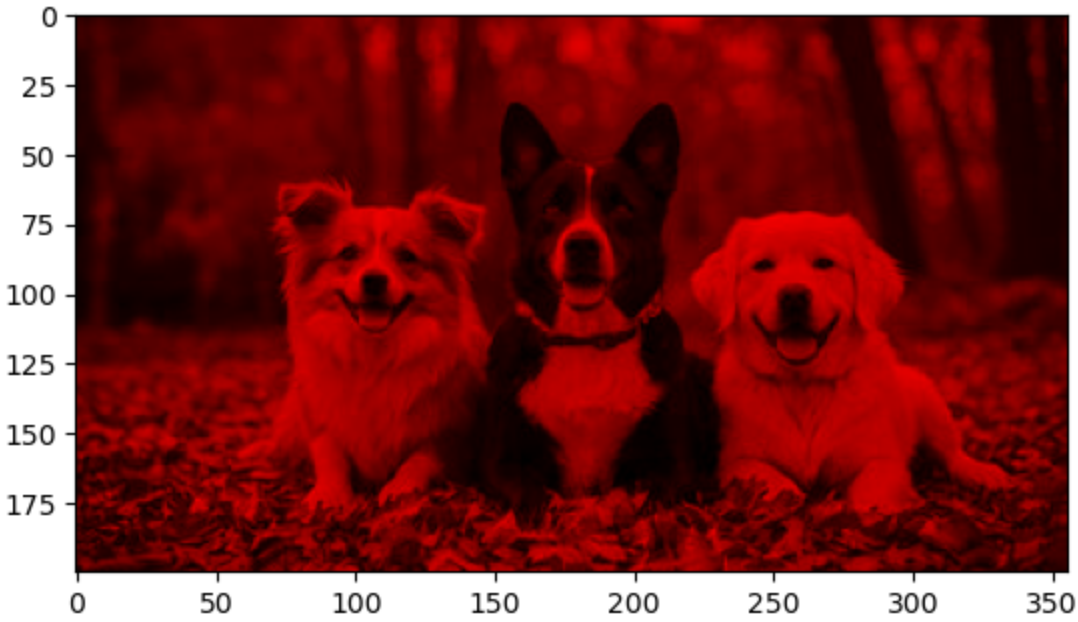
Out[58]:
```
array([[24, 29, 30, ..., 28, 23, 59],
       [25, 30, 31, ..., 26, 25, 65],
       [25, 30, 31, ..., 31, 34, 80],
       ...,
       [25, 48, 78, ...,  9, 12, 15],
       [ 7,  0, 41, ...,  5,  9, 12],
       [ 0,  0, 23, ...,  2,  5,  7]], dtype=uint8)
```

In [59]:
```
dog_red[:,:,2] = 0
```

In [60]:
```
dog_red[:,:,2]
```

Out[60]:
```
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 [61]:
```
plt.imshow(dog_red)
plt.show()
```



In [62]:
```
dog_arr
```

Out[62]:
```
array([[[ 43,  30,  24],
        [ 48,  35,  29],
        [ 49,  36,  30],
        ...,
        [ 36,  27,  28],
        [ 27,  21,  23],
        [ 61,  55,  59]],

       [[ 44,  31,  25],
        [ 49,  36,  30],
        [ 50,  37,  31],
        ...,
        [ 32,  26,  26],
        [ 29,  23,  25],
        [ 67,  61,  65]],

       [[ 46,  33,  25],
        [ 51,  38,  30],
        [ 52,  39,  31],
        ...,
        [ 37,  31,  31],
        [ 38,  32,  34],
        [ 81,  76,  80]],

       ...,

       [[ 67,  46,  25],
        [ 88,  67,  48],
        [118,  97,  78],
        ...,
        [ 49,  28,   9],
        [ 52,  31,  12],
        [ 55,  34,  15]],

       [[ 43,  24,   7],
        [ 34,  15,   0],
        [ 77,  58,  41],
        ...,
        [ 45,  24,   5],
        [ 49,  28,   9],
        [ 52,  31,  12]],

       [[ 24,   7,   0],
        [ 19,   2,   0],
        [ 56,  39,  23],
        ...,
        [ 40,  22,   2],
        [ 43,  25,   5],
        [ 45,  27,   7]]], dtype=uint8)
```

In [63]:
```
dog_arr
```

Out[63]:
```
array([[[ 43,  30,  24],
        [ 48,  35,  29],
        [ 49,  36,  30],
        ...,
        [ 36,  27,  28],
        [ 27,  21,  23],
        [ 61,  55,  59]],

       [[ 44,  31,  25],
        [ 49,  36,  30],
        [ 50,  37,  31],
        ...,
        [ 32,  26,  26],
        [ 29,  23,  25],
        [ 67,  61,  65]],

       [[ 46,  33,  25],
        [ 51,  38,  30],
        [ 52,  39,  31],
        ...,
        [ 37,  31,  31],
        [ 38,  32,  34],
        [ 81,  76,  80]],

       ...,

       [[ 67,  46,  25],
        [ 88,  67,  48],
        [118,  97,  78],
        ...,
        [ 49,  28,   9],
        [ 52,  31,  12],
        [ 55,  34,  15]],

       [[ 43,  24,   7],
        [ 34,  15,   0],
        [ 77,  58,  41],
        ...,
        [ 45,  24,   5],
        [ 49,  28,   9],
        [ 52,  31,  12]],

       [[ 24,   7,   0],
        [ 19,   2,   0],
        [ 56,  39,  23],
        ...,
        [ 40,  22,   2],
        [ 43,  25,   5],
        [ 45,  27,   7]]], dtype=uint8)
```

In [64]:
```
dog_image
```

Out[64]:

In [65]:
```
arr1 = np.asarray(dog_image)
```

In [66]:
```
arr1
```

Out[66]:
```
array([[[ 43,  30,  24],
        [ 48,  35,  29],
        [ 49,  36,  30],
        ...,
        [ 36,  27,  28],
        [ 27,  21,  23],
        [ 61,  55,  59]],

       [[ 44,  31,  25],
        [ 49,  36,  30],
        [ 50,  37,  31],
        ...,
        [ 32,  26,  26],
        [ 29,  23,  25],
        [ 67,  61,  65]],

       [[ 46,  33,  25],
        [ 51,  38,  30],
        [ 52,  39,  31],
        ...,
        [ 37,  31,  31],
        [ 38,  32,  34],
        [ 81,  76,  80]],

       ...,

       [[ 67,  46,  25],
        [ 88,  67,  48],
        [118,  97,  78],
        ...,
        [ 49,  28,   9],
        [ 52,  31,  12],
        [ 55,  34,  15]],

       [[ 43,  24,   7],
        [ 34,  15,   0],
        [ 77,  58,  41],
        ...,
        [ 45,  24,   5],
        [ 49,  28,   9],
        [ 52,  31,  12]],

       [[ 24,   7,   0],
        [ 19,   2,   0],
        [ 56,  39,  23],
        ...,
        [ 40,  22,   2],
        [ 43,  25,   5],
        [ 45,  27,   7]]], dtype=uint8)
```

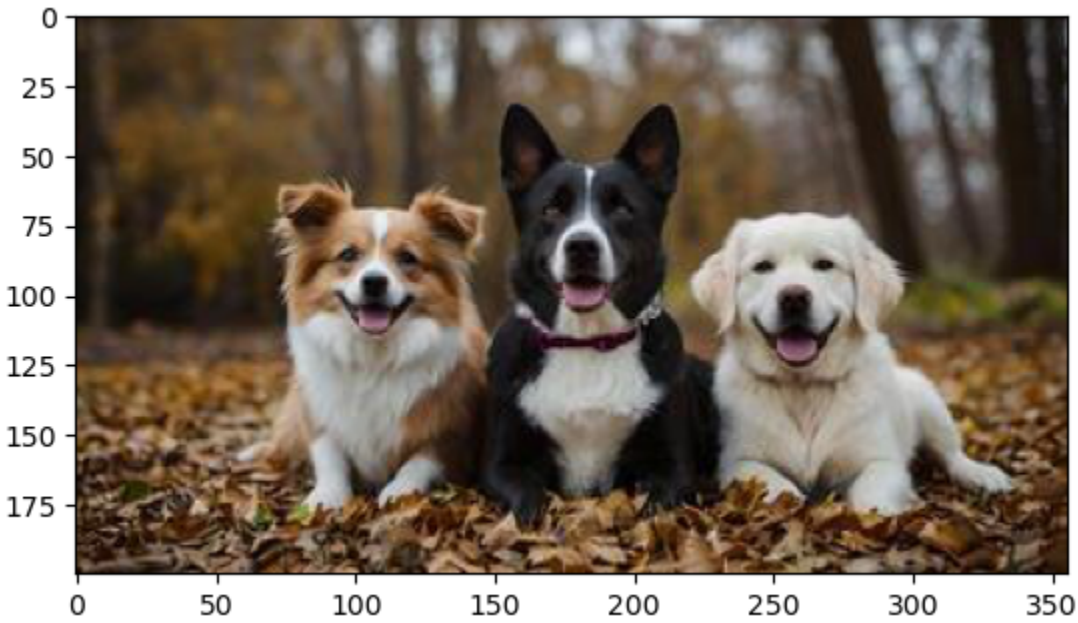
In [68]:
```
type(arr1)
```

Out[68]:
```
numpy.ndarray
```

In [69]:
```
arr1.shape
```

Out[69]: (200, 356, 3)

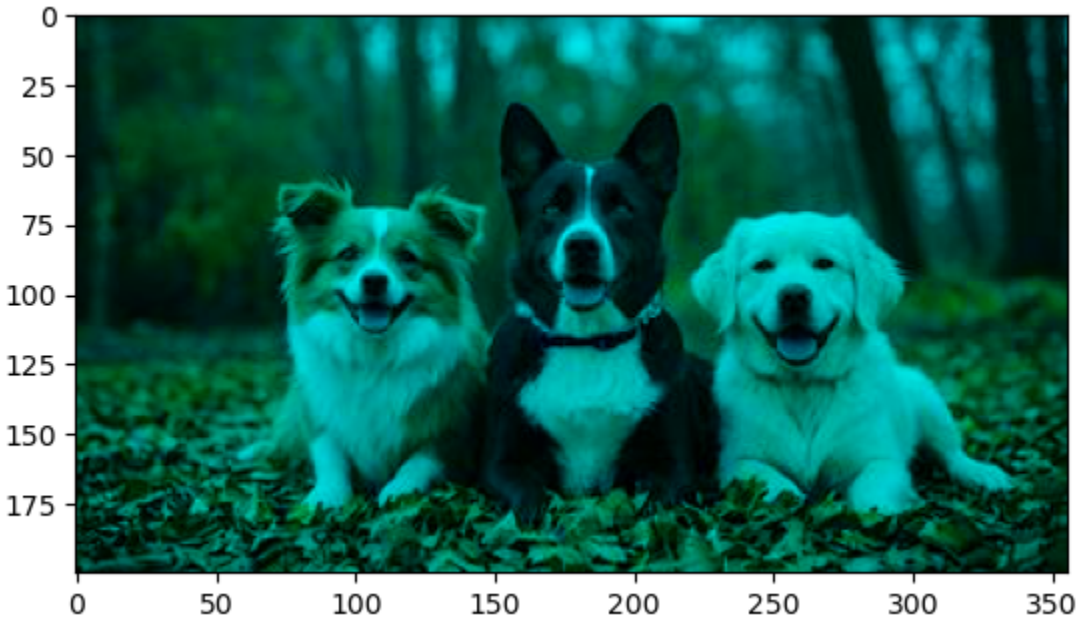
In [70]:
```
plt.imshow(arr1)
plt.show()
```



In [71]:
```
dog_img1 = arr1.copy()
```

In [72]:
```
dog_img1[:,:,0]=0
```

In [73]:
```
plt.imshow(dog_img1)
plt.show()
```



In [74]:
```
dog_img1[:,:,1]
```

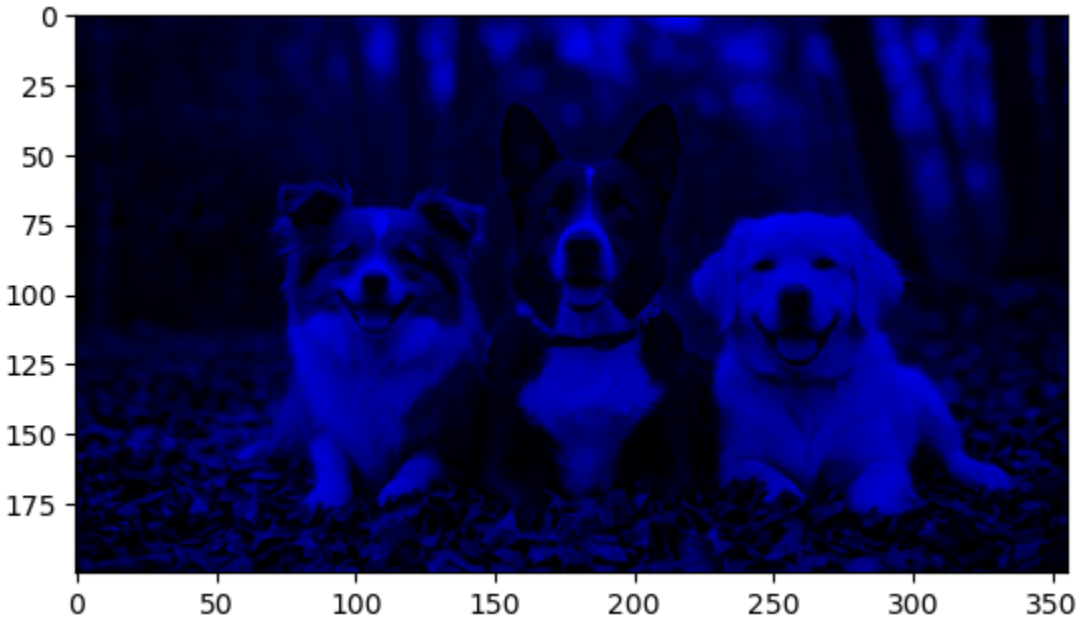
Out[74]:
```
array([[30, 35, 36, ..., 27, 21, 55],
       [31, 36, 37, ..., 26, 23, 61],
       [33, 38, 39, ..., 31, 32, 76],
       ...,
       [46, 67, 97, ..., 28, 31, 34],
       [24, 15, 58, ..., 24, 28, 31],
       [ 7,  2, 39, ..., 22, 25, 27]], dtype=uint8)
```

In [75]:
```
dog_img1[:,:,1]=0
```

In [76]:
```
dog_img1[:,:,1]
```

Out[76]:
```
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 [77]:
```
plt.imshow(dog_img1)
plt.show()
```



In [ ]: