In [1]:

```
pip install matplotlib
```

```
Collecting matplotlib
  Downloading matplotlib-3.10.5-cp313-cp313-win_amd64.whl.metadata (11 kB)
Collecting contourpy>=1.0.1 (from matplotlib)
  Downloading contourpy-1.3.3-cp313-cp313-win_amd64.whl.metadata (5.5 kB)
Collecting cycler>=0.10 (from matplotlib)
  Downloading cycler-0.12.1-py3-none-any.whl.metadata (3.8 kB)
Collecting fonttools>=4.22.0 (from matplotlib)
  Downloading fonttools-4.59.0-cp313-cp313-win_amd64.whl.metadata (110 kB)
Collecting kiwisolver>=1.3.1 (from matplotlib)
  Downloading kiwisolver-1.4.9-cp313-cp313-win_amd64.whl.metadata (6.4 kB)
Requirement already satisfied: numpy>=1.23 in c:\users\ar ansari\vscode\playground\lib\site-packages (from matplotlib) (2.3.2)
Requirement already satisfied: packaging>=20.0 in c:\users\ar ansari\vscode\playground\lib\site-packages (from matplotlib) (25.0)
Collecting pillow>=8 (from matplotlib)
  Downloading pillow-11.3.0-cp313-cp313-win_amd64.whl.metadata (9.2 kB)
Collecting pyparsing>=2.3.1 (from matplotlib)
  Downloading pyparsing-3.2.3-py3-none-any.whl.metadata (5.0 kB)
Requirement already satisfied: python-dateutil>=2.7 in c:\users\ar ansari\vscode\playground\lib\site-packages (from matplotlib) (2.9.0.post0)
Requirement already satisfied: six>=1.5 in c:\users\ar ansari\vscode\playground\lib\site-packages (from python-dateutil>=2.7->matplotlib) (1.17.0)
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Downloading cycler-0.12.1-py3-none-any.whl (8.3 kB)
Downloading fonttools-4.59.0-cp313-cp313-win_amd64.whl (2.2 MB)
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Downloading pillow-11.3.0-cp313-cp313-win_amd64.whl (7.0 MB)
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Installing collected packages: pyparsing, pillow, kiwisolver, fonttools, cycler, contourpy, matplotlib

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Successfully installed contourpy-1.3.3 cycler-0.12.1 fonttools-4.59.0 kiwisolver-1.4.9 matplotlib-3.10.5 pillow-11.3.0 pyparsing-3.2.3
Note: you may need to restart the kernel to use updated packages.
[notice] A new release of pip is available: 25.1.1 -> 25.2
[notice] To update, run: python.exe -m pip install --upgrade pip

In [4]:

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

In [5]:

```python
from PIL import Image
```

In [13]:

```python
anemie = Image.open(r"C:\Users\AR ANSARI\Downloads\anime.JPG")
anemie
```

Out[13]:

In [14]:
```
type(anemie)
```
Out[14]:
```
PIL.JpegImagePlugin.JpegImageFile
```
In [15]:
```
anemie_arr = np.asarray(anemie_image)
anemie_arr
```

Out[15]:

```
array([[[ 29,  51, 100],
        [ 29,  51, 100],
        [ 29,  51, 100],
        ...,
        [135, 174, 217],
        [135, 174, 217],
        [135, 174, 217]],

       [[ 29,  51, 100],
        [ 29,  51, 100],
        [ 29,  51, 100],
        ...,
        [135, 174, 217],
        [135, 174, 217],
        [135, 174, 217]],

       [[ 29,  51, 100],
        [ 29,  51, 100],
        [ 29,  51, 100],
        ...,
        [135, 174, 217],
        [135, 174, 217],
        [135, 174, 217]],

       ...,

       [[ 75, 115, 174],
        [ 75, 115, 174],
        [ 74, 114, 173],
        ...,
        [ 79, 112, 163],
        [ 82, 115, 166],
        [ 83, 116, 167]],

       [[ 70, 111, 167],
        [ 69, 110, 166],
        [ 69, 108, 165],
        ...,
        [ 85, 121, 169],
        [ 85, 121, 169],
        [ 85, 121, 169]],

       [[ 70, 111, 167],
        [ 69, 110, 166],
        [ 69, 108, 165],
        ...,
        [ 83, 119, 167],
        [ 82, 118, 166],
        [ 82, 118, 166]]], shape=(1002, 736, 3), dtype=uint8)
```

In [16]:

```
type(anemie_arr)
```

Out[16]:

```
numpy.ndarray
```

In [17]:

```
anemie_arr.shape
```

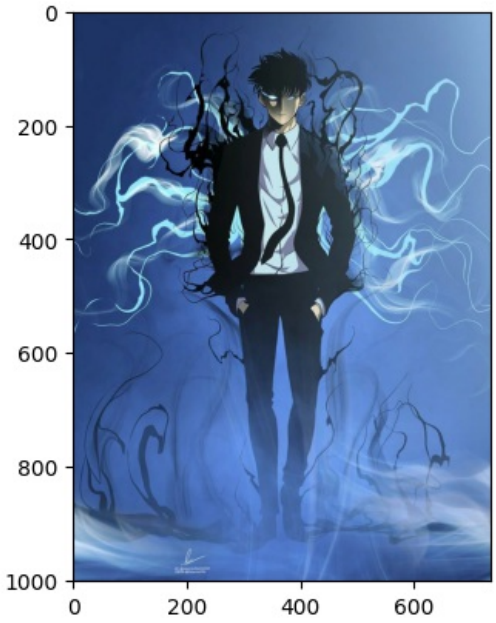
Out[17]:

```
(1002, 736, 3)
```

In [18]:

```
plt.imshow(anemie_arr)
```

Out[18]:
<matplotlib.image.AxesImage at 0x25a45cfa660>



In [20]:
```
plt.show()
```
In [21]:
```
anemie_arr = anemie_arr.copy()
anemie_arr
```

Out[21]:

```
array([[[ 29,  51, 100],
        [ 29,  51, 100],
        [ 29,  51, 100],
        ...,
        [135, 174, 217],
        [135, 174, 217],
        [135, 174, 217]],

       [[ 29,  51, 100],
        [ 29,  51, 100],
        [ 29,  51, 100],
        ...,
        [135, 174, 217],
        [135, 174, 217],
        [135, 174, 217]],

       [[ 29,  51, 100],
        [ 29,  51, 100],
        [ 29,  51, 100],
        ...,
        [135, 174, 217],
        [135, 174, 217],
        [135, 174, 217]],

       ...,

       [[ 75, 115, 174],
        [ 75, 115, 174],
        [ 74, 114, 173],
        ...,
        [ 79, 112, 163],
        [ 82, 115, 166],
        [ 83, 116, 167]],

       [[ 70, 111, 167],
        [ 69, 110, 166],
        [ 69, 108, 165],
        ...,
        [ 85, 121, 169],
        [ 85, 121, 169],
        [ 85, 121, 169]],

       [[ 70, 111, 167],
        [ 69, 110, 166],
        [ 69, 108, 165],
        ...,
        [ 83, 119, 167],
        [ 82, 118, 166],
        [ 82, 118, 166]]], shape=(1002, 736, 3), dtype=uint8)
```

In [22]:

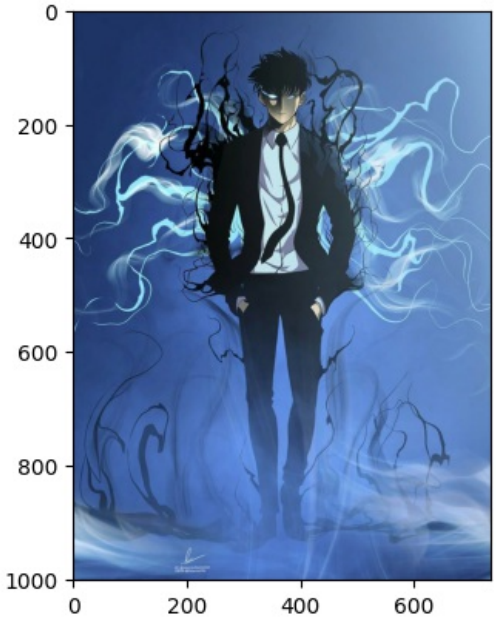
```
red = anemie_arr
```

In [23]:

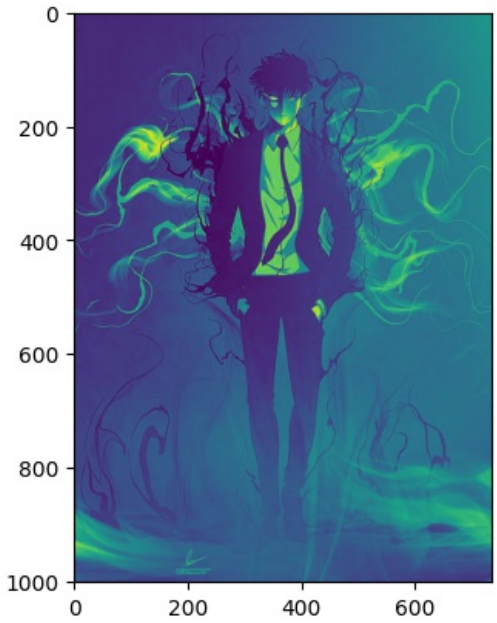
```
plt.imshow(red)
```

Out[23]:

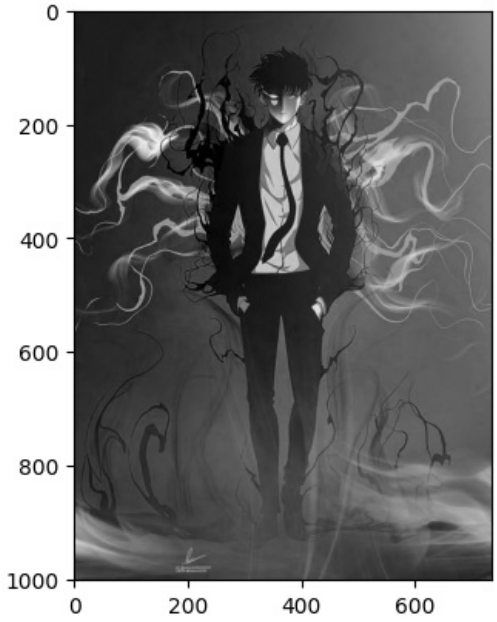
```
<matplotlib.image.AxesImage at 0x25a4782f390>
```



In [24]:
```
red.shape
```
Out[24]:
```
(1002, 736, 3)
```
In [25]:
```
plt.imshow(red[:,:,0])
```
Out[25]:
```
<matplotlib.image.AxesImage at 0x25a47220f50>
```

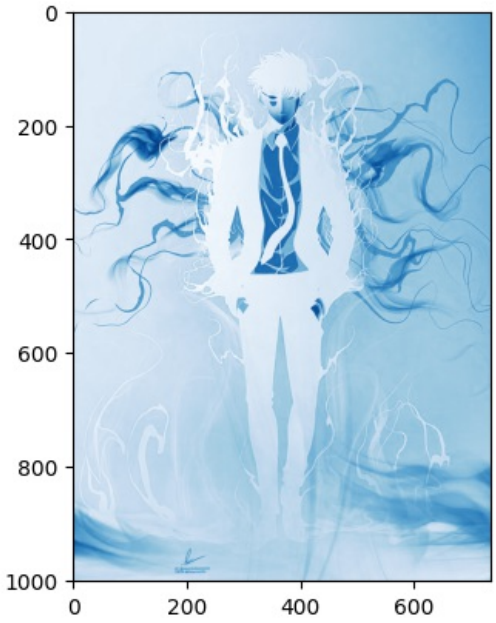


In [26]:
```
red[:,:,0]
```
Out[26]:
```
array([[ 29,  29,  29, ..., 135, 135, 135],
       [ 29,  29,  29, ..., 135, 135, 135],
       [ 29,  29,  29, ..., 135, 135, 135],
       ...,
       [ 75,  75,  74, ...,  79,  82,  83],
       [ 70,  69,  69, ...,  85,  85,  85],
       [ 70,  69,  69, ...,  83,  82,  82]],
      shape=(1002, 736), dtype=uint8)
```
In [27]:
```
plt.imshow(red[:,:,0], cmap ="gray")
```
Out[27]:
```
<matplotlib.image.AxesImage at 0x25a47281d10>
```



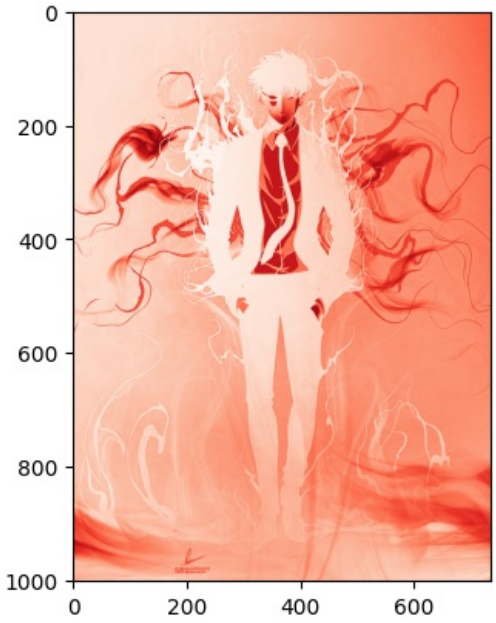
In [29]:
```
plt.imshow(red[:,:,0], cmap ="Blues")
```

Out[29]:
<matplotlib.image.AxesImage at 0x25a4d3539d0>



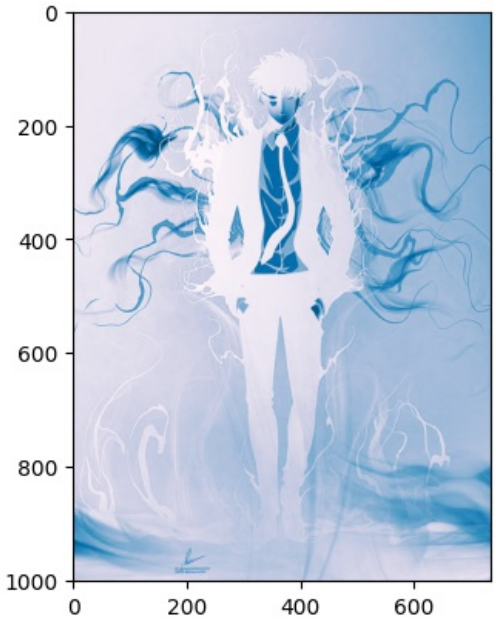
In [31]:
```
plt.imshow(red[:,:,0], cmap ="Reds")
```

Out[31]:
<matplotlib.image.AxesImage at 0x25a4d4e4e10>



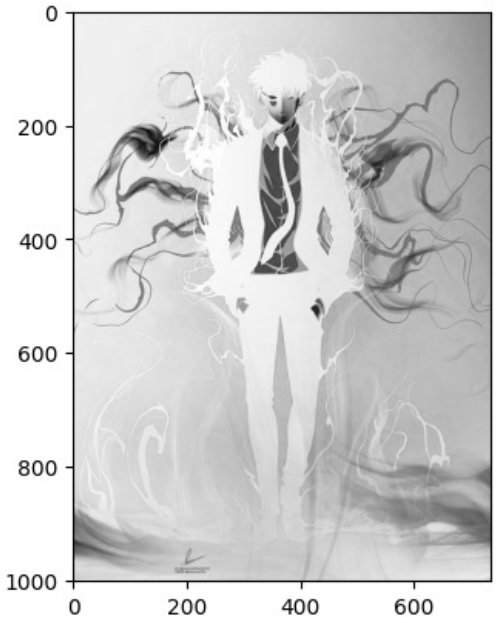
In [32]:
```
plt.imshow(red[:,:,0], cmap ="PuBu")
```

Out[32]:
<matplotlib.image.AxesImage at 0x25a4d541f90>



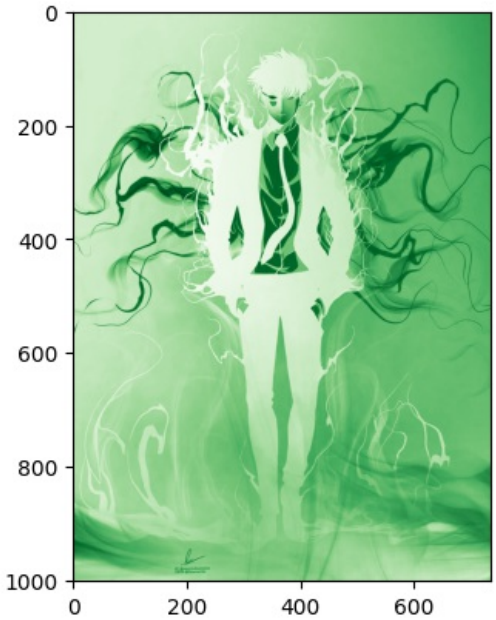
In [33]:
```
plt.imshow(red[:,:,0], cmap ="Greys")
```

Out[33]:
<matplotlib.image.AxesImage at 0x25a4d5aafd0>



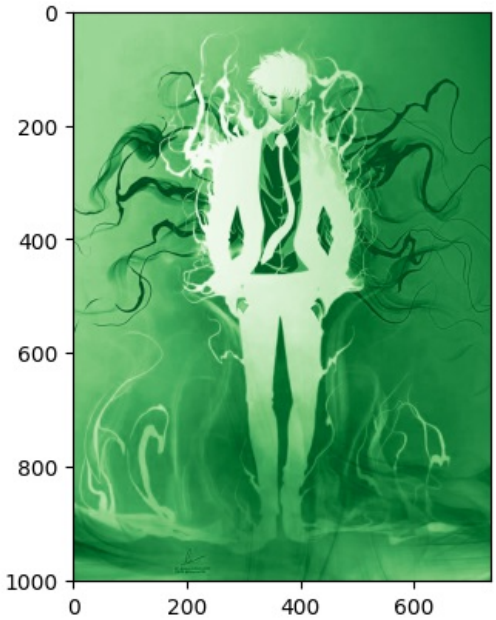
In [34]:
```
plt.imshow(red[:,:,1], cmap ="Greens")
```

Out[34]:
<matplotlib.image.AxesImage at 0x25a4d5f3c50>



In [36]:
plt.imshow(red[:,:,2], cmap ="Greens")

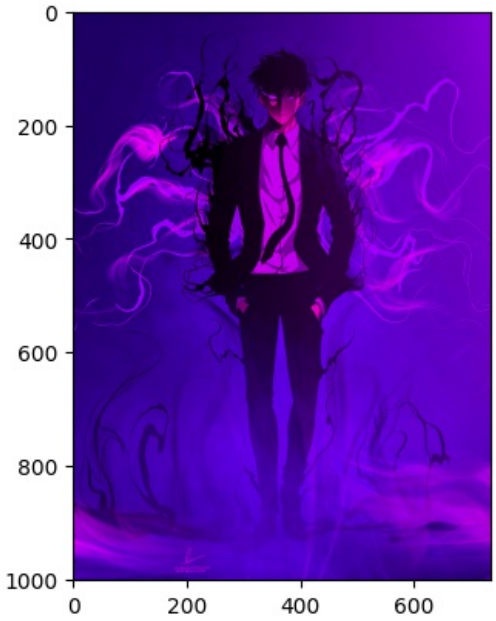
Out[36]:
<matplotlib.image.AxesImage at 0x25a4d6a1a90>



In [ ]:
red[:,:,0]

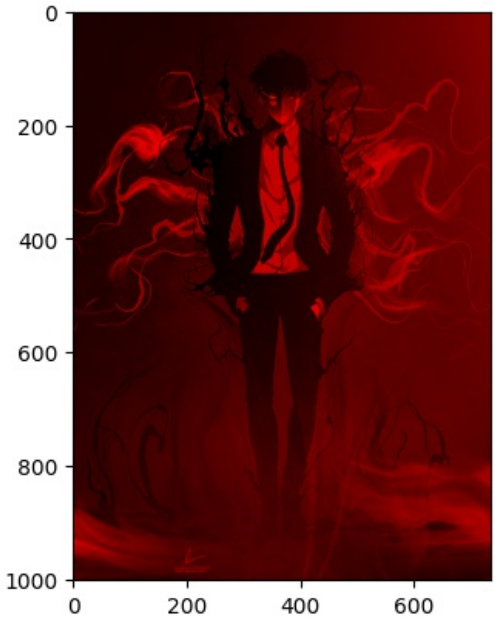
Out[ ]:
```
array([[ 29,  29,  29, ..., 135, 135, 135],
       [ 29,  29,  29, ..., 135, 135, 135],
       [ 29,  29,  29, ..., 135, 135, 135],
       ...,
       [ 75,  75,  74, ...,  79,  82,  83],
       [ 70,  69,  69, ...,  85,  85,  85],
       [ 70,  69,  69, ...,  83,  82,  82]],
      shape=(1002, 736), dtype=uint8)
```

In [38]:
red[:,:1]

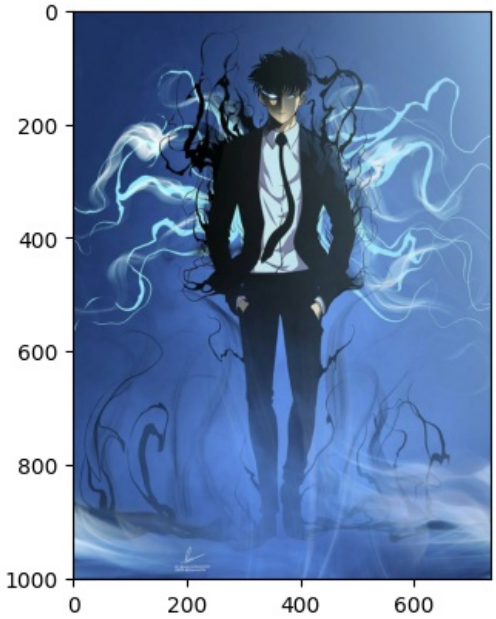
Out[38]:
```
array([[[ 29,  51, 100]],

       [[ 29,  51, 100]],

       [[ 29,  51, 100]],

       ...,

       [[ 75, 115, 174]],

       [[ 70, 111, 167]],

       [[ 70, 111, 167]]], shape=(1002, 1, 3), dtype=uint8)
```
In [39]:
```
red[:,:,2]
```
Out[39]:
```
array([[100, 100, 100, ..., 217, 217, 217],
       [100, 100, 100, ..., 217, 217, 217],
       [100, 100, 100, ..., 217, 217, 217],
       ...,
       [174, 174, 173, ..., 163, 166, 167],
       [167, 166, 165, ..., 169, 169, 169],
       [167, 166, 165, ..., 167, 166, 166]],
      shape=(1002, 736), dtype=uint8)
```
In [40]:
```
red[:,:,1] = 0
```
In [41]:
```
red[:,:,1]
```
Out[41]:
```
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]], shape=(1002, 736), dtype=uint8)
```
In [42]:
```
plt.imshow(red)
```
Out[42]:
```
<matplotlib.image.AxesImage at 0x25a4d6f65d0>
```


In [43]:
```
red[:,:,2] = 0
```
In [44]:
```
red[:,:,2]
```
Out[44]:
```
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]], shape=(1002, 736), dtype=uint8)
```

In [45]:
```
plt.imshow(red)
```
Out[45]:
<matplotlib.image.AxesImage at 0x25a4d7434d0>



In [46]:
```
plt.imshow(anemie)
```
Out[46]:
<matplotlib.image.AxesImage at 0x25a4d7dc410>



In [47]:
```
arr1 = np.asarray(anemie)
```
In [48]:
```
arr1
```

Out[48]:

```
array([[[ 29,  51, 100],
        [ 29,  51, 100],
        [ 29,  51, 100],
        ...,
        [135, 174, 217],
        [135, 174, 217],
        [135, 174, 217]],

       [[ 29,  51, 100],
        [ 29,  51, 100],
        [ 29,  51, 100],
        ...,
        [135, 174, 217],
        [135, 174, 217],
        [135, 174, 217]],

       [[ 29,  51, 100],
        [ 29,  51, 100],
        [ 29,  51, 100],
        ...,
        [135, 174, 217],
        [135, 174, 217],
        [135, 174, 217]],

       ...,

       [[ 75, 115, 174],
        [ 75, 115, 174],
        [ 74, 114, 173],
        ...,
        [ 79, 112, 163],
        [ 82, 115, 166],
        [ 83, 116, 167]],

       [[ 70, 111, 167],
        [ 69, 110, 166],
        [ 69, 108, 165],
        ...,
        [ 85, 121, 169],
        [ 85, 121, 169],
        [ 85, 121, 169]],

       [[ 70, 111, 167],
        [ 69, 110, 166],
        [ 69, 108, 165],
        ...,
        [ 83, 119, 167],
        [ 82, 118, 166],
        [ 82, 118, 166]]], shape=(1002, 736, 3), dtype=uint8)
```

In [49]:

```
arr1.shape
```

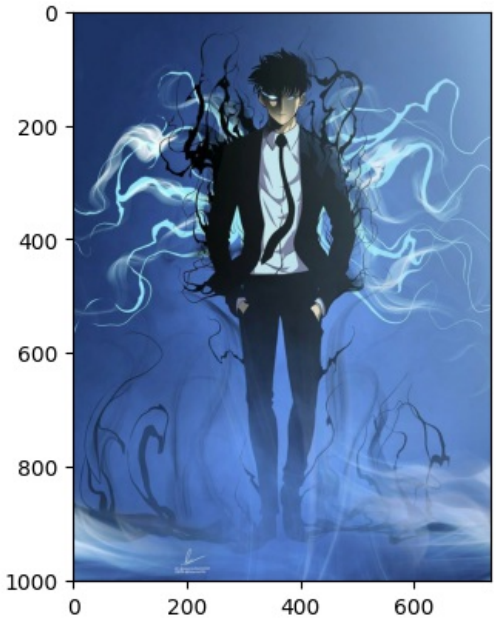
Out[49]:

```
(1002, 736, 3)
```

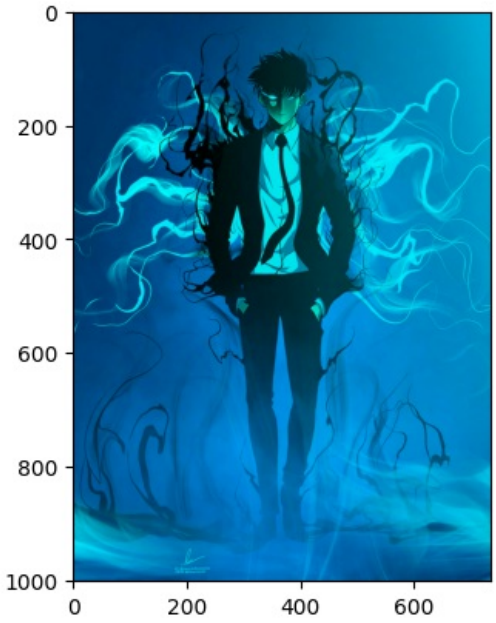
In [50]:

```
plt.imshow(anemie)
```

Out[50]:
<matplotlib.image.AxesImage at 0x25a4d82d310>

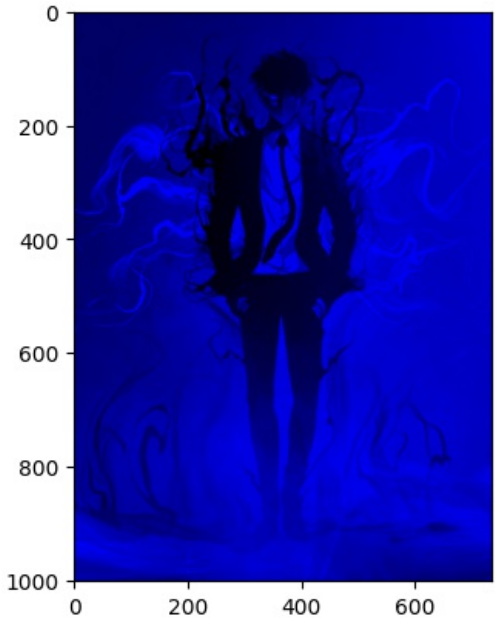


In [51]:
```
anemie1 = arr1.copy()
```
In [52]:
```
anemie1 [:,:,0] = 0
```
In [53]:
```
plt.imshow(anemie1)
```
Out[53]:
<matplotlib.image.AxesImage at 0x25a4d896210>

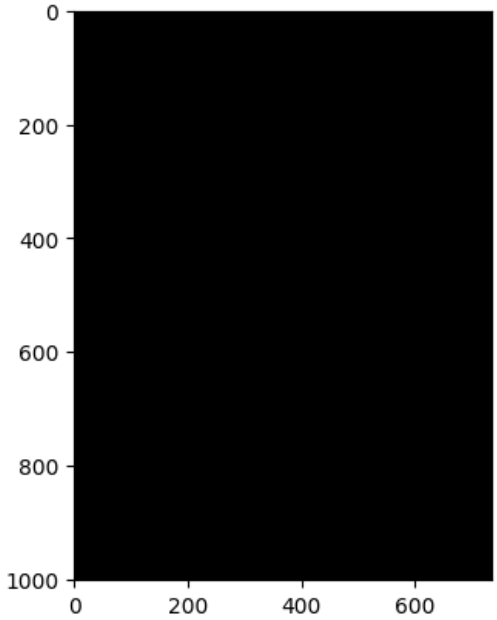


In [54]:
```
anemie1 [:,:,1] = 0
```
In [55]:
```
plt.imshow(anemie1)
```

Out[55]:
<matplotlib.image.AxesImage at 0x25a4d8ff110>



In [56]:
anemie1 [:,:,2] = 0
In [57]:
plt.imshow(anemie1)
Out[57]:
<matplotlib.image.AxesImage at 0x25a4d988050>



In [ ]:

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