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In [1]:
# Image to NumPy array test code by Agamdeep S. Chopra.
import pandas as pd

df = pd.read_excel (r'chest_xray\dataset.xlsx')
index = df.dropna().values

train_normal_index = int(index[0,1])
train_bacteria_index = int(index[1,1])
train_viral_index = int(index[2,1])

test_normal_index = int(index[0,2])
test_bacteria_index = int(index[1,2])
test_viral_index = int(index[2,2])

val_normal_index = int(index[0,3])
val_bacteria_index = int(index[1,3])
val_viral_index = int(index[2,3])

print("Dataset image index table:\n",index)
print("\nTraining data ->",train_normal_index,train_bacteria_index,train_viral_index)
print("\nTesting data ->",test_normal_index,test_bacteria_index,test_viral_index)
print("\nValidation data ->",val_normal_index,val_bacteria_index,val_viral_index)
    Dataset image index table:
    [['NORMAL' 1341 234 8]
     ['BACTERIA' 2530 242 8]
     ['VIRUS' 1342 148 3]]

    Training data -> 1341 2530 1342

    Testing data -> 234 242 148

    Validation data -> 8 8 3
In [2]:
from numpy import asarray as asr
In [3]:
# Pillow(PIL) Approach

from PIL import Image

test_image_PIL = Image.open(r'chest_xray\chest_xray\val\NORMAL\img (1).jpeg')

print(test_image_PIL)
print(test_image_PIL.format)
print(test_image_PIL.size)
print(test_image_PIL.mode)# L means 8-bit pixels, black and white

test_image_PIL.show()

test_data_PIL_numpy = asr(test_image_PIL)
print(type(test_data_PIL_numpy))
print(test_data_PIL_numpy.shape)
print(test_data_PIL_numpy)
    <PIL.JpegImagePlugin.JpegImageFile image mode=L size=1776x1416 at
    0x283CE26FD90>

```

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JPEG
(1776, 1416)
L
<class 'numpy.ndarray'>
(1416, 1776)
[[ 3  0  4 ... 68 67 67]
 [ 6  5  2 ... 69 66 63]
 [ 0  1  3 ... 70 66 61]
 ...
 [250  6  0 ...  0  0  0]
 [255  1  6 ...  0  0  0]
 [255  0  6 ...  0  0  0]]

```

In [4]:

MATPLOTLIB Approach

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from matplotlib import image
from matplotlib import pyplot

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```
test_image_MPL = image.imread(r'chest_xray\chest_xray\val\NORMAL\img (1).jpeg')
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print(test_image_MPL.dtype)
print(test_image_MPL.shape)

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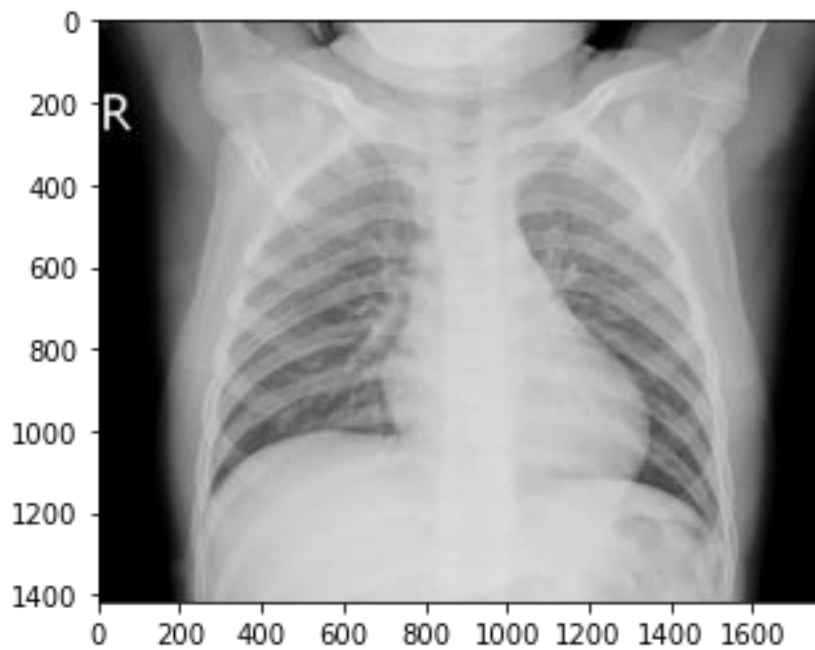
pyplot.imshow(test_image_MPL,cmap='gray')
pyplot.show()

```

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test_data_MPL_numpy = asr(test_image_MPL)
print(type(test_data_MPL_numpy))
print(test_data_MPL_numpy.shape)
print(test_data_MPL_numpy)
uint8
(1416, 1776)

```



```
<class 'numpy.ndarray'>
```

```
(1416, 1776)
[[ 3  0  4 ... 68 67 67]
 [ 6  5  2 ... 69 66 63]
 [ 0  1  3 ... 70 66 61]
 ...
 [250  6  0 ...  0  0  0]
 [255  1  6 ...  0  0  0]
 [255  0  6 ...  0  0  0]]
```

In [5]:

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for i in range(1, val_normal_index+1):
    test_image_MPL = image.imread(r'chest_xray\chest_xray\val\NORMAL\img (%d).jpeg' %
(i))
    print("\nImage %d:" % (i))
    pyplot.imshow(test_image_MPL, cmap='bone')
    pyplot.show()
```

Image 1:



Image 2:



Image 3:

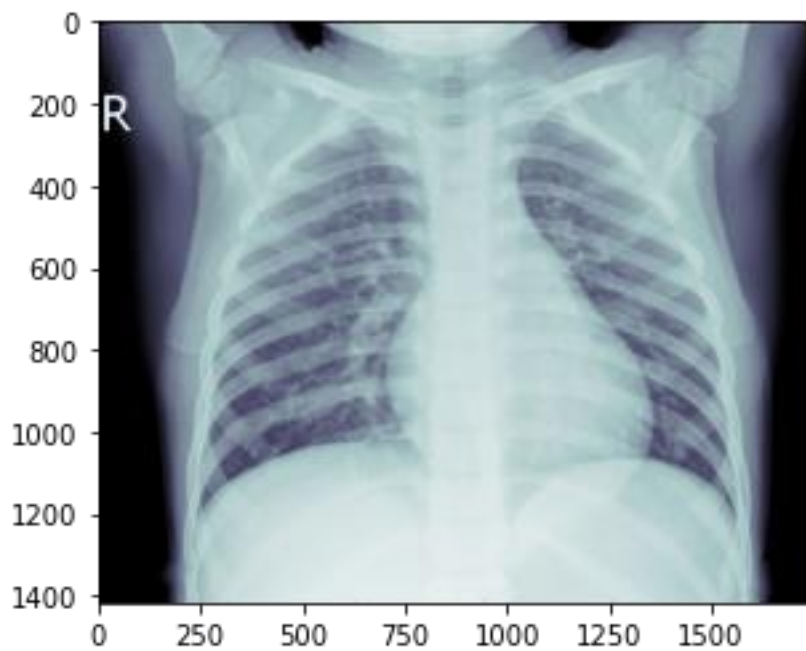


Image 4:



Image 5:



Image 6:

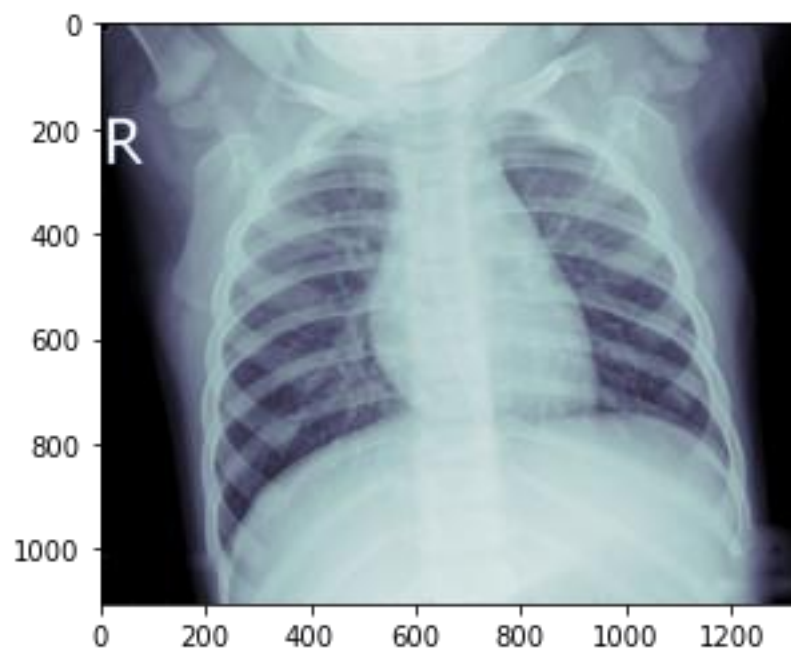


Image 7:

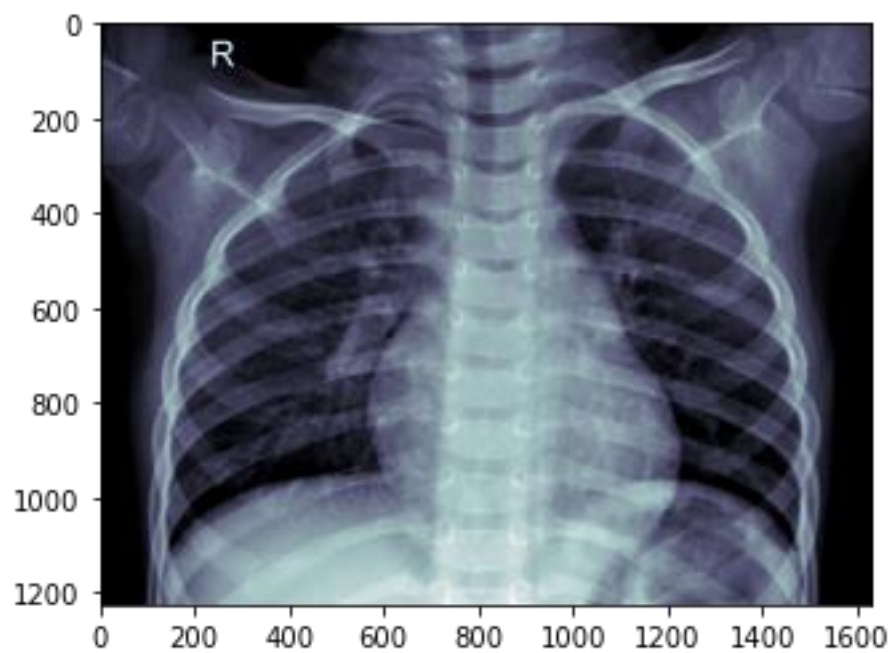


Image 8:

