

Project 5

September 26, 2021

Copyright 2020 Google LLC.

```
[ ]: # Licensed under the Apache License, Version 2.0 (the "License");  
# you may not use this file except in compliance with the License.  
# You may obtain a copy of the License at  
#  
# https://www.apache.org/licenses/LICENSE-2.0  
#  
# Unless required by applicable law or agreed to in writing, software  
# distributed under the License is distributed on an "AS IS" BASIS,  
# WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.  
# See the License for the specific language governing permissions and  
# limitations under the License.
```

1 Image Classification Project

In this project we will build an image classification model and use the model to identify if the lungs pictured indicate that the patient has pneumonia. The outcome of the model will be true or false for each image.

The [data is hosted on Kaggle](#) and consists of 5,863 x-ray images. Each image is classified as ‘pneumonia’ or ‘normal’.

1.1 Ethical Considerations

We will frame the problem as:

A hospital is having issues correctly diagnosing patients with pneumonia. Their current solution is to have two trained technicians examine every patient scan. Unfortunately, there are many times when two technicians are not available, and the scans have to wait for multiple days to be interpreted.

They hope to fix this issue by creating a model that can identify if a patient has pneumonia. They will have one technician and the model both examine the scans and make a prediction. If the two agree, then the diagnosis is accepted. If the two disagree, then a second technician is brought in to provide their analysis and break the tie.

Discuss some of the ethical considerations of building and using this model.

- Consider potential bias in the data that we have been provided.
- Should this model err toward precision or accuracy?

- What are the implications of massively over-classifying patients as having pneumonia?
- What are the implications of massively under-classifying patients as having pneumonia?
- Are there any concerns with having only one technician make the initial call?

The questions above are prompts. Feel free to bring in other considerations you might have.

1.1.1 Student Solution

The data has a potential sampling bias. There is potential sampling bias if the data does not provide a wide variety of x-rays because a pneumonia x-ray could more easily be confused with another disease. This model should aim for both precision and accuracy to help the most patients. The implications of a model massively over-classifying patients as having pneumonia is that it is inefficient in time and more expensive. The implications of massively under-classifying patients as having pneumonia is that more patients are more at risk of not receiving the healthcare they need. The concern of having only one technician make the initial call is that it is only one experts perspective. For example one expert may have additional knowledge about another disease and recognize it on an x-ray. The benefit of one technician is that it is more flexible and efficient for technicians and patients.

1.2 Modeling

In this section of the lab, you will build, train, test, and validate a model or models. The data is the “[Detecting Pneumonia](#)” dataset. You will build a binary classifier that determines if an x-ray image has pneumonia or not.

You’ll need to:

- Download the dataset
- Perform EDA on the dataset
- Build a model that can classify the data
- Train the model using the training portion of the dataset. (It is already split out.)
- Test at least three different models or model configurations using the testing portion of the dataset. This step can include changing model types, adding and removing layers or nodes from a neural network, or any other parameter tuning that you find potentially useful. Score the model (using accuracy, precision, recall, F1, or some other relevant score(s)) for each configuration.
- After finding the “best” model and parameters, use the validation portion of the dataset to perform one final sanity check by scoring the model once more with the hold-out data.
- If you train a neural network (or other model that you can get epoch-per-epoch performance), graph that performance over each epoch.

Explain your work!

Note: You’ll likely want to [enable GPU in this lab](#) if it is not already enabled.

If you get to a working solution you’re happy with and want another challenge, you’ll find pre-trained models on the [landing page of the dataset](#). Try to load one of those and see how it compares to your best model.

Use as many text and code cells as you need to for your solution.

1.2.1 Student Solution

Load in Dataset

```
[ ]: ! chmod 600 kaggle.json && (ls ~/.kaggle 2>/dev/null || mkdir ~/.kaggle) && mv
    ↪kaggle.json ~/.kaggle/ && echo 'Done'
! kaggle datasets download paultimothymooney/chest-xray-pneumonia
! unzip /content/chest-xray-pneumonia.zip
! ls
```

Streaming output truncated to the last 5000 lines.

```
inflating: chest_xray/train/NORMAL/IM-0435-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0437-0001-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0437-0001-0002.jpeg
inflating: chest_xray/train/NORMAL/IM-0437-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0438-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0439-0001-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0439-0001-0002.jpeg
inflating: chest_xray/train/NORMAL/IM-0439-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0440-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0441-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0442-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0444-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0445-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0446-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0447-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0448-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0449-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0450-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0451-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0452-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0453-0001-0002.jpeg
inflating: chest_xray/train/NORMAL/IM-0453-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0455-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0456-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0457-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0458-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0459-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0460-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0461-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0463-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0464-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0465-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0466-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0467-0001-0001.jpeg
inflating: chest_xray/train/NORMAL/IM-0467-0001-0002.jpeg
inflating: chest_xray/train/NORMAL/IM-0467-0001.jpeg
```


[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

inflating: chest_xray/train/NORMAL/NORMAL2-IM-1357-0001.jpeg
inflating: chest_xray/train/NORMAL/NORMAL2-IM-1360-0001.jpeg
inflating: chest_xray/train/NORMAL/NORMAL2-IM-1362-0001.jpeg
inflating: chest_xray/train/NORMAL/NORMAL2-IM-1365-0001.jpeg
inflating: chest_xray/train/NORMAL/NORMAL2-IM-1371-0001.jpeg
inflating: chest_xray/train/NORMAL/NORMAL2-IM-1376-0001.jpeg
inflating: chest_xray/train/NORMAL/NORMAL2-IM-1379-0001.jpeg
inflating: chest_xray/train/NORMAL/NORMAL2-IM-1385-0001.jpeg
inflating: chest_xray/train/NORMAL/NORMAL2-IM-1396-0001.jpeg
inflating: chest_xray/train/NORMAL/NORMAL2-IM-1400-0001.jpeg
inflating: chest_xray/train/NORMAL/NORMAL2-IM-1401-0001.jpeg
inflating: chest_xray/train/NORMAL/NORMAL2-IM-1406-0001.jpeg
inflating: chest_xray/train/NORMAL/NORMAL2-IM-1412-0001.jpeg
inflating: chest_xray/train/NORMAL/NORMAL2-IM-1419-0001.jpeg
inflating: chest_xray/train/NORMAL/NORMAL2-IM-1422-0001.jpeg
inflating: chest_xray/train/NORMAL/NORMAL2-IM-1423-0001.jpeg
inflating: chest_xray/train/PNEUMONIA/person1000_bacteria_2931.jpeg
inflating: chest_xray/train/PNEUMONIA/person1000_virus_1681.jpeg
inflating: chest_xray/train/PNEUMONIA/person1001_bacteria_2932.jpeg
inflating: chest_xray/train/PNEUMONIA/person1002_bacteria_2933.jpeg
inflating: chest_xray/train/PNEUMONIA/person1003_bacteria_2934.jpeg
inflating: chest_xray/train/PNEUMONIA/person1003_virus_1685.jpeg
inflating: chest_xray/train/PNEUMONIA/person1004_bacteria_2935.jpeg
inflating: chest_xray/train/PNEUMONIA/person1004_virus_1686.jpeg
inflating: chest_xray/train/PNEUMONIA/person1005_bacteria_2936.jpeg
inflating: chest_xray/train/PNEUMONIA/person1005_virus_1688.jpeg
inflating: chest_xray/train/PNEUMONIA/person1006_bacteria_2937.jpeg
inflating: chest_xray/train/PNEUMONIA/person1007_bacteria_2938.jpeg
inflating: chest_xray/train/PNEUMONIA/person1007_virus_1690.jpeg
inflating: chest_xray/train/PNEUMONIA/person1008_bacteria_2939.jpeg
inflating: chest_xray/train/PNEUMONIA/person1008_virus_1691.jpeg
inflating: chest_xray/train/PNEUMONIA/person1009_virus_1694.jpeg
inflating: chest_xray/train/PNEUMONIA/person100_virus_184.jpeg
inflating: chest_xray/train/PNEUMONIA/person1010_bacteria_2941.jpeg
inflating: chest_xray/train/PNEUMONIA/person1010_virus_1695.jpeg
inflating: chest_xray/train/PNEUMONIA/person1011_bacteria_2942.jpeg
inflating: chest_xray/train/PNEUMONIA/person1012_bacteria_2943.jpeg
inflating: chest_xray/train/PNEUMONIA/person1014_bacteria_2945.jpeg
inflating: chest_xray/train/PNEUMONIA/person1015_virus_1701.jpeg
inflating: chest_xray/train/PNEUMONIA/person1015_virus_1702.jpeg
inflating: chest_xray/train/PNEUMONIA/person1016_bacteria_2947.jpeg
inflating: chest_xray/train/PNEUMONIA/person1016_virus_1704.jpeg
inflating: chest_xray/train/PNEUMONIA/person1017_bacteria_2948.jpeg
inflating: chest_xray/train/PNEUMONIA/person1018_bacteria_2949.jpeg
inflating: chest_xray/train/PNEUMONIA/person1018_virus_1706.jpeg
inflating: chest_xray/train/PNEUMONIA/person1019_bacteria_2950.jpeg
inflating: chest_xray/train/PNEUMONIA/person1019_virus_1707.jpeg
inflating: chest_xray/train/PNEUMONIA/person1019_virus_1708.jpeg

inflating: chest_xray/train/PNEUMONIA/person101_virus_187.jpeg
inflating: chest_xray/train/PNEUMONIA/person101_virus_188.jpeg
inflating: chest_xray/train/PNEUMONIA/person1020_bacteria_2951.jpeg
inflating: chest_xray/train/PNEUMONIA/person1020_virus_1710.jpeg
inflating: chest_xray/train/PNEUMONIA/person1021_virus_1711.jpeg
inflating: chest_xray/train/PNEUMONIA/person1022_bacteria_2953.jpeg
inflating: chest_xray/train/PNEUMONIA/person1022_virus_1712.jpeg
inflating: chest_xray/train/PNEUMONIA/person1023_bacteria_2954.jpeg
inflating: chest_xray/train/PNEUMONIA/person1023_virus_1714.jpeg
inflating: chest_xray/train/PNEUMONIA/person1024_bacteria_2955.jpeg
inflating: chest_xray/train/PNEUMONIA/person1024_virus_1716.jpeg
inflating: chest_xray/train/PNEUMONIA/person1026_bacteria_2957.jpeg
inflating: chest_xray/train/PNEUMONIA/person1026_virus_1718.jpeg
inflating: chest_xray/train/PNEUMONIA/person1028_bacteria_2959.jpeg
inflating: chest_xray/train/PNEUMONIA/person1028_bacteria_2960.jpeg
inflating: chest_xray/train/PNEUMONIA/person1029_bacteria_2961.jpeg
inflating: chest_xray/train/PNEUMONIA/person1029_virus_1721.jpeg
inflating: chest_xray/train/PNEUMONIA/person102_virus_189.jpeg
inflating: chest_xray/train/PNEUMONIA/person1030_virus_1722.jpeg
inflating: chest_xray/train/PNEUMONIA/person1031_bacteria_2963.jpeg
inflating: chest_xray/train/PNEUMONIA/person1031_bacteria_2964.jpeg
inflating: chest_xray/train/PNEUMONIA/person1031_virus_1723.jpeg
inflating: chest_xray/train/PNEUMONIA/person1033_bacteria_2966.jpeg
inflating: chest_xray/train/PNEUMONIA/person1034_bacteria_2968.jpeg
inflating: chest_xray/train/PNEUMONIA/person1034_virus_1728.jpeg
inflating: chest_xray/train/PNEUMONIA/person1035_bacteria_2969.jpeg
inflating: chest_xray/train/PNEUMONIA/person1035_virus_1729.jpeg
inflating: chest_xray/train/PNEUMONIA/person1036_bacteria_2970.jpeg
inflating: chest_xray/train/PNEUMONIA/person1036_virus_1730.jpeg
inflating: chest_xray/train/PNEUMONIA/person1037_bacteria_2971.jpeg
inflating: chest_xray/train/PNEUMONIA/person1038_bacteria_2972.jpeg
inflating: chest_xray/train/PNEUMONIA/person1038_virus_1733.jpeg
inflating: chest_xray/train/PNEUMONIA/person1039_bacteria_2973.jpeg
inflating: chest_xray/train/PNEUMONIA/person103_virus_190.jpeg
inflating: chest_xray/train/PNEUMONIA/person1040_bacteria_2974.jpeg
inflating: chest_xray/train/PNEUMONIA/person1040_virus_1735.jpeg
inflating: chest_xray/train/PNEUMONIA/person1041_bacteria_2975.jpeg
inflating: chest_xray/train/PNEUMONIA/person1041_virus_1736.jpeg
inflating: chest_xray/train/PNEUMONIA/person1042_virus_1737.jpeg
inflating: chest_xray/train/PNEUMONIA/person1043_bacteria_2977.jpeg
inflating: chest_xray/train/PNEUMONIA/person1043_virus_1738.jpeg
inflating: chest_xray/train/PNEUMONIA/person1044_bacteria_2978.jpeg
inflating: chest_xray/train/PNEUMONIA/person1044_virus_1740.jpeg
inflating: chest_xray/train/PNEUMONIA/person1045_bacteria_2979.jpeg
inflating: chest_xray/train/PNEUMONIA/person1045_virus_1741.jpeg
inflating: chest_xray/train/PNEUMONIA/person1046_bacteria_2980.jpeg
inflating: chest_xray/train/PNEUMONIA/person1046_virus_1742.jpeg
inflating: chest_xray/train/PNEUMONIA/person1048_bacteria_2982.jpeg

inflating: chest_xray/train/PNEUMONIA/person1048_virus_1744.jpeg
inflating: chest_xray/train/PNEUMONIA/person1049_bacteria_2983.jpeg
inflating: chest_xray/train/PNEUMONIA/person1049_virus_1746.jpeg
inflating: chest_xray/train/PNEUMONIA/person104_virus_191.jpeg
inflating: chest_xray/train/PNEUMONIA/person1050_bacteria_2984.jpeg
inflating: chest_xray/train/PNEUMONIA/person1051_bacteria_2985.jpeg
inflating: chest_xray/train/PNEUMONIA/person1051_virus_1750.jpeg
inflating: chest_xray/train/PNEUMONIA/person1052_bacteria_2986.jpeg
inflating: chest_xray/train/PNEUMONIA/person1052_virus_1751.jpeg
inflating: chest_xray/train/PNEUMONIA/person1053_bacteria_2987.jpeg
inflating: chest_xray/train/PNEUMONIA/person1054_bacteria_2988.jpeg
inflating: chest_xray/train/PNEUMONIA/person1055_bacteria_2989.jpeg
inflating: chest_xray/train/PNEUMONIA/person1056_bacteria_2990.jpeg
inflating: chest_xray/train/PNEUMONIA/person1056_virus_1755.jpeg
inflating: chest_xray/train/PNEUMONIA/person1057_bacteria_2991.jpeg
inflating: chest_xray/train/PNEUMONIA/person1057_virus_1756.jpeg
inflating: chest_xray/train/PNEUMONIA/person1058_bacteria_2992.jpeg
inflating: chest_xray/train/PNEUMONIA/person1058_virus_1757.jpeg
inflating: chest_xray/train/PNEUMONIA/person1059_bacteria_2993.jpeg
inflating: chest_xray/train/PNEUMONIA/person1059_virus_1758.jpeg
inflating: chest_xray/train/PNEUMONIA/person105_virus_192.jpeg
inflating: chest_xray/train/PNEUMONIA/person105_virus_193.jpeg
inflating: chest_xray/train/PNEUMONIA/person1060_virus_1760.jpeg
inflating: chest_xray/train/PNEUMONIA/person1062_bacteria_2996.jpeg
inflating: chest_xray/train/PNEUMONIA/person1062_virus_1762.jpeg
inflating: chest_xray/train/PNEUMONIA/person1063_bacteria_2997.jpeg
inflating: chest_xray/train/PNEUMONIA/person1063_virus_1765.jpeg
inflating: chest_xray/train/PNEUMONIA/person1065_bacteria_2999.jpeg
inflating: chest_xray/train/PNEUMONIA/person1065_virus_1768.jpeg
inflating: chest_xray/train/PNEUMONIA/person1066_bacteria_3000.jpeg
inflating: chest_xray/train/PNEUMONIA/person1066_virus_1769.jpeg
inflating: chest_xray/train/PNEUMONIA/person1067_bacteria_3001.jpeg
inflating: chest_xray/train/PNEUMONIA/person1067_virus_1770.jpeg
inflating: chest_xray/train/PNEUMONIA/person1068_bacteria_3002.jpeg
inflating: chest_xray/train/PNEUMONIA/person1068_virus_1771.jpeg
inflating: chest_xray/train/PNEUMONIA/person1069_bacteria_3003.jpeg
inflating: chest_xray/train/PNEUMONIA/person1069_virus_1772.jpeg
inflating: chest_xray/train/PNEUMONIA/person106_virus_194.jpeg
inflating: chest_xray/train/PNEUMONIA/person1070_virus_1773.jpeg
inflating: chest_xray/train/PNEUMONIA/person1071_bacteria_3005.jpeg
inflating: chest_xray/train/PNEUMONIA/person1071_virus_1774.jpeg
inflating: chest_xray/train/PNEUMONIA/person1072_bacteria_3006.jpeg
inflating: chest_xray/train/PNEUMONIA/person1072_bacteria_3007.jpeg
inflating: chest_xray/train/PNEUMONIA/person1072_virus_1775.jpeg
inflating: chest_xray/train/PNEUMONIA/person1073_bacteria_3008.jpeg
inflating: chest_xray/train/PNEUMONIA/person1073_bacteria_3011.jpeg
inflating: chest_xray/train/PNEUMONIA/person1073_virus_1776.jpeg
inflating: chest_xray/train/PNEUMONIA/person1074_bacteria_3012.jpeg

inflating: chest_xray/train/PNEUMONIA/person1074_bacteria_3014.jpeg
inflating: chest_xray/train/PNEUMONIA/person1075_bacteria_3015.jpeg
inflating: chest_xray/train/PNEUMONIA/person1076_bacteria_3016.jpeg
inflating: chest_xray/train/PNEUMONIA/person1077_bacteria_3017.jpeg
inflating: chest_xray/train/PNEUMONIA/person1077_virus_1787.jpeg
inflating: chest_xray/train/PNEUMONIA/person1078_bacteria_3018.jpeg
inflating: chest_xray/train/PNEUMONIA/person1078_virus_1788.jpeg
inflating: chest_xray/train/PNEUMONIA/person1079_bacteria_3019.jpeg
inflating: chest_xray/train/PNEUMONIA/person1079_virus_1789.jpeg
inflating: chest_xray/train/PNEUMONIA/person107_virus_197.jpeg
inflating: chest_xray/train/PNEUMONIA/person1080_bacteria_3020.jpeg
inflating: chest_xray/train/PNEUMONIA/person1080_virus_1791.jpeg
inflating: chest_xray/train/PNEUMONIA/person1081_bacteria_3021.jpeg
inflating: chest_xray/train/PNEUMONIA/person1081_virus_1793.jpeg
inflating: chest_xray/train/PNEUMONIA/person1082_bacteria_3022.jpeg
inflating: chest_xray/train/PNEUMONIA/person1082_virus_1794.jpeg
inflating: chest_xray/train/PNEUMONIA/person1083_bacteria_3023.jpeg
inflating: chest_xray/train/PNEUMONIA/person1083_virus_1795.jpeg
inflating: chest_xray/train/PNEUMONIA/person1084_bacteria_3024.jpeg
inflating: chest_xray/train/PNEUMONIA/person1084_virus_1796.jpeg
inflating: chest_xray/train/PNEUMONIA/person1085_bacteria_3025.jpeg
inflating: chest_xray/train/PNEUMONIA/person1085_virus_1797.jpeg
inflating: chest_xray/train/PNEUMONIA/person1086_bacteria_3026.jpeg
inflating: chest_xray/train/PNEUMONIA/person1086_virus_1798.jpeg
inflating: chest_xray/train/PNEUMONIA/person1087_bacteria_3027.jpeg
inflating: chest_xray/train/PNEUMONIA/person1087_virus_1799.jpeg
inflating: chest_xray/train/PNEUMONIA/person1088_bacteria_3028.jpeg
inflating: chest_xray/train/PNEUMONIA/person1088_virus_1800.jpeg
inflating: chest_xray/train/PNEUMONIA/person1089_bacteria_3029.jpeg
inflating: chest_xray/train/PNEUMONIA/person1089_virus_1808.jpeg
inflating: chest_xray/train/PNEUMONIA/person108_virus_199.jpeg
inflating: chest_xray/train/PNEUMONIA/person108_virus_200.jpeg
inflating: chest_xray/train/PNEUMONIA/person108_virus_201.jpeg
inflating: chest_xray/train/PNEUMONIA/person1090_virus_1809.jpeg
inflating: chest_xray/train/PNEUMONIA/person1091_bacteria_3031.jpeg
inflating: chest_xray/train/PNEUMONIA/person1091_virus_1810.jpeg
inflating: chest_xray/train/PNEUMONIA/person1092_bacteria_3032.jpeg
inflating: chest_xray/train/PNEUMONIA/person1092_virus_1811.jpeg
inflating: chest_xray/train/PNEUMONIA/person1093_bacteria_3033.jpeg
inflating: chest_xray/train/PNEUMONIA/person1094_virus_1814.jpeg
inflating: chest_xray/train/PNEUMONIA/person1095_virus_1815.jpeg
inflating: chest_xray/train/PNEUMONIA/person1096_bacteria_3037.jpeg
inflating: chest_xray/train/PNEUMONIA/person1096_virus_1816.jpeg
inflating: chest_xray/train/PNEUMONIA/person1097_bacteria_3038.jpeg
inflating: chest_xray/train/PNEUMONIA/person1097_virus_1817.jpeg
inflating: chest_xray/train/PNEUMONIA/person1098_bacteria_3039.jpeg
inflating: chest_xray/train/PNEUMONIA/person1098_virus_1818.jpeg
inflating: chest_xray/train/PNEUMONIA/person1099_bacteria_3040.jpeg

inflating: chest_xray/train/PNEUMONIA/person1099_virus_1819.jpeg
inflating: chest_xray/train/PNEUMONIA/person109_virus_203.jpeg
inflating: chest_xray/train/PNEUMONIA/person10_bacteria_43.jpeg
inflating: chest_xray/train/PNEUMONIA/person1100_bacteria_3041.jpeg
inflating: chest_xray/train/PNEUMONIA/person1100_virus_1820.jpeg
inflating: chest_xray/train/PNEUMONIA/person1101_bacteria_3042.jpeg
inflating: chest_xray/train/PNEUMONIA/person1102_bacteria_3043.jpeg
inflating: chest_xray/train/PNEUMONIA/person1102_virus_1822.jpeg
inflating: chest_xray/train/PNEUMONIA/person1103_bacteria_3044.jpeg
inflating: chest_xray/train/PNEUMONIA/person1103_virus_1825.jpeg
inflating: chest_xray/train/PNEUMONIA/person1104_virus_1826.jpeg
inflating: chest_xray/train/PNEUMONIA/person1105_bacteria_3046.jpeg
inflating: chest_xray/train/PNEUMONIA/person1106_virus_1829.jpeg
inflating: chest_xray/train/PNEUMONIA/person1107_bacteria_3048.jpeg
inflating: chest_xray/train/PNEUMONIA/person1107_virus_1831.jpeg
inflating: chest_xray/train/PNEUMONIA/person1107_virus_1832.jpeg
inflating: chest_xray/train/PNEUMONIA/person1108_bacteria_3049.jpeg
inflating: chest_xray/train/PNEUMONIA/person1108_virus_1833.jpeg
inflating: chest_xray/train/PNEUMONIA/person1109_bacteria_3050.jpeg
inflating: chest_xray/train/PNEUMONIA/person110_virus_205.jpeg
inflating: chest_xray/train/PNEUMONIA/person110_virus_206.jpeg
inflating: chest_xray/train/PNEUMONIA/person110_virus_207.jpeg
inflating: chest_xray/train/PNEUMONIA/person110_virus_208.jpeg
inflating: chest_xray/train/PNEUMONIA/person1110_bacteria_3051.jpeg
inflating: chest_xray/train/PNEUMONIA/person1110_virus_1835.jpeg
inflating: chest_xray/train/PNEUMONIA/person1111_bacteria_3052.jpeg
inflating: chest_xray/train/PNEUMONIA/person1111_virus_1836.jpeg
inflating: chest_xray/train/PNEUMONIA/person1112_bacteria_3053.jpeg
inflating: chest_xray/train/PNEUMONIA/person1112_virus_1837.jpeg
inflating: chest_xray/train/PNEUMONIA/person1113_virus_1838.jpeg
inflating: chest_xray/train/PNEUMONIA/person1114_bacteria_3055.jpeg
inflating: chest_xray/train/PNEUMONIA/person1115_bacteria_3056.jpeg
inflating: chest_xray/train/PNEUMONIA/person1115_virus_1840.jpeg
inflating: chest_xray/train/PNEUMONIA/person1116_virus_1841.jpeg
inflating: chest_xray/train/PNEUMONIA/person1118_bacteria_3059.jpeg
inflating: chest_xray/train/PNEUMONIA/person1119_virus_1844.jpeg
inflating: chest_xray/train/PNEUMONIA/person111_virus_209.jpeg
inflating: chest_xray/train/PNEUMONIA/person111_virus_210.jpeg
inflating: chest_xray/train/PNEUMONIA/person111_virus_212.jpeg
inflating: chest_xray/train/PNEUMONIA/person1120_virus_1845.jpeg
inflating: chest_xray/train/PNEUMONIA/person1121_virus_1846.jpeg
inflating: chest_xray/train/PNEUMONIA/person1122_bacteria_3063.jpeg
inflating: chest_xray/train/PNEUMONIA/person1122_virus_1847.jpeg
inflating: chest_xray/train/PNEUMONIA/person1123_virus_1848.jpeg
inflating: chest_xray/train/PNEUMONIA/person1124_bacteria_3065.jpeg
inflating: chest_xray/train/PNEUMONIA/person1124_virus_1851.jpeg
inflating: chest_xray/train/PNEUMONIA/person1125_bacteria_3066.jpeg
inflating: chest_xray/train/PNEUMONIA/person1125_virus_1852.jpeg

inflating: chest_xray/train/PNEUMONIA/person1126_virus_1853.jpeg
inflating: chest_xray/train/PNEUMONIA/person1127_bacteria_3068.jpeg
inflating: chest_xray/train/PNEUMONIA/person1127_virus_1854.jpeg
inflating: chest_xray/train/PNEUMONIA/person1128_bacteria_3069.jpeg
inflating: chest_xray/train/PNEUMONIA/person1129_bacteria_3070.jpeg
inflating: chest_xray/train/PNEUMONIA/person1129_virus_1857.jpeg
inflating: chest_xray/train/PNEUMONIA/person112_virus_213.jpeg
inflating: chest_xray/train/PNEUMONIA/person1130_bacteria_3072.jpeg
inflating: chest_xray/train/PNEUMONIA/person1130_virus_1860.jpeg
inflating: chest_xray/train/PNEUMONIA/person1131_bacteria_3073.jpeg
inflating: chest_xray/train/PNEUMONIA/person1132_virus_1863.jpeg
inflating: chest_xray/train/PNEUMONIA/person1133_bacteria_3075.jpeg
inflating: chest_xray/train/PNEUMONIA/person1133_virus_1865.jpeg
inflating: chest_xray/train/PNEUMONIA/person1134_bacteria_3076.jpeg
inflating: chest_xray/train/PNEUMONIA/person1135_bacteria_3077.jpeg
inflating: chest_xray/train/PNEUMONIA/person1136_bacteria_3078.jpeg
inflating: chest_xray/train/PNEUMONIA/person1137_virus_1876.jpeg
inflating: chest_xray/train/PNEUMONIA/person1138_bacteria_3080.jpeg
inflating: chest_xray/train/PNEUMONIA/person1138_virus_1877.jpeg
inflating: chest_xray/train/PNEUMONIA/person1138_virus_1879.jpeg
inflating: chest_xray/train/PNEUMONIA/person1139_bacteria_3081.jpeg
inflating: chest_xray/train/PNEUMONIA/person1139_bacteria_3082.jpeg
inflating: chest_xray/train/PNEUMONIA/person1139_virus_1882.jpeg
inflating: chest_xray/train/PNEUMONIA/person113_virus_215.jpeg
inflating: chest_xray/train/PNEUMONIA/person113_virus_216.jpeg
inflating: chest_xray/train/PNEUMONIA/person1140_bacteria_3083.jpeg
inflating: chest_xray/train/PNEUMONIA/person1140_virus_1885.jpeg
inflating: chest_xray/train/PNEUMONIA/person1141_bacteria_3084.jpeg
inflating: chest_xray/train/PNEUMONIA/person1141_bacteria_3085.jpeg
inflating: chest_xray/train/PNEUMONIA/person1141_virus_1886.jpeg
inflating: chest_xray/train/PNEUMONIA/person1141_virus_1890.jpeg
inflating: chest_xray/train/PNEUMONIA/person1142_bacteria_3086.jpeg
inflating: chest_xray/train/PNEUMONIA/person1142_virus_1892.jpeg
inflating: chest_xray/train/PNEUMONIA/person1143_virus_1896.jpeg
inflating: chest_xray/train/PNEUMONIA/person1143_virus_1897.jpeg
inflating: chest_xray/train/PNEUMONIA/person1144_bacteria_3089.jpeg
inflating: chest_xray/train/PNEUMONIA/person1145_bacteria_3090.jpeg
inflating: chest_xray/train/PNEUMONIA/person1145_virus_1902.jpeg
inflating: chest_xray/train/PNEUMONIA/person1145_virus_1905.jpeg
inflating: chest_xray/train/PNEUMONIA/person1145_virus_1906.jpeg
inflating: chest_xray/train/PNEUMONIA/person1146_bacteria_3091.jpeg
inflating: chest_xray/train/PNEUMONIA/person1147_virus_1917.jpeg
inflating: chest_xray/train/PNEUMONIA/person1147_virus_1919.jpeg
inflating: chest_xray/train/PNEUMONIA/person1147_virus_1920.jpeg
inflating: chest_xray/train/PNEUMONIA/person1149_bacteria_3094.jpeg
inflating: chest_xray/train/PNEUMONIA/person1149_virus_1924.jpeg
inflating: chest_xray/train/PNEUMONIA/person1149_virus_1925.jpeg
inflating: chest_xray/train/PNEUMONIA/person114_virus_217.jpeg

inflating: chest_xray/train/PNEUMONIA/person1150_bacteria_3095.jpeg
inflating: chest_xray/train/PNEUMONIA/person1151_virus_1928.jpeg
inflating: chest_xray/train/PNEUMONIA/person1152_virus_1930.jpeg
inflating: chest_xray/train/PNEUMONIA/person1153_virus_1932.jpeg
inflating: chest_xray/train/PNEUMONIA/person1154_bacteria_3099.jpeg
inflating: chest_xray/train/PNEUMONIA/person1154_virus_1933.jpeg
inflating: chest_xray/train/PNEUMONIA/person1155_bacteria_3100.jpeg
inflating: chest_xray/train/PNEUMONIA/person1155_virus_1934.jpeg
inflating: chest_xray/train/PNEUMONIA/person1156_bacteria_3101.jpeg
inflating: chest_xray/train/PNEUMONIA/person1156_virus_1935.jpeg
inflating: chest_xray/train/PNEUMONIA/person1156_virus_1936.jpeg
inflating: chest_xray/train/PNEUMONIA/person1157_bacteria_3102.jpeg
inflating: chest_xray/train/PNEUMONIA/person1157_virus_1937.jpeg
inflating: chest_xray/train/PNEUMONIA/person1158_bacteria_3103.jpeg
inflating: chest_xray/train/PNEUMONIA/person1158_virus_1938.jpeg
inflating: chest_xray/train/PNEUMONIA/person1158_virus_1940.jpeg
inflating: chest_xray/train/PNEUMONIA/person1158_virus_1941.jpeg
inflating: chest_xray/train/PNEUMONIA/person1158_virus_1942.jpeg
inflating: chest_xray/train/PNEUMONIA/person1158_virus_1943.jpeg
inflating: chest_xray/train/PNEUMONIA/person1159_bacteria_3104.jpeg
inflating: chest_xray/train/PNEUMONIA/person1159_virus_1944.jpeg
inflating: chest_xray/train/PNEUMONIA/person1159_virus_1945.jpeg
inflating: chest_xray/train/PNEUMONIA/person1159_virus_1946.jpeg
inflating: chest_xray/train/PNEUMONIA/person115_virus_218.jpeg
inflating: chest_xray/train/PNEUMONIA/person115_virus_219.jpeg
inflating: chest_xray/train/PNEUMONIA/person1160_bacteria_3105.jpeg
inflating: chest_xray/train/PNEUMONIA/person1160_virus_1947.jpeg
inflating: chest_xray/train/PNEUMONIA/person1161_virus_1948.jpeg
inflating: chest_xray/train/PNEUMONIA/person1162_bacteria_3107.jpeg
inflating: chest_xray/train/PNEUMONIA/person1162_virus_1949.jpeg
inflating: chest_xray/train/PNEUMONIA/person1162_virus_1950.jpeg
inflating: chest_xray/train/PNEUMONIA/person1163_virus_1951.jpeg
inflating: chest_xray/train/PNEUMONIA/person1164_bacteria_3110.jpeg
inflating: chest_xray/train/PNEUMONIA/person1164_virus_1952.jpeg
inflating: chest_xray/train/PNEUMONIA/person1164_virus_1955.jpeg
inflating: chest_xray/train/PNEUMONIA/person1164_virus_1956.jpeg
inflating: chest_xray/train/PNEUMONIA/person1164_virus_1957.jpeg
inflating: chest_xray/train/PNEUMONIA/person1164_virus_1958.jpeg
inflating: chest_xray/train/PNEUMONIA/person1165_bacteria_3111.jpeg
inflating: chest_xray/train/PNEUMONIA/person1165_virus_1959.jpeg
inflating: chest_xray/train/PNEUMONIA/person1167_bacteria_3113.jpeg
inflating: chest_xray/train/PNEUMONIA/person1168_bacteria_3114.jpeg
inflating: chest_xray/train/PNEUMONIA/person1168_bacteria_3115.jpeg
inflating: chest_xray/train/PNEUMONIA/person1168_virus_1965.jpeg
inflating: chest_xray/train/PNEUMONIA/person1168_virus_1966.jpeg
inflating: chest_xray/train/PNEUMONIA/person1169_virus_1968.jpeg
inflating: chest_xray/train/PNEUMONIA/person116_virus_221.jpeg
inflating: chest_xray/train/PNEUMONIA/person1170_bacteria_3117.jpeg

inflating: chest_xray/train/PNEUMONIA/person1170_virus_1969.jpeg
inflating: chest_xray/train/PNEUMONIA/person1170_virus_1970.jpeg
inflating: chest_xray/train/PNEUMONIA/person1171_bacteria_3118.jpeg
inflating: chest_xray/train/PNEUMONIA/person1172_bacteria_3119.jpeg
inflating: chest_xray/train/PNEUMONIA/person1172_virus_1977.jpeg
inflating: chest_xray/train/PNEUMONIA/person1173_virus_1978.jpeg
inflating: chest_xray/train/PNEUMONIA/person1174_virus_1980.jpeg
inflating: chest_xray/train/PNEUMONIA/person1175_bacteria_3122.jpeg
inflating: chest_xray/train/PNEUMONIA/person1175_virus_1981.jpeg
inflating: chest_xray/train/PNEUMONIA/person1176_bacteria_3123.jpeg
inflating: chest_xray/train/PNEUMONIA/person1176_bacteria_3124.jpeg
inflating: chest_xray/train/PNEUMONIA/person1176_virus_1996.jpeg
inflating: chest_xray/train/PNEUMONIA/person1176_virus_1997.jpeg
inflating: chest_xray/train/PNEUMONIA/person1176_virus_1998.jpeg
inflating: chest_xray/train/PNEUMONIA/person1177_bacteria_3125.jpeg
inflating: chest_xray/train/PNEUMONIA/person1177_virus_1999.jpeg
inflating: chest_xray/train/PNEUMONIA/person1177_virus_2000.jpeg
inflating: chest_xray/train/PNEUMONIA/person1177_virus_2001.jpeg
inflating: chest_xray/train/PNEUMONIA/person1177_virus_2002.jpeg
inflating: chest_xray/train/PNEUMONIA/person1178_bacteria_3126.jpeg
inflating: chest_xray/train/PNEUMONIA/person1178_virus_2004.jpeg
inflating: chest_xray/train/PNEUMONIA/person1179_bacteria_3127.jpeg
inflating: chest_xray/train/PNEUMONIA/person1179_virus_2006.jpeg
inflating: chest_xray/train/PNEUMONIA/person117_virus_223.jpeg
inflating: chest_xray/train/PNEUMONIA/person1180_bacteria_3128.jpeg
inflating: chest_xray/train/PNEUMONIA/person1180_virus_2007.jpeg
inflating: chest_xray/train/PNEUMONIA/person1180_virus_2008.jpeg
inflating: chest_xray/train/PNEUMONIA/person1180_virus_2009.jpeg
inflating: chest_xray/train/PNEUMONIA/person1180_virus_2010.jpeg
inflating: chest_xray/train/PNEUMONIA/person1180_virus_2011.jpeg
inflating: chest_xray/train/PNEUMONIA/person1180_virus_2012.jpeg
inflating: chest_xray/train/PNEUMONIA/person1180_virus_2013.jpeg
inflating: chest_xray/train/PNEUMONIA/person1180_virus_2014.jpeg
inflating: chest_xray/train/PNEUMONIA/person1180_virus_2015.jpeg
inflating: chest_xray/train/PNEUMONIA/person1181_bacteria_3129.jpeg
inflating: chest_xray/train/PNEUMONIA/person1181_virus_2016.jpeg
inflating: chest_xray/train/PNEUMONIA/person1182_virus_2017.jpeg
inflating: chest_xray/train/PNEUMONIA/person1183_bacteria_3131.jpeg
inflating: chest_xray/train/PNEUMONIA/person1183_virus_2018.jpeg
inflating: chest_xray/train/PNEUMONIA/person1184_bacteria_3132.jpeg
inflating: chest_xray/train/PNEUMONIA/person1184_virus_2019.jpeg
inflating: chest_xray/train/PNEUMONIA/person1185_bacteria_3133.jpeg
inflating: chest_xray/train/PNEUMONIA/person1186_bacteria_3134.jpeg
inflating: chest_xray/train/PNEUMONIA/person1186_bacteria_3135.jpeg
inflating: chest_xray/train/PNEUMONIA/person1186_virus_2021.jpeg
inflating: chest_xray/train/PNEUMONIA/person1186_virus_2022.jpeg
inflating: chest_xray/train/PNEUMONIA/person1187_bacteria_3136.jpeg
inflating: chest_xray/train/PNEUMONIA/person1187_virus_2023.jpeg

inflating: chest_xray/train/PNEUMONIA/person1188_bacteria_3137.jpeg
inflating: chest_xray/train/PNEUMONIA/person1188_virus_2024.jpeg
inflating: chest_xray/train/PNEUMONIA/person118_virus_224.jpeg
inflating: chest_xray/train/PNEUMONIA/person1190_virus_2031.jpeg
inflating: chest_xray/train/PNEUMONIA/person1191_virus_2032.jpeg
inflating: chest_xray/train/PNEUMONIA/person1192_bacteria_3141.jpeg
inflating: chest_xray/train/PNEUMONIA/person1193_virus_2034.jpeg
inflating: chest_xray/train/PNEUMONIA/person1194_bacteria_3143.jpeg
inflating: chest_xray/train/PNEUMONIA/person1195_bacteria_3144.jpeg
inflating: chest_xray/train/PNEUMONIA/person1196_bacteria_3146.jpeg
inflating: chest_xray/train/PNEUMONIA/person1197_bacteria_3147.jpeg
inflating: chest_xray/train/PNEUMONIA/person1197_virus_2039.jpeg
inflating: chest_xray/train/PNEUMONIA/person1198_bacteria_3148.jpeg
inflating: chest_xray/train/PNEUMONIA/person1199_bacteria_3149.jpeg
inflating: chest_xray/train/PNEUMONIA/person119_virus_225.jpeg
inflating: chest_xray/train/PNEUMONIA/person11_bacteria_45.jpeg
inflating: chest_xray/train/PNEUMONIA/person1200_virus_2042.jpeg
inflating: chest_xray/train/PNEUMONIA/person1201_bacteria_3151.jpeg
inflating: chest_xray/train/PNEUMONIA/person1202_bacteria_3152.jpeg
inflating: chest_xray/train/PNEUMONIA/person1202_bacteria_3153.jpeg
inflating: chest_xray/train/PNEUMONIA/person1202_virus_2045.jpeg
inflating: chest_xray/train/PNEUMONIA/person1203_bacteria_3154.jpeg
inflating: chest_xray/train/PNEUMONIA/person1203_bacteria_3155.jpeg
inflating: chest_xray/train/PNEUMONIA/person1204_bacteria_3156.jpeg
inflating: chest_xray/train/PNEUMONIA/person1205_bacteria_3157.jpeg
inflating: chest_xray/train/PNEUMONIA/person1206_bacteria_3158.jpeg
inflating: chest_xray/train/PNEUMONIA/person1206_virus_2051.jpeg
inflating: chest_xray/train/PNEUMONIA/person1207_bacteria_3159.jpeg
inflating: chest_xray/train/PNEUMONIA/person1208_bacteria_3160.jpeg
inflating: chest_xray/train/PNEUMONIA/person1209_bacteria_3161.jpeg
inflating: chest_xray/train/PNEUMONIA/person120_virus_226.jpeg
inflating: chest_xray/train/PNEUMONIA/person1211_bacteria_3163.jpeg
inflating: chest_xray/train/PNEUMONIA/person1211_virus_2056.jpeg
inflating: chest_xray/train/PNEUMONIA/person1212_bacteria_3164.jpeg
inflating: chest_xray/train/PNEUMONIA/person1212_virus_2057.jpeg
inflating: chest_xray/train/PNEUMONIA/person1213_virus_2058.jpeg
inflating: chest_xray/train/PNEUMONIA/person1214_bacteria_3166.jpeg
inflating: chest_xray/train/PNEUMONIA/person1214_virus_2059.jpeg
inflating: chest_xray/train/PNEUMONIA/person1215_bacteria_3167.jpeg
inflating: chest_xray/train/PNEUMONIA/person1216_bacteria_3168.jpeg
inflating: chest_xray/train/PNEUMONIA/person1216_virus_2062.jpeg
inflating: chest_xray/train/PNEUMONIA/person1217_bacteria_3169.jpeg
inflating: chest_xray/train/PNEUMONIA/person1217_virus_2063.jpeg
inflating: chest_xray/train/PNEUMONIA/person1218_bacteria_3171.jpeg
inflating: chest_xray/train/PNEUMONIA/person1218_virus_2066.jpeg
inflating: chest_xray/train/PNEUMONIA/person1219_bacteria_3172.jpeg
inflating: chest_xray/train/PNEUMONIA/person1219_virus_2067.jpeg
inflating: chest_xray/train/PNEUMONIA/person1220_bacteria_3173.jpeg

inflating: chest_xray/train/PNEUMONIA/person1220_bacteria_3174.jpeg
inflating: chest_xray/train/PNEUMONIA/person1220_virus_2068.jpeg
inflating: chest_xray/train/PNEUMONIA/person1222_bacteria_3177.jpeg
inflating: chest_xray/train/PNEUMONIA/person1222_virus_2071.jpeg
inflating: chest_xray/train/PNEUMONIA/person1223_bacteria_3178.jpeg
inflating: chest_xray/train/PNEUMONIA/person1223_virus_2073.jpeg
inflating: chest_xray/train/PNEUMONIA/person1224_virus_2074.jpeg
inflating: chest_xray/train/PNEUMONIA/person1225_bacteria_3180.jpeg
inflating: chest_xray/train/PNEUMONIA/person1225_virus_2076.jpeg
inflating: chest_xray/train/PNEUMONIA/person1226_virus_2077.jpeg
inflating: chest_xray/train/PNEUMONIA/person1227_bacteria_3182.jpeg
inflating: chest_xray/train/PNEUMONIA/person1227_virus_2078.jpeg
inflating: chest_xray/train/PNEUMONIA/person1228_bacteria_3183.jpeg
inflating: chest_xray/train/PNEUMONIA/person1228_virus_2079.jpeg
inflating: chest_xray/train/PNEUMONIA/person1229_virus_2080.jpeg
inflating: chest_xray/train/PNEUMONIA/person122_virus_229.jpeg
inflating: chest_xray/train/PNEUMONIA/person1230_bacteria_3185.jpeg
inflating: chest_xray/train/PNEUMONIA/person1230_virus_2081.jpeg
inflating: chest_xray/train/PNEUMONIA/person1231_bacteria_3186.jpeg
inflating: chest_xray/train/PNEUMONIA/person1231_virus_2088.jpeg
inflating: chest_xray/train/PNEUMONIA/person1232_virus_2089.jpeg
inflating: chest_xray/train/PNEUMONIA/person1233_bacteria_3188.jpeg
inflating: chest_xray/train/PNEUMONIA/person1233_virus_2090.jpeg
inflating: chest_xray/train/PNEUMONIA/person1234_bacteria_3189.jpeg
inflating: chest_xray/train/PNEUMONIA/person1234_bacteria_3190.jpeg
inflating: chest_xray/train/PNEUMONIA/person1234_virus_2093.jpeg
inflating: chest_xray/train/PNEUMONIA/person1235_bacteria_3191.jpeg
inflating: chest_xray/train/PNEUMONIA/person1235_virus_2095.jpeg
inflating: chest_xray/train/PNEUMONIA/person1236_bacteria_3192.jpeg
inflating: chest_xray/train/PNEUMONIA/person1236_virus_2096.jpeg
inflating: chest_xray/train/PNEUMONIA/person1237_bacteria_3193.jpeg
inflating: chest_xray/train/PNEUMONIA/person1237_virus_2097.jpeg
inflating: chest_xray/train/PNEUMONIA/person1238_bacteria_3194.jpeg
inflating: chest_xray/train/PNEUMONIA/person1238_virus_2098.jpeg
inflating: chest_xray/train/PNEUMONIA/person1239_bacteria_3195.jpeg
inflating: chest_xray/train/PNEUMONIA/person1239_virus_2099.jpeg
inflating: chest_xray/train/PNEUMONIA/person123_virus_230.jpeg
inflating: chest_xray/train/PNEUMONIA/person1240_bacteria_3196.jpeg
inflating: chest_xray/train/PNEUMONIA/person1241_bacteria_3197.jpeg
inflating: chest_xray/train/PNEUMONIA/person1241_virus_2106.jpeg
inflating: chest_xray/train/PNEUMONIA/person1242_bacteria_3198.jpeg
inflating: chest_xray/train/PNEUMONIA/person1242_virus_2108.jpeg
inflating: chest_xray/train/PNEUMONIA/person1242_virus_2109.jpeg
inflating: chest_xray/train/PNEUMONIA/person1243_bacteria_3199.jpeg
inflating: chest_xray/train/PNEUMONIA/person1243_virus_2110.jpeg
inflating: chest_xray/train/PNEUMONIA/person1244_bacteria_3200.jpeg
inflating: chest_xray/train/PNEUMONIA/person1244_virus_2111.jpeg
inflating: chest_xray/train/PNEUMONIA/person1246_bacteria_3202.jpeg

inflating: chest_xray/train/PNEUMONIA/person1247_bacteria_3203.jpeg
inflating: chest_xray/train/PNEUMONIA/person1247_virus_2115.jpeg
inflating: chest_xray/train/PNEUMONIA/person1248_bacteria_3204.jpeg
inflating: chest_xray/train/PNEUMONIA/person1248_virus_2117.jpeg
inflating: chest_xray/train/PNEUMONIA/person1249_bacteria_3205.jpeg
inflating: chest_xray/train/PNEUMONIA/person1249_virus_2118.jpeg
inflating: chest_xray/train/PNEUMONIA/person124_virus_231.jpeg
inflating: chest_xray/train/PNEUMONIA/person124_virus_233.jpeg
inflating: chest_xray/train/PNEUMONIA/person124_virus_234.jpeg
inflating: chest_xray/train/PNEUMONIA/person124_virus_236.jpeg
inflating: chest_xray/train/PNEUMONIA/person124_virus_237.jpeg
inflating: chest_xray/train/PNEUMONIA/person124_virus_238.jpeg
inflating: chest_xray/train/PNEUMONIA/person124_virus_239.jpeg
inflating: chest_xray/train/PNEUMONIA/person124_virus_240.jpeg
inflating: chest_xray/train/PNEUMONIA/person124_virus_242.jpeg
inflating: chest_xray/train/PNEUMONIA/person124_virus_244.jpeg
inflating: chest_xray/train/PNEUMONIA/person124_virus_245.jpeg
inflating: chest_xray/train/PNEUMONIA/person124_virus_246.jpeg
inflating: chest_xray/train/PNEUMONIA/person124_virus_247.jpeg
inflating: chest_xray/train/PNEUMONIA/person124_virus_249.jpeg
inflating: chest_xray/train/PNEUMONIA/person124_virus_250.jpeg
inflating: chest_xray/train/PNEUMONIA/person124_virus_251.jpeg
inflating: chest_xray/train/PNEUMONIA/person1250_bacteria_3207.jpeg
inflating: chest_xray/train/PNEUMONIA/person1251_bacteria_3208.jpeg
inflating: chest_xray/train/PNEUMONIA/person1252_bacteria_3209.jpeg
inflating: chest_xray/train/PNEUMONIA/person1252_virus_2124.jpeg
inflating: chest_xray/train/PNEUMONIA/person1253_bacteria_3211.jpeg
inflating: chest_xray/train/PNEUMONIA/person1253_virus_2129.jpeg
inflating: chest_xray/train/PNEUMONIA/person1254_virus_2130.jpeg
inflating: chest_xray/train/PNEUMONIA/person1255_virus_2132.jpeg
inflating: chest_xray/train/PNEUMONIA/person1256_bacteria_3214.jpeg
inflating: chest_xray/train/PNEUMONIA/person1257_bacteria_3215.jpeg
inflating: chest_xray/train/PNEUMONIA/person1258_bacteria_3216.jpeg
inflating: chest_xray/train/PNEUMONIA/person1258_virus_2138.jpeg
inflating: chest_xray/train/PNEUMONIA/person1259_bacteria_3217.jpeg
inflating: chest_xray/train/PNEUMONIA/person1259_virus_2139.jpeg
inflating: chest_xray/train/PNEUMONIA/person125_virus_254.jpeg
inflating: chest_xray/train/PNEUMONIA/person1260_bacteria_3218.jpeg
inflating: chest_xray/train/PNEUMONIA/person1260_virus_2140.jpeg
inflating: chest_xray/train/PNEUMONIA/person1261_bacteria_3219.jpeg
inflating: chest_xray/train/PNEUMONIA/person1261_virus_2145.jpeg
inflating: chest_xray/train/PNEUMONIA/person1261_virus_2147.jpeg
inflating: chest_xray/train/PNEUMONIA/person1261_virus_2148.jpeg
inflating: chest_xray/train/PNEUMONIA/person1262_bacteria_3220.jpeg
inflating: chest_xray/train/PNEUMONIA/person1263_bacteria_3221.jpeg
inflating: chest_xray/train/PNEUMONIA/person1264_bacteria_3222.jpeg
inflating: chest_xray/train/PNEUMONIA/person1264_virus_2155.jpeg
inflating: chest_xray/train/PNEUMONIA/person1265_bacteria_3223.jpeg

inflating: chest_xray/train/PNEUMONIA/person1265_virus_2156.jpeg
inflating: chest_xray/train/PNEUMONIA/person1266_bacteria_3224.jpeg
inflating: chest_xray/train/PNEUMONIA/person1266_bacteria_3225.jpeg
inflating: chest_xray/train/PNEUMONIA/person1266_virus_2158.jpeg
inflating: chest_xray/train/PNEUMONIA/person1267_bacteria_3226.jpeg
inflating: chest_xray/train/PNEUMONIA/person1267_virus_2160.jpeg
inflating: chest_xray/train/PNEUMONIA/person1268_bacteria_3227.jpeg
inflating: chest_xray/train/PNEUMONIA/person1268_bacteria_3228.jpeg
inflating: chest_xray/train/PNEUMONIA/person1268_virus_2161.jpeg
inflating: chest_xray/train/PNEUMONIA/person1269_bacteria_3229.jpeg
inflating: chest_xray/train/PNEUMONIA/person1269_virus_2162.jpeg
inflating: chest_xray/train/PNEUMONIA/person126_virus_255.jpeg
inflating: chest_xray/train/PNEUMONIA/person1270_bacteria_3230.jpeg
inflating: chest_xray/train/PNEUMONIA/person1270_virus_2163.jpeg
inflating: chest_xray/train/PNEUMONIA/person1271_bacteria_3231.jpeg
inflating: chest_xray/train/PNEUMONIA/person1271_virus_2164.jpeg
inflating: chest_xray/train/PNEUMONIA/person1272_bacteria_3232.jpeg
inflating: chest_xray/train/PNEUMONIA/person1272_virus_2190.jpeg
inflating: chest_xray/train/PNEUMONIA/person1273_bacteria_3233.jpeg
inflating: chest_xray/train/PNEUMONIA/person1273_bacteria_3234.jpeg
inflating: chest_xray/train/PNEUMONIA/person1273_virus_2191.jpeg
inflating: chest_xray/train/PNEUMONIA/person1274_bacteria_3235.jpeg
inflating: chest_xray/train/PNEUMONIA/person1274_bacteria_3236.jpeg
inflating: chest_xray/train/PNEUMONIA/person1274_virus_2193.jpeg
inflating: chest_xray/train/PNEUMONIA/person1275_bacteria_3237.jpeg
inflating: chest_xray/train/PNEUMONIA/person1276_bacteria_3239.jpeg
inflating: chest_xray/train/PNEUMONIA/person1276_virus_2198.jpeg
inflating: chest_xray/train/PNEUMONIA/person1277_bacteria_3240.jpeg
inflating: chest_xray/train/PNEUMONIA/person1278_virus_2201.jpeg
inflating: chest_xray/train/PNEUMONIA/person1279_bacteria_3242.jpeg
inflating: chest_xray/train/PNEUMONIA/person1280_bacteria_3243.jpeg
inflating: chest_xray/train/PNEUMONIA/person1281_bacteria_3244.jpeg
inflating: chest_xray/train/PNEUMONIA/person1281_virus_2204.jpeg
inflating: chest_xray/train/PNEUMONIA/person1282_bacteria_3245.jpeg
inflating: chest_xray/train/PNEUMONIA/person1283_bacteria_3246.jpeg
inflating: chest_xray/train/PNEUMONIA/person1283_virus_2206.jpeg
inflating: chest_xray/train/PNEUMONIA/person1284_bacteria_3247.jpeg
inflating: chest_xray/train/PNEUMONIA/person1284_virus_2207.jpeg
inflating: chest_xray/train/PNEUMONIA/person1285_virus_2208.jpeg
inflating: chest_xray/train/PNEUMONIA/person1286_bacteria_3249.jpeg
inflating: chest_xray/train/PNEUMONIA/person1286_virus_2209.jpeg
inflating: chest_xray/train/PNEUMONIA/person1287_bacteria_3250.jpeg
inflating: chest_xray/train/PNEUMONIA/person1287_virus_2210.jpeg
inflating: chest_xray/train/PNEUMONIA/person1288_bacteria_3251.jpeg
inflating: chest_xray/train/PNEUMONIA/person1288_virus_2211.jpeg
inflating: chest_xray/train/PNEUMONIA/person1289_bacteria_3252.jpeg
inflating: chest_xray/train/PNEUMONIA/person128_virus_261.jpeg
inflating: chest_xray/train/PNEUMONIA/person1290_bacteria_3253.jpeg

inflating: chest_xray/train/PNEUMONIA/person1290_virus_2215.jpeg
inflating: chest_xray/train/PNEUMONIA/person1290_virus_2216.jpeg
inflating: chest_xray/train/PNEUMONIA/person1291_virus_2217.jpeg
inflating: chest_xray/train/PNEUMONIA/person1292_bacteria_3255.jpeg
inflating: chest_xray/train/PNEUMONIA/person1292_virus_2218.jpeg
inflating: chest_xray/train/PNEUMONIA/person1293_virus_2219.jpeg
inflating: chest_xray/train/PNEUMONIA/person1294_bacteria_3257.jpeg
inflating: chest_xray/train/PNEUMONIA/person1294_virus_2221.jpeg
inflating: chest_xray/train/PNEUMONIA/person1294_virus_2222.jpeg
inflating: chest_xray/train/PNEUMONIA/person1295_bacteria_3258.jpeg
inflating: chest_xray/train/PNEUMONIA/person1295_virus_2223.jpeg
inflating: chest_xray/train/PNEUMONIA/person1296_virus_2224.jpeg
inflating: chest_xray/train/PNEUMONIA/person1297_bacteria_3260.jpeg
inflating: chest_xray/train/PNEUMONIA/person1298_bacteria_3261.jpeg
inflating: chest_xray/train/PNEUMONIA/person1298_virus_2226.jpeg
inflating: chest_xray/train/PNEUMONIA/person1298_virus_2228.jpeg
inflating: chest_xray/train/PNEUMONIA/person12_bacteria_46.jpeg
inflating: chest_xray/train/PNEUMONIA/person12_bacteria_47.jpeg
inflating: chest_xray/train/PNEUMONIA/person12_bacteria_48.jpeg
inflating: chest_xray/train/PNEUMONIA/person1300_bacteria_3264.jpeg
inflating: chest_xray/train/PNEUMONIA/person1300_virus_2240.jpeg
inflating: chest_xray/train/PNEUMONIA/person1301_virus_2241.jpeg
inflating: chest_xray/train/PNEUMONIA/person1302_bacteria_3266.jpeg
inflating: chest_xray/train/PNEUMONIA/person1303_bacteria_3267.jpeg
inflating: chest_xray/train/PNEUMONIA/person1303_virus_2243.jpeg
inflating: chest_xray/train/PNEUMONIA/person1304_bacteria_3269.jpeg
inflating: chest_xray/train/PNEUMONIA/person1305_bacteria_3271.jpeg
inflating: chest_xray/train/PNEUMONIA/person1306_bacteria_3272.jpeg
inflating: chest_xray/train/PNEUMONIA/person1306_bacteria_3274.jpeg
inflating: chest_xray/train/PNEUMONIA/person1306_bacteria_3275.jpeg
inflating: chest_xray/train/PNEUMONIA/person1306_bacteria_3276.jpeg
inflating: chest_xray/train/PNEUMONIA/person1306_bacteria_3277.jpeg
inflating: chest_xray/train/PNEUMONIA/person1306_virus_2249.jpeg
inflating: chest_xray/train/PNEUMONIA/person1307_bacteria_3278.jpeg
inflating: chest_xray/train/PNEUMONIA/person1307_virus_2251.jpeg
inflating: chest_xray/train/PNEUMONIA/person1308_bacteria_3280.jpeg
inflating: chest_xray/train/PNEUMONIA/person1308_bacteria_3283.jpeg
inflating: chest_xray/train/PNEUMONIA/person1308_bacteria_3285.jpeg
inflating: chest_xray/train/PNEUMONIA/person1308_bacteria_3286.jpeg
inflating: chest_xray/train/PNEUMONIA/person1308_bacteria_3288.jpeg
inflating: chest_xray/train/PNEUMONIA/person1308_bacteria_3290.jpeg
inflating: chest_xray/train/PNEUMONIA/person1308_bacteria_3292.jpeg
inflating: chest_xray/train/PNEUMONIA/person1308_virus_2252.jpeg
inflating: chest_xray/train/PNEUMONIA/person1308_virus_2253.jpeg
inflating: chest_xray/train/PNEUMONIA/person1309_bacteria_3294.jpeg
inflating: chest_xray/train/PNEUMONIA/person1309_virus_2254.jpeg
inflating: chest_xray/train/PNEUMONIA/person130_virus_263.jpeg
inflating: chest_xray/train/PNEUMONIA/person1310_bacteria_3295.jpeg

[illegible]

inflating: chest_xray/train/PNEUMONIA/person1321_virus_2279.jpeg
inflating: chest_xray/train/PNEUMONIA/person1322_bacteria_3360.jpeg
inflating: chest_xray/train/PNEUMONIA/person1323_bacteria_3361.jpeg
inflating: chest_xray/train/PNEUMONIA/person1323_bacteria_3362.jpeg
inflating: chest_xray/train/PNEUMONIA/person1323_bacteria_3363.jpeg
inflating: chest_xray/train/PNEUMONIA/person1323_virus_2282.jpeg
inflating: chest_xray/train/PNEUMONIA/person1323_virus_2283.jpeg
inflating: chest_xray/train/PNEUMONIA/person1324_virus_2284.jpeg
inflating: chest_xray/train/PNEUMONIA/person1324_virus_2285.jpeg
inflating: chest_xray/train/PNEUMONIA/person1325_bacteria_3366.jpeg
inflating: chest_xray/train/PNEUMONIA/person1325_virus_2287.jpeg
inflating: chest_xray/train/PNEUMONIA/person1326_bacteria_3372.jpeg
inflating: chest_xray/train/PNEUMONIA/person1327_bacteria_3373.jpeg
inflating: chest_xray/train/PNEUMONIA/person1327_bacteria_3374.jpeg
inflating: chest_xray/train/PNEUMONIA/person1328_bacteria_3376.jpeg
inflating: chest_xray/train/PNEUMONIA/person1328_virus_2293.jpeg
inflating: chest_xray/train/PNEUMONIA/person1328_virus_2294.jpeg
inflating: chest_xray/train/PNEUMONIA/person1328_virus_2295.jpeg
inflating: chest_xray/train/PNEUMONIA/person1329_bacteria_3377.jpeg
inflating: chest_xray/train/PNEUMONIA/person132_virus_266.jpeg
inflating: chest_xray/train/PNEUMONIA/person1331_bacteria_3380.jpeg
inflating: chest_xray/train/PNEUMONIA/person1331_virus_2299.jpeg
inflating: chest_xray/train/PNEUMONIA/person1332_virus_2300.jpeg
inflating: chest_xray/train/PNEUMONIA/person1333_bacteria_3383.jpeg
inflating: chest_xray/train/PNEUMONIA/person1333_bacteria_3384.jpeg
inflating: chest_xray/train/PNEUMONIA/person1333_bacteria_3385.jpeg
inflating: chest_xray/train/PNEUMONIA/person1333_bacteria_3386.jpeg
inflating: chest_xray/train/PNEUMONIA/person1333_virus_2301.jpeg
inflating: chest_xray/train/PNEUMONIA/person1336_virus_2306.jpeg
inflating: chest_xray/train/PNEUMONIA/person1337_virus_2307.jpeg
inflating: chest_xray/train/PNEUMONIA/person1338_bacteria_3394.jpeg
inflating: chest_xray/train/PNEUMONIA/person1338_bacteria_3395.jpeg
inflating: chest_xray/train/PNEUMONIA/person1338_bacteria_3397.jpeg
inflating: chest_xray/train/PNEUMONIA/person1338_virus_2308.jpeg
inflating: chest_xray/train/PNEUMONIA/person1339_bacteria_3399.jpeg
inflating: chest_xray/train/PNEUMONIA/person1339_bacteria_3402.jpeg
inflating: chest_xray/train/PNEUMONIA/person133_virus_267.jpeg
inflating: chest_xray/train/PNEUMONIA/person1340_bacteria_3405.jpeg
inflating: chest_xray/train/PNEUMONIA/person1340_virus_2311.jpeg
inflating: chest_xray/train/PNEUMONIA/person1340_virus_2312.jpeg
inflating: chest_xray/train/PNEUMONIA/person1341_bacteria_3406.jpeg
inflating: chest_xray/train/PNEUMONIA/person1341_virus_2313.jpeg
inflating: chest_xray/train/PNEUMONIA/person1342_bacteria_3407.jpeg
inflating: chest_xray/train/PNEUMONIA/person1342_virus_2315.jpeg
inflating: chest_xray/train/PNEUMONIA/person1343_bacteria_3409.jpeg
inflating: chest_xray/train/PNEUMONIA/person1343_bacteria_3411.jpeg
inflating: chest_xray/train/PNEUMONIA/person1343_bacteria_3413.jpeg
inflating: chest_xray/train/PNEUMONIA/person1343_bacteria_3414.jpeg

[illegible]

inflating: chest_xray/train/PNEUMONIA/person135_virus_271.jpeg
inflating: chest_xray/train/PNEUMONIA/person1360_virus_2341.jpeg
inflating: chest_xray/train/PNEUMONIA/person1361_bacteria_3476.jpeg
inflating: chest_xray/train/PNEUMONIA/person1361_bacteria_3477.jpeg
inflating: chest_xray/train/PNEUMONIA/person1361_virus_2342.jpeg
inflating: chest_xray/train/PNEUMONIA/person1361_virus_2344.jpeg
inflating: chest_xray/train/PNEUMONIA/person1362_virus_2345.jpeg
inflating: chest_xray/train/PNEUMONIA/person1363_bacteria_3483.jpeg
inflating: chest_xray/train/PNEUMONIA/person1363_bacteria_3484.jpeg
inflating: chest_xray/train/PNEUMONIA/person1363_virus_2346.jpeg
inflating: chest_xray/train/PNEUMONIA/person1365_bacteria_3489.jpeg
inflating: chest_xray/train/PNEUMONIA/person1365_virus_2348.jpeg
inflating: chest_xray/train/PNEUMONIA/person1366_bacteria_3490.jpeg
inflating: chest_xray/train/PNEUMONIA/person1366_virus_2349.jpeg
inflating: chest_xray/train/PNEUMONIA/person1367_virus_2351.jpeg
inflating: chest_xray/train/PNEUMONIA/person1368_virus_2352.jpeg
inflating: chest_xray/train/PNEUMONIA/person1368_virus_2353.jpeg
inflating: chest_xray/train/PNEUMONIA/person1368_virus_2354.jpeg
inflating: chest_xray/train/PNEUMONIA/person1369_virus_2355.jpeg
inflating: chest_xray/train/PNEUMONIA/person1369_virus_2356.jpeg
inflating: chest_xray/train/PNEUMONIA/person1371_virus_2361.jpeg
inflating: chest_xray/train/PNEUMONIA/person1371_virus_2362.jpeg
inflating: chest_xray/train/PNEUMONIA/person1372_bacteria_3498.jpeg
inflating: chest_xray/train/PNEUMONIA/person1372_bacteria_3499.jpeg
inflating: chest_xray/train/PNEUMONIA/person1372_bacteria_3500.jpeg
inflating: chest_xray/train/PNEUMONIA/person1372_bacteria_3501.jpeg
inflating: chest_xray/train/PNEUMONIA/person1372_bacteria_3502.jpeg
inflating: chest_xray/train/PNEUMONIA/person1372_bacteria_3503.jpeg
inflating: chest_xray/train/PNEUMONIA/person1374_bacteria_3506.jpeg
inflating: chest_xray/train/PNEUMONIA/person1374_bacteria_3507.jpeg
inflating: chest_xray/train/PNEUMONIA/person1374_virus_2365.jpeg
inflating: chest_xray/train/PNEUMONIA/person1375_bacteria_3509.jpeg
inflating: chest_xray/train/PNEUMONIA/person1375_bacteria_3510.jpeg
inflating: chest_xray/train/PNEUMONIA/person1375_virus_2366.jpeg
inflating: chest_xray/train/PNEUMONIA/person1376_bacteria_3511.jpeg
inflating: chest_xray/train/PNEUMONIA/person1376_virus_2367.jpeg
inflating: chest_xray/train/PNEUMONIA/person1377_bacteria_3512.jpeg
inflating: chest_xray/train/PNEUMONIA/person1377_virus_2369.jpeg
inflating: chest_xray/train/PNEUMONIA/person1378_bacteria_3513.jpeg
inflating: chest_xray/train/PNEUMONIA/person1379_bacteria_3514.jpeg
inflating: chest_xray/train/PNEUMONIA/person137_virus_281.jpeg
inflating: chest_xray/train/PNEUMONIA/person1380_bacteria_3515.jpeg
inflating: chest_xray/train/PNEUMONIA/person1381_bacteria_3516.jpeg
inflating: chest_xray/train/PNEUMONIA/person1381_bacteria_3517.jpeg
inflating: chest_xray/train/PNEUMONIA/person1381_virus_2375.jpeg
inflating: chest_xray/train/PNEUMONIA/person1383_bacteria_3521.jpeg
inflating: chest_xray/train/PNEUMONIA/person1383_virus_2377.jpeg
inflating: chest_xray/train/PNEUMONIA/person1384_bacteria_3522.jpeg

inflating: chest_xray/train/PNEUMONIA/person1385_bacteria_3524.jpeg
inflating: chest_xray/train/PNEUMONIA/person1385_virus_2380.jpeg
inflating: chest_xray/train/PNEUMONIA/person1387_virus_2382.jpeg
inflating: chest_xray/train/PNEUMONIA/person1388_bacteria_3529.jpeg
inflating: chest_xray/train/PNEUMONIA/person1389_bacteria_3531.jpeg
inflating: chest_xray/train/PNEUMONIA/person1389_virus_2387.jpeg
inflating: chest_xray/train/PNEUMONIA/person138_virus_282.jpeg
inflating: chest_xray/train/PNEUMONIA/person1390_bacteria_3534.jpeg
inflating: chest_xray/train/PNEUMONIA/person1390_bacteria_3535.jpeg
inflating: chest_xray/train/PNEUMONIA/person1391_bacteria_3536.jpeg
inflating: chest_xray/train/PNEUMONIA/person1391_bacteria_3537.jpeg
inflating: chest_xray/train/PNEUMONIA/person1392_bacteria_3538.jpeg
inflating: chest_xray/train/PNEUMONIA/person1393_virus_2396.jpeg
inflating: chest_xray/train/PNEUMONIA/person1394_virus_2397.jpeg
inflating: chest_xray/train/PNEUMONIA/person1395_bacteria_3544.jpeg
inflating: chest_xray/train/PNEUMONIA/person1395_virus_2398.jpeg
inflating: chest_xray/train/PNEUMONIA/person1396_bacteria_3545.jpeg
inflating: chest_xray/train/PNEUMONIA/person1396_virus_2399.jpeg
inflating: chest_xray/train/PNEUMONIA/person1397_virus_2400.jpeg
inflating: chest_xray/train/PNEUMONIA/person1398_bacteria_3548.jpeg
inflating: chest_xray/train/PNEUMONIA/person1398_virus_2401.jpeg
inflating: chest_xray/train/PNEUMONIA/person1399_bacteria_3549.jpeg
inflating: chest_xray/train/PNEUMONIA/person1399_virus_2402.jpeg
inflating: chest_xray/train/PNEUMONIA/person139_virus_283.jpeg
inflating: chest_xray/train/PNEUMONIA/person13_bacteria_49.jpeg
inflating: chest_xray/train/PNEUMONIA/person13_bacteria_50.jpeg
inflating: chest_xray/train/PNEUMONIA/person1400_bacteria_3550.jpeg
inflating: chest_xray/train/PNEUMONIA/person1400_bacteria_3551.jpeg
inflating: chest_xray/train/PNEUMONIA/person1400_bacteria_3553.jpeg
inflating: chest_xray/train/PNEUMONIA/person1400_bacteria_3554.jpeg
inflating: chest_xray/train/PNEUMONIA/person1401_bacteria_3555.jpeg
inflating: chest_xray/train/PNEUMONIA/person1402_virus_2405.jpeg
inflating: chest_xray/train/PNEUMONIA/person1403_bacteria_3557.jpeg
inflating: chest_xray/train/PNEUMONIA/person1403_bacteria_3559.jpeg
inflating: chest_xray/train/PNEUMONIA/person1403_virus_2406.jpeg
inflating: chest_xray/train/PNEUMONIA/person1404_bacteria_3561.jpeg
inflating: chest_xray/train/PNEUMONIA/person1405_bacteria_3564.jpeg
inflating: chest_xray/train/PNEUMONIA/person1405_bacteria_3566.jpeg
inflating: chest_xray/train/PNEUMONIA/person1405_bacteria_3567.jpeg
inflating: chest_xray/train/PNEUMONIA/person1405_bacteria_3571.jpeg
inflating: chest_xray/train/PNEUMONIA/person1405_bacteria_3573.jpeg
inflating: chest_xray/train/PNEUMONIA/person1405_virus_2408.jpeg
inflating: chest_xray/train/PNEUMONIA/person1406_bacteria_3574.jpeg
inflating: chest_xray/train/PNEUMONIA/person1406_bacteria_3575.jpeg
inflating: chest_xray/train/PNEUMONIA/person1406_virus_2409.jpeg
inflating: chest_xray/train/PNEUMONIA/person1407_virus_2410.jpeg
inflating: chest_xray/train/PNEUMONIA/person1408_bacteria_3579.jpeg
inflating: chest_xray/train/PNEUMONIA/person1408_bacteria_3581.jpeg

inflating: chest_xray/train/PNEUMONIA/person1408_virus_2411.jpeg
inflating: chest_xray/train/PNEUMONIA/person1409_bacteria_3583.jpeg
inflating: chest_xray/train/PNEUMONIA/person1409_bacteria_3585.jpeg
inflating: chest_xray/train/PNEUMONIA/person1409_virus_2413.jpeg
inflating: chest_xray/train/PNEUMONIA/person140_virus_284.jpeg
inflating: chest_xray/train/PNEUMONIA/person140_virus_285.jpeg
inflating: chest_xray/train/PNEUMONIA/person1411_bacteria_3591.jpeg
inflating: chest_xray/train/PNEUMONIA/person1411_bacteria_3593.jpeg
inflating: chest_xray/train/PNEUMONIA/person1411_bacteria_3598.jpeg
inflating: chest_xray/train/PNEUMONIA/person1411_bacteria_3599.jpeg
inflating: chest_xray/train/PNEUMONIA/person1411_bacteria_3601.jpeg
inflating: chest_xray/train/PNEUMONIA/person1411_bacteria_3602.jpeg
inflating: chest_xray/train/PNEUMONIA/person1411_bacteria_3603.jpeg
inflating: chest_xray/train/PNEUMONIA/person1411_bacteria_3604.jpeg
inflating: chest_xray/train/PNEUMONIA/person1411_bacteria_3607.jpeg
inflating: chest_xray/train/PNEUMONIA/person1411_bacteria_3609.jpeg
inflating: chest_xray/train/PNEUMONIA/person1411_bacteria_3610.jpeg
inflating: chest_xray/train/PNEUMONIA/person1411_virus_2415.jpeg
inflating: chest_xray/train/PNEUMONIA/person1412_bacteria_3612.jpeg
inflating: chest_xray/train/PNEUMONIA/person1413_bacteria_3613.jpeg
inflating: chest_xray/train/PNEUMONIA/person1413_bacteria_3615.jpeg
inflating: chest_xray/train/PNEUMONIA/person1413_bacteria_3617.jpeg
inflating: chest_xray/train/PNEUMONIA/person1413_bacteria_3620.jpeg
inflating: chest_xray/train/PNEUMONIA/person1413_virus_2422.jpeg
inflating: chest_xray/train/PNEUMONIA/person1413_virus_2423.jpeg
inflating: chest_xray/train/PNEUMONIA/person1414_bacteria_3627.jpeg
inflating: chest_xray/train/PNEUMONIA/person1414_bacteria_3628.jpeg
inflating: chest_xray/train/PNEUMONIA/person1414_virus_2424.jpeg
inflating: chest_xray/train/PNEUMONIA/person1415_bacteria_3629.jpeg
inflating: chest_xray/train/PNEUMONIA/person1415_virus_2425.jpeg
inflating: chest_xray/train/PNEUMONIA/person1416_virus_2427.jpeg
inflating: chest_xray/train/PNEUMONIA/person1417_bacteria_3635.jpeg
inflating: chest_xray/train/PNEUMONIA/person1418_bacteria_3636.jpeg
inflating: chest_xray/train/PNEUMONIA/person1418_bacteria_3637.jpeg
inflating: chest_xray/train/PNEUMONIA/person1418_bacteria_3638.jpeg
inflating: chest_xray/train/PNEUMONIA/person1418_bacteria_3639.jpeg
inflating: chest_xray/train/PNEUMONIA/person1418_bacteria_3643.jpeg
inflating: chest_xray/train/PNEUMONIA/person1418_virus_2429.jpeg
inflating: chest_xray/train/PNEUMONIA/person1419_bacteria_3645.jpeg
inflating: chest_xray/train/PNEUMONIA/person141_virus_287.jpeg
inflating: chest_xray/train/PNEUMONIA/person1420_bacteria_3647.jpeg
inflating: chest_xray/train/PNEUMONIA/person1420_virus_2431.jpeg
inflating: chest_xray/train/PNEUMONIA/person1422_bacteria_3649.jpeg
inflating: chest_xray/train/PNEUMONIA/person1422_virus_2434.jpeg
inflating: chest_xray/train/PNEUMONIA/person1423_bacteria_3650.jpeg
inflating: chest_xray/train/PNEUMONIA/person1424_bacteria_3651.jpeg
inflating: chest_xray/train/PNEUMONIA/person1424_virus_2437.jpeg
inflating: chest_xray/train/PNEUMONIA/person1425_virus_2438.jpeg

[illegible]

inflating: chest_xray/train/PNEUMONIA/person1466_virus_2541.jpeg
inflating: chest_xray/train/PNEUMONIA/person1466_virus_2542.jpeg
inflating: chest_xray/train/PNEUMONIA/person1466_virus_2543.jpeg
inflating: chest_xray/train/PNEUMONIA/person1467_virus_2544.jpeg
inflating: chest_xray/train/PNEUMONIA/person1468_bacteria_3822.jpeg
inflating: chest_xray/train/PNEUMONIA/person1468_virus_2545.jpeg
inflating: chest_xray/train/PNEUMONIA/person1468_virus_2546.jpeg
inflating: chest_xray/train/PNEUMONIA/person1469_bacteria_3824.jpeg
inflating: chest_xray/train/PNEUMONIA/person1469_bacteria_3827.jpeg
inflating: chest_xray/train/PNEUMONIA/person1469_virus_2547.jpeg
inflating: chest_xray/train/PNEUMONIA/person146_virus_296.jpeg
inflating: chest_xray/train/PNEUMONIA/person1470_bacteria_3829.jpeg
inflating: chest_xray/train/PNEUMONIA/person1470_bacteria_3830.jpeg
inflating: chest_xray/train/PNEUMONIA/person1471_bacteria_3831.jpeg
inflating: chest_xray/train/PNEUMONIA/person1471_virus_2549.jpeg
inflating: chest_xray/train/PNEUMONIA/person1472_bacteria_3833.jpeg
inflating: chest_xray/train/PNEUMONIA/person1472_bacteria_3834.jpeg
inflating: chest_xray/train/PNEUMONIA/person1472_virus_2550.jpeg
inflating: chest_xray/train/PNEUMONIA/person1473_bacteria_3836.jpeg
inflating: chest_xray/train/PNEUMONIA/person1473_virus_2551.jpeg
inflating: chest_xray/train/PNEUMONIA/person1473_virus_2553.jpeg
inflating: chest_xray/train/PNEUMONIA/person1474_bacteria_3837.jpeg
inflating: chest_xray/train/PNEUMONIA/person1474_virus_2556.jpeg
inflating: chest_xray/train/PNEUMONIA/person1474_virus_2557.jpeg
inflating: chest_xray/train/PNEUMONIA/person1475_virus_2558.jpeg
inflating: chest_xray/train/PNEUMONIA/person1476_bacteria_3842.jpeg
inflating: chest_xray/train/PNEUMONIA/person1476_bacteria_3843.jpeg
inflating: chest_xray/train/PNEUMONIA/person1476_virus_2560.jpeg
inflating: chest_xray/train/PNEUMONIA/person1477_virus_2561.jpeg
inflating: chest_xray/train/PNEUMONIA/person1478_bacteria_3848.jpeg
inflating: chest_xray/train/PNEUMONIA/person147_virus_297.jpeg
inflating: chest_xray/train/PNEUMONIA/person1480_bacteria_3858.jpeg
inflating: chest_xray/train/PNEUMONIA/person1480_bacteria_3859.jpeg
inflating: chest_xray/train/PNEUMONIA/person1480_virus_2566.jpeg
inflating: chest_xray/train/PNEUMONIA/person1481_bacteria_3862.jpeg
inflating: chest_xray/train/PNEUMONIA/person1481_bacteria_3863.jpeg
inflating: chest_xray/train/PNEUMONIA/person1481_bacteria_3864.jpeg
inflating: chest_xray/train/PNEUMONIA/person1481_bacteria_3865.jpeg
inflating: chest_xray/train/PNEUMONIA/person1481_bacteria_3866.jpeg
inflating: chest_xray/train/PNEUMONIA/person1481_bacteria_3867.jpeg
inflating: chest_xray/train/PNEUMONIA/person1481_bacteria_3868.jpeg
inflating: chest_xray/train/PNEUMONIA/person1481_virus_2567.jpeg
inflating: chest_xray/train/PNEUMONIA/person1482_bacteria_3870.jpeg
inflating: chest_xray/train/PNEUMONIA/person1482_bacteria_3874.jpeg
inflating: chest_xray/train/PNEUMONIA/person1482_virus_2569.jpeg
inflating: chest_xray/train/PNEUMONIA/person1482_virus_2570.jpeg
inflating: chest_xray/train/PNEUMONIA/person1482_virus_2571.jpeg
inflating: chest_xray/train/PNEUMONIA/person1482_virus_2572.jpeg

inflating: chest_xray/train/PNEUMONIA/person149_virus_299.jpeg
inflating: chest_xray/train/PNEUMONIA/person14_bacteria_51.jpeg
inflating: chest_xray/train/PNEUMONIA/person1500_bacteria_3916.jpeg
inflating: chest_xray/train/PNEUMONIA/person1500_virus_2610.jpeg
inflating: chest_xray/train/PNEUMONIA/person1501_virus_2611.jpeg
inflating: chest_xray/train/PNEUMONIA/person1502_bacteria_3922.jpeg
inflating: chest_xray/train/PNEUMONIA/person1502_bacteria_3923.jpeg
inflating: chest_xray/train/PNEUMONIA/person1502_bacteria_3924.jpeg
inflating: chest_xray/train/PNEUMONIA/person1502_bacteria_3925.jpeg
inflating: chest_xray/train/PNEUMONIA/person1502_bacteria_3927.jpeg
inflating: chest_xray/train/PNEUMONIA/person1502_bacteria_3928.jpeg
inflating: chest_xray/train/PNEUMONIA/person1502_bacteria_3929.jpeg
inflating: chest_xray/train/PNEUMONIA/person1502_virus_2612.jpeg
inflating: chest_xray/train/PNEUMONIA/person1503_virus_2613.jpeg
inflating: chest_xray/train/PNEUMONIA/person1504_bacteria_3931.jpeg
inflating: chest_xray/train/PNEUMONIA/person1504_virus_2614.jpeg
inflating: chest_xray/train/PNEUMONIA/person1505_virus_2615.jpeg
inflating: chest_xray/train/PNEUMONIA/person1506_bacteria_3933.jpeg
inflating: chest_xray/train/PNEUMONIA/person1506_virus_2616.jpeg
inflating: chest_xray/train/PNEUMONIA/person1507_bacteria_3935.jpeg
inflating: chest_xray/train/PNEUMONIA/person1507_bacteria_3942.jpeg
inflating: chest_xray/train/PNEUMONIA/person1507_bacteria_3943.jpeg
inflating: chest_xray/train/PNEUMONIA/person1507_bacteria_3944.jpeg
inflating: chest_xray/train/PNEUMONIA/person1507_bacteria_3945.jpeg
inflating: chest_xray/train/PNEUMONIA/person1507_bacteria_3946.jpeg
inflating: chest_xray/train/PNEUMONIA/person1507_bacteria_3947.jpeg
inflating: chest_xray/train/PNEUMONIA/person1507_bacteria_3948.jpeg
inflating: chest_xray/train/PNEUMONIA/person1508_bacteria_3949.jpeg
inflating: chest_xray/train/PNEUMONIA/person1509_bacteria_3951.jpeg
inflating: chest_xray/train/PNEUMONIA/person1509_virus_2621.jpeg
inflating: chest_xray/train/PNEUMONIA/person1510_virus_2628.jpeg
inflating: chest_xray/train/PNEUMONIA/person1510_virus_2629.jpeg
inflating: chest_xray/train/PNEUMONIA/person1511_bacteria_3955.jpeg
inflating: chest_xray/train/PNEUMONIA/person1512_bacteria_3958.jpeg
inflating: chest_xray/train/PNEUMONIA/person1512_virus_2631.jpeg
inflating: chest_xray/train/PNEUMONIA/person1513_bacteria_3962.jpeg
inflating: chest_xray/train/PNEUMONIA/person1513_virus_2632.jpeg
inflating: chest_xray/train/PNEUMONIA/person1514_bacteria_3964.jpeg
inflating: chest_xray/train/PNEUMONIA/person1514_virus_2633.jpeg
inflating: chest_xray/train/PNEUMONIA/person1516_virus_2643.jpeg
inflating: chest_xray/train/PNEUMONIA/person1517_bacteria_3968.jpeg
inflating: chest_xray/train/PNEUMONIA/person1517_virus_2644.jpeg
inflating: chest_xray/train/PNEUMONIA/person1518_bacteria_3969.jpeg
inflating: chest_xray/train/PNEUMONIA/person1518_virus_2645.jpeg
inflating: chest_xray/train/PNEUMONIA/person1519_bacteria_3970.jpeg
inflating: chest_xray/train/PNEUMONIA/person1519_virus_2646.jpeg
inflating: chest_xray/train/PNEUMONIA/person151_virus_301.jpeg
inflating: chest_xray/train/PNEUMONIA/person151_virus_302.jpeg

inflating: chest_xray/train/PNEUMONIA/person1520_bacteria_3971.jpeg
inflating: chest_xray/train/PNEUMONIA/person1520_virus_2647.jpeg
inflating: chest_xray/train/PNEUMONIA/person1521_virus_2649.jpeg
inflating: chest_xray/train/PNEUMONIA/person1522_bacteria_3977.jpeg
inflating: chest_xray/train/PNEUMONIA/person1522_virus_2651.jpeg
inflating: chest_xray/train/PNEUMONIA/person1523_bacteria_3979.jpeg
inflating: chest_xray/train/PNEUMONIA/person1523_bacteria_3980.jpeg
inflating: chest_xray/train/PNEUMONIA/person1524_bacteria_3983.jpeg
inflating: chest_xray/train/PNEUMONIA/person1524_bacteria_3984.jpeg
inflating: chest_xray/train/PNEUMONIA/person1524_virus_2658.jpeg
inflating: chest_xray/train/PNEUMONIA/person1525_bacteria_3985.jpeg
inflating: chest_xray/train/PNEUMONIA/person1525_virus_2659.jpeg
inflating: chest_xray/train/PNEUMONIA/person1526_bacteria_3986.jpeg
inflating: chest_xray/train/PNEUMONIA/person1526_virus_2660.jpeg
inflating: chest_xray/train/PNEUMONIA/person1527_bacteria_3988.jpeg
inflating: chest_xray/train/PNEUMONIA/person1527_bacteria_3989.jpeg
inflating: chest_xray/train/PNEUMONIA/person1527_bacteria_3990.jpeg
inflating: chest_xray/train/PNEUMONIA/person1527_virus_2661.jpeg
inflating: chest_xray/train/PNEUMONIA/person1528_bacteria_3991.jpeg
inflating: chest_xray/train/PNEUMONIA/person1528_bacteria_3996.jpeg
inflating: chest_xray/train/PNEUMONIA/person1528_virus_2662.jpeg
inflating: chest_xray/train/PNEUMONIA/person1529_virus_2663.jpeg
inflating: chest_xray/train/PNEUMONIA/person152_virus_303.jpeg
inflating: chest_xray/train/PNEUMONIA/person1530_bacteria_4000.jpeg
inflating: chest_xray/train/PNEUMONIA/person1530_virus_2664.jpeg
inflating: chest_xray/train/PNEUMONIA/person1531_bacteria_4003.jpeg
inflating: chest_xray/train/PNEUMONIA/person1531_virus_2666.jpeg
inflating: chest_xray/train/PNEUMONIA/person1532_virus_2667.jpeg
inflating: chest_xray/train/PNEUMONIA/person1534_virus_2670.jpeg
inflating: chest_xray/train/PNEUMONIA/person1535_bacteria_4015.jpeg
inflating: chest_xray/train/PNEUMONIA/person1535_bacteria_4016.jpeg
inflating: chest_xray/train/PNEUMONIA/person1535_bacteria_4017.jpeg
inflating: chest_xray/train/PNEUMONIA/person1535_virus_2672.jpeg
inflating: chest_xray/train/PNEUMONIA/person1536_bacteria_4018.jpeg
inflating: chest_xray/train/PNEUMONIA/person1536_virus_2673.jpeg
inflating: chest_xray/train/PNEUMONIA/person1537_bacteria_4019.jpeg
inflating: chest_xray/train/PNEUMONIA/person1537_bacteria_4020.jpeg
inflating: chest_xray/train/PNEUMONIA/person1537_virus_2674.jpeg
inflating: chest_xray/train/PNEUMONIA/person1538_bacteria_4021.jpeg
inflating: chest_xray/train/PNEUMONIA/person1539_bacteria_4022.jpeg
inflating: chest_xray/train/PNEUMONIA/person1539_virus_2678.jpeg
inflating: chest_xray/train/PNEUMONIA/person1539_virus_2679.jpeg
inflating: chest_xray/train/PNEUMONIA/person153_virus_304.jpeg
inflating: chest_xray/train/PNEUMONIA/person1540_bacteria_4023.jpeg
inflating: chest_xray/train/PNEUMONIA/person1540_virus_2680.jpeg
inflating: chest_xray/train/PNEUMONIA/person1541_virus_2681.jpeg
inflating: chest_xray/train/PNEUMONIA/person1542_bacteria_4029.jpeg
inflating: chest_xray/train/PNEUMONIA/person1542_virus_2683.jpeg

inflating: chest_xray/train/PNEUMONIA/person1543_virus_2684.jpeg
inflating: chest_xray/train/PNEUMONIA/person1544_bacteria_4033.jpeg
inflating: chest_xray/train/PNEUMONIA/person1544_bacteria_4035.jpeg
inflating: chest_xray/train/PNEUMONIA/person1544_bacteria_4037.jpeg
inflating: chest_xray/train/PNEUMONIA/person1544_bacteria_4038.jpeg
inflating: chest_xray/train/PNEUMONIA/person1544_virus_2685.jpeg
inflating: chest_xray/train/PNEUMONIA/person1545_bacteria_4041.jpeg
inflating: chest_xray/train/PNEUMONIA/person1545_bacteria_4042.jpeg
inflating: chest_xray/train/PNEUMONIA/person1546_bacteria_4044.jpeg
inflating: chest_xray/train/PNEUMONIA/person1546_bacteria_4045.jpeg
inflating: chest_xray/train/PNEUMONIA/person1546_virus_2687.jpeg
inflating: chest_xray/train/PNEUMONIA/person1547_virus_2688.jpeg
inflating: chest_xray/train/PNEUMONIA/person1548_bacteria_4048.jpeg
inflating: chest_xray/train/PNEUMONIA/person1548_virus_2689.jpeg
inflating: chest_xray/train/PNEUMONIA/person1549_bacteria_4050.jpeg
inflating: chest_xray/train/PNEUMONIA/person1549_virus_2690.jpeg
inflating: chest_xray/train/PNEUMONIA/person154_virus_305.jpeg
inflating: chest_xray/train/PNEUMONIA/person154_virus_306.jpeg
inflating: chest_xray/train/PNEUMONIA/person1550_bacteria_4051.jpeg
inflating: chest_xray/train/PNEUMONIA/person1550_virus_2691.jpeg
inflating: chest_xray/train/PNEUMONIA/person1551_bacteria_4053.jpeg
inflating: chest_xray/train/PNEUMONIA/person1551_bacteria_4054.jpeg
inflating: chest_xray/train/PNEUMONIA/person1551_virus_2692.jpeg
inflating: chest_xray/train/PNEUMONIA/person1552_bacteria_4055.jpeg
inflating: chest_xray/train/PNEUMONIA/person1554_bacteria_4057.jpeg
inflating: chest_xray/train/PNEUMONIA/person1554_virus_2696.jpeg
inflating: chest_xray/train/PNEUMONIA/person1555_bacteria_4058.jpeg
inflating: chest_xray/train/PNEUMONIA/person1555_bacteria_4059.jpeg
inflating: chest_xray/train/PNEUMONIA/person1555_bacteria_4060.jpeg
inflating: chest_xray/train/PNEUMONIA/person1556_bacteria_4061.jpeg
inflating: chest_xray/train/PNEUMONIA/person1556_bacteria_4062.jpeg
inflating: chest_xray/train/PNEUMONIA/person1556_virus_2699.jpeg
inflating: chest_xray/train/PNEUMONIA/person1557_bacteria_4063.jpeg
inflating: chest_xray/train/PNEUMONIA/person1557_bacteria_4065.jpeg
inflating: chest_xray/train/PNEUMONIA/person1558_bacteria_4066.jpeg
inflating: chest_xray/train/PNEUMONIA/person1559_bacteria_4067.jpeg
inflating: chest_xray/train/PNEUMONIA/person155_virus_307.jpeg
inflating: chest_xray/train/PNEUMONIA/person1561_bacteria_4077.jpeg
inflating: chest_xray/train/PNEUMONIA/person1562_bacteria_4078.jpeg
inflating: chest_xray/train/PNEUMONIA/person1562_bacteria_4081.jpeg
inflating: chest_xray/train/PNEUMONIA/person1562_bacteria_4087.jpeg
inflating: chest_xray/train/PNEUMONIA/person1562_bacteria_4089.jpeg
inflating: chest_xray/train/PNEUMONIA/person1563_bacteria_4092.jpeg
inflating: chest_xray/train/PNEUMONIA/person1564_bacteria_4094.jpeg
inflating: chest_xray/train/PNEUMONIA/person1564_virus_2719.jpeg
inflating: chest_xray/train/PNEUMONIA/person1565_bacteria_4095.jpeg
inflating: chest_xray/train/PNEUMONIA/person1566_bacteria_4099.jpeg
inflating: chest_xray/train/PNEUMONIA/person1567_bacteria_4100.jpeg

inflating: chest_xray/train/PNEUMONIA/person1567_virus_2722.jpeg
inflating: chest_xray/train/PNEUMONIA/person1568_virus_2723.jpeg
inflating: chest_xray/train/PNEUMONIA/person156_virus_308.jpeg
inflating: chest_xray/train/PNEUMONIA/person1571_bacteria_4108.jpeg
inflating: chest_xray/train/PNEUMONIA/person1571_bacteria_4110.jpeg
inflating: chest_xray/train/PNEUMONIA/person1571_virus_2728.jpeg
inflating: chest_xray/train/PNEUMONIA/person1574_bacteria_4118.jpeg
inflating: chest_xray/train/PNEUMONIA/person1575_bacteria_4119.jpeg
inflating: chest_xray/train/PNEUMONIA/person1576_bacteria_4120.jpeg
inflating: chest_xray/train/PNEUMONIA/person1576_bacteria_4121.jpeg
inflating: chest_xray/train/PNEUMONIA/person1576_bacteria_4122.jpeg
inflating: chest_xray/train/PNEUMONIA/person1576_bacteria_4124.jpeg
inflating: chest_xray/train/PNEUMONIA/person1576_bacteria_4126.jpeg
inflating: chest_xray/train/PNEUMONIA/person1576_bacteria_4127.jpeg
inflating: chest_xray/train/PNEUMONIA/person1576_bacteria_4128.jpeg
inflating: chest_xray/train/PNEUMONIA/person1576_bacteria_4129.jpeg
inflating: chest_xray/train/PNEUMONIA/person1576_virus_2734.jpeg
inflating: chest_xray/train/PNEUMONIA/person1577_virus_2735.jpeg
inflating: chest_xray/train/PNEUMONIA/person1579_bacteria_4133.jpeg
inflating: chest_xray/train/PNEUMONIA/person157_virus_311.jpeg
inflating: chest_xray/train/PNEUMONIA/person1580_virus_2739.jpeg
inflating: chest_xray/train/PNEUMONIA/person1581_bacteria_4135.jpeg
inflating: chest_xray/train/PNEUMONIA/person1581_virus_2741.jpeg
inflating: chest_xray/train/PNEUMONIA/person1582_bacteria_4136.jpeg
inflating: chest_xray/train/PNEUMONIA/person1582_bacteria_4137.jpeg
inflating: chest_xray/train/PNEUMONIA/person1582_bacteria_4140.jpeg
inflating: chest_xray/train/PNEUMONIA/person1582_bacteria_4142.jpeg
inflating: chest_xray/train/PNEUMONIA/person1582_bacteria_4143.jpeg
inflating: chest_xray/train/PNEUMONIA/person1583_bacteria_4144.jpeg
inflating: chest_xray/train/PNEUMONIA/person1584_bacteria_4146.jpeg
inflating: chest_xray/train/PNEUMONIA/person1584_bacteria_4148.jpeg
inflating: chest_xray/train/PNEUMONIA/person1585_bacteria_4149.jpeg
inflating: chest_xray/train/PNEUMONIA/person1585_bacteria_4151.jpeg
inflating: chest_xray/train/PNEUMONIA/person1585_bacteria_4155.jpeg
inflating: chest_xray/train/PNEUMONIA/person1588_virus_2762.jpeg
inflating: chest_xray/train/PNEUMONIA/person1589_bacteria_4171.jpeg
inflating: chest_xray/train/PNEUMONIA/person1589_bacteria_4172.jpeg
inflating: chest_xray/train/PNEUMONIA/person1589_virus_2763.jpeg
inflating: chest_xray/train/PNEUMONIA/person158_virus_312.jpeg
inflating: chest_xray/train/PNEUMONIA/person1590_bacteria_4174.jpeg
inflating: chest_xray/train/PNEUMONIA/person1590_bacteria_4175.jpeg
inflating: chest_xray/train/PNEUMONIA/person1590_bacteria_4176.jpeg
inflating: chest_xray/train/PNEUMONIA/person1590_virus_2764.jpeg
inflating: chest_xray/train/PNEUMONIA/person1591_bacteria_4177.jpeg
inflating: chest_xray/train/PNEUMONIA/person1591_virus_2765.jpeg
inflating: chest_xray/train/PNEUMONIA/person1592_bacteria_4178.jpeg
inflating: chest_xray/train/PNEUMONIA/person1592_virus_2766.jpeg
inflating: chest_xray/train/PNEUMONIA/person1593_virus_2767.jpeg

inflating: chest_xray/train/PNEUMONIA/person1594_bacteria_4182.jpeg
inflating: chest_xray/train/PNEUMONIA/person1594_virus_2768.jpeg
inflating: chest_xray/train/PNEUMONIA/person1595_bacteria_4183.jpeg
inflating: chest_xray/train/PNEUMONIA/person1595_virus_2771.jpeg
inflating: chest_xray/train/PNEUMONIA/person1596_bacteria_4184.jpeg
inflating: chest_xray/train/PNEUMONIA/person1597_bacteria_4187.jpeg
inflating: chest_xray/train/PNEUMONIA/person1597_bacteria_4188.jpeg
inflating: chest_xray/train/PNEUMONIA/person1597_bacteria_4189.jpeg
inflating: chest_xray/train/PNEUMONIA/person1597_bacteria_4190.jpeg
inflating: chest_xray/train/PNEUMONIA/person1597_bacteria_4191.jpeg
inflating: chest_xray/train/PNEUMONIA/person1597_bacteria_4192.jpeg
inflating: chest_xray/train/PNEUMONIA/person1597_bacteria_4193.jpeg
inflating: chest_xray/train/PNEUMONIA/person1597_bacteria_4194.jpeg
inflating: chest_xray/train/PNEUMONIA/person1598_bacteria_4195.jpeg
inflating: chest_xray/train/PNEUMONIA/person1598_bacteria_4197.jpeg
inflating: chest_xray/train/PNEUMONIA/person1598_bacteria_4198.jpeg
inflating: chest_xray/train/PNEUMONIA/person1599_bacteria_4200.jpeg
inflating: chest_xray/train/PNEUMONIA/person1599_bacteria_4201.jpeg
inflating: chest_xray/train/PNEUMONIA/person1599_virus_2775.jpeg
inflating: chest_xray/train/PNEUMONIA/person1599_virus_2776.jpeg
inflating: chest_xray/train/PNEUMONIA/person15_bacteria_52.jpeg
inflating: chest_xray/train/PNEUMONIA/person1600_bacteria_4202.jpeg
inflating: chest_xray/train/PNEUMONIA/person1600_virus_2777.jpeg
inflating: chest_xray/train/PNEUMONIA/person1601_bacteria_4209.jpeg
inflating: chest_xray/train/PNEUMONIA/person1601_bacteria_4212.jpeg
inflating: chest_xray/train/PNEUMONIA/person1602_bacteria_4218.jpeg
inflating: chest_xray/train/PNEUMONIA/person1602_virus_2780.jpeg
inflating: chest_xray/train/PNEUMONIA/person1603_virus_2781.jpeg
inflating: chest_xray/train/PNEUMONIA/person1604_virus_2782.jpeg
inflating: chest_xray/train/PNEUMONIA/person1605_bacteria_4226.jpeg
inflating: chest_xray/train/PNEUMONIA/person1607_bacteria_4232.jpeg
inflating: chest_xray/train/PNEUMONIA/person1607_virus_2785.jpeg
inflating: chest_xray/train/PNEUMONIA/person1608_bacteria_4235.jpeg
inflating: chest_xray/train/PNEUMONIA/person1609_bacteria_4236.jpeg
inflating: chest_xray/train/PNEUMONIA/person1609_bacteria_4237.jpeg
inflating: chest_xray/train/PNEUMONIA/person1609_bacteria_4239.jpeg
inflating: chest_xray/train/PNEUMONIA/person1609_virus_2790.jpeg
inflating: chest_xray/train/PNEUMONIA/person1609_virus_2791.jpeg
inflating: chest_xray/train/PNEUMONIA/person160_virus_316.jpeg
inflating: chest_xray/train/PNEUMONIA/person1610_bacteria_4240.jpeg
inflating: chest_xray/train/PNEUMONIA/person1611_bacteria_4241.jpeg
inflating: chest_xray/train/PNEUMONIA/person1613_bacteria_4247.jpeg
inflating: chest_xray/train/PNEUMONIA/person1614_bacteria_4248.jpeg
inflating: chest_xray/train/PNEUMONIA/person1615_bacteria_4249.jpeg
inflating: chest_xray/train/PNEUMONIA/person1616_bacteria_4251.jpeg
inflating: chest_xray/train/PNEUMONIA/person1617_bacteria_4254.jpeg
inflating: chest_xray/train/PNEUMONIA/person1617_bacteria_4255.jpeg
inflating: chest_xray/train/PNEUMONIA/person1617_bacteria_4256.jpeg

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

inflating: chest_xray/train/PNEUMONIA/person354_bacteria_1635.jpeg
inflating: chest_xray/train/PNEUMONIA/person354_virus_729.jpeg
inflating: chest_xray/train/PNEUMONIA/person355_bacteria_1637.jpeg
inflating: chest_xray/train/PNEUMONIA/person355_virus_730.jpeg
inflating: chest_xray/train/PNEUMONIA/person355_virus_731.jpeg
inflating: chest_xray/train/PNEUMONIA/person356_bacteria_1638.jpeg
inflating: chest_xray/train/PNEUMONIA/person356_virus_733.jpeg
inflating: chest_xray/train/PNEUMONIA/person357_bacteria_1639.jpeg
inflating: chest_xray/train/PNEUMONIA/person357_bacteria_1640.jpeg
inflating: chest_xray/train/PNEUMONIA/person357_virus_734.jpeg
inflating: chest_xray/train/PNEUMONIA/person357_virus_735.jpeg
inflating: chest_xray/train/PNEUMONIA/person357_virus_736.jpeg
inflating: chest_xray/train/PNEUMONIA/person358_virus_737.jpeg
inflating: chest_xray/train/PNEUMONIA/person359_bacteria_1642.jpeg
inflating: chest_xray/train/PNEUMONIA/person359_bacteria_1643.jpeg
inflating: chest_xray/train/PNEUMONIA/person359_bacteria_1644.jpeg
inflating: chest_xray/train/PNEUMONIA/person359_bacteria_1645.jpeg
inflating: chest_xray/train/PNEUMONIA/person359_bacteria_1646.jpeg
inflating: chest_xray/train/PNEUMONIA/person359_virus_738.jpeg
inflating: chest_xray/train/PNEUMONIA/person35_bacteria_178.jpeg
inflating: chest_xray/train/PNEUMONIA/person35_bacteria_180.jpeg
inflating: chest_xray/train/PNEUMONIA/person35_bacteria_181.jpeg
inflating: chest_xray/train/PNEUMONIA/person360_bacteria_1647.jpeg
inflating: chest_xray/train/PNEUMONIA/person360_virus_739.jpeg
inflating: chest_xray/train/PNEUMONIA/person361_bacteria_1651.jpeg
inflating: chest_xray/train/PNEUMONIA/person361_virus_740.jpeg
inflating: chest_xray/train/PNEUMONIA/person362_bacteria_1652.jpeg
inflating: chest_xray/train/PNEUMONIA/person362_virus_741.jpeg
inflating: chest_xray/train/PNEUMONIA/person363_bacteria_1653.jpeg
inflating: chest_xray/train/PNEUMONIA/person363_bacteria_1654.jpeg
inflating: chest_xray/train/PNEUMONIA/person363_bacteria_1655.jpeg
inflating: chest_xray/train/PNEUMONIA/person363_virus_742.jpeg
inflating: chest_xray/train/PNEUMONIA/person364_bacteria_1656.jpeg
inflating: chest_xray/train/PNEUMONIA/person364_bacteria_1657.jpeg
inflating: chest_xray/train/PNEUMONIA/person364_bacteria_1658.jpeg
inflating: chest_xray/train/PNEUMONIA/person364_bacteria_1659.jpeg
inflating: chest_xray/train/PNEUMONIA/person364_bacteria_1660.jpeg
inflating: chest_xray/train/PNEUMONIA/person364_virus_743.jpeg
inflating: chest_xray/train/PNEUMONIA/person365_virus_745.jpeg
inflating: chest_xray/train/PNEUMONIA/person366_bacteria_1664.jpeg
inflating: chest_xray/train/PNEUMONIA/person366_virus_746.jpeg
inflating: chest_xray/train/PNEUMONIA/person367_bacteria_1665.jpeg
inflating: chest_xray/train/PNEUMONIA/person367_virus_747.jpeg
inflating: chest_xray/train/PNEUMONIA/person368_bacteria_1666.jpeg
inflating: chest_xray/train/PNEUMONIA/person368_bacteria_1667.jpeg
inflating: chest_xray/train/PNEUMONIA/person368_bacteria_1668.jpeg
inflating: chest_xray/train/PNEUMONIA/person368_bacteria_1672.jpeg
inflating: chest_xray/train/PNEUMONIA/person368_bacteria_1678.jpeg

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

inflating: chest_xray/train/PNEUMONIA/person5_bacteria_15.jpeg
inflating: chest_xray/train/PNEUMONIA/person5_bacteria_16.jpeg
inflating: chest_xray/train/PNEUMONIA/person5_bacteria_17.jpeg
inflating: chest_xray/train/PNEUMONIA/person5_bacteria_19.jpeg
inflating: chest_xray/train/PNEUMONIA/person600_bacteria_2456.jpeg
inflating: chest_xray/train/PNEUMONIA/person600_bacteria_2457.jpeg
inflating: chest_xray/train/PNEUMONIA/person600_bacteria_2458.jpeg
inflating: chest_xray/train/PNEUMONIA/person600_virus_1156.jpeg
inflating: chest_xray/train/PNEUMONIA/person601_bacteria_2459.jpeg
inflating: chest_xray/train/PNEUMONIA/person602_bacteria_2460.jpeg
inflating: chest_xray/train/PNEUMONIA/person603_bacteria_2461.jpeg
inflating: chest_xray/train/PNEUMONIA/person603_virus_1164.jpeg
inflating: chest_xray/train/PNEUMONIA/person604_bacteria_2462.jpeg
inflating: chest_xray/train/PNEUMONIA/person604_bacteria_2463.jpeg
inflating: chest_xray/train/PNEUMONIA/person604_virus_1165.jpeg
inflating: chest_xray/train/PNEUMONIA/person605_bacteria_2464.jpeg
inflating: chest_xray/train/PNEUMONIA/person605_bacteria_2465.jpeg
inflating: chest_xray/train/PNEUMONIA/person605_bacteria_2466.jpeg
inflating: chest_xray/train/PNEUMONIA/person605_bacteria_2467.jpeg
inflating: chest_xray/train/PNEUMONIA/person605_bacteria_2468.jpeg
inflating: chest_xray/train/PNEUMONIA/person605_virus_1166.jpeg
inflating: chest_xray/train/PNEUMONIA/person605_virus_1169.jpeg
inflating: chest_xray/train/PNEUMONIA/person606_bacteria_2469.jpeg
inflating: chest_xray/train/PNEUMONIA/person607_bacteria_2470.jpeg
inflating: chest_xray/train/PNEUMONIA/person607_virus_1173.jpeg
inflating: chest_xray/train/PNEUMONIA/person608_bacteria_2471.jpeg
inflating: chest_xray/train/PNEUMONIA/person608_bacteria_2472.jpeg
inflating: chest_xray/train/PNEUMONIA/person608_bacteria_2473.jpeg
inflating: chest_xray/train/PNEUMONIA/person608_virus_1175.jpeg
inflating: chest_xray/train/PNEUMONIA/person609_bacteria_2474.jpeg
inflating: chest_xray/train/PNEUMONIA/person609_virus_1176.jpeg
inflating: chest_xray/train/PNEUMONIA/person60_bacteria_285.jpeg
inflating: chest_xray/train/PNEUMONIA/person60_bacteria_286.jpeg
inflating: chest_xray/train/PNEUMONIA/person60_bacteria_287.jpeg
inflating: chest_xray/train/PNEUMONIA/person610_bacteria_2475.jpeg
inflating: chest_xray/train/PNEUMONIA/person610_virus_1177.jpeg
inflating: chest_xray/train/PNEUMONIA/person611_bacteria_2476.jpeg
inflating: chest_xray/train/PNEUMONIA/person612_bacteria_2477.jpeg
inflating: chest_xray/train/PNEUMONIA/person612_bacteria_2478.jpeg
inflating: chest_xray/train/PNEUMONIA/person612_virus_1179.jpeg
inflating: chest_xray/train/PNEUMONIA/person613_bacteria_2479.jpeg
inflating: chest_xray/train/PNEUMONIA/person613_virus_1181.jpeg
inflating: chest_xray/train/PNEUMONIA/person614_bacteria_2480.jpeg
inflating: chest_xray/train/PNEUMONIA/person614_bacteria_2481.jpeg
inflating: chest_xray/train/PNEUMONIA/person614_bacteria_2483.jpeg
inflating: chest_xray/train/PNEUMONIA/person614_virus_1183.jpeg
inflating: chest_xray/train/PNEUMONIA/person615_virus_1184.jpeg
inflating: chest_xray/train/PNEUMONIA/person616_bacteria_2487.jpeg

inflating: chest_xray/train/PNEUMONIA/person616_virus_1186.jpeg
inflating: chest_xray/train/PNEUMONIA/person617_bacteria_2488.jpeg
inflating: chest_xray/train/PNEUMONIA/person617_virus_1187.jpeg
inflating: chest_xray/train/PNEUMONIA/person618_bacteria_2489.jpeg
inflating: chest_xray/train/PNEUMONIA/person618_virus_1189.jpeg
inflating: chest_xray/train/PNEUMONIA/person619_bacteria_2490.jpeg
inflating: chest_xray/train/PNEUMONIA/person619_bacteria_2491.jpeg
inflating: chest_xray/train/PNEUMONIA/person619_virus_1190.jpeg
inflating: chest_xray/train/PNEUMONIA/person61_bacteria_288.jpeg
inflating: chest_xray/train/PNEUMONIA/person61_bacteria_289.jpeg
inflating: chest_xray/train/PNEUMONIA/person61_bacteria_290.jpeg
inflating: chest_xray/train/PNEUMONIA/person61_bacteria_291.jpeg
inflating: chest_xray/train/PNEUMONIA/person61_bacteria_292.jpeg
inflating: chest_xray/train/PNEUMONIA/person61_bacteria_293.jpeg
inflating: chest_xray/train/PNEUMONIA/person61_bacteria_294.jpeg
inflating: chest_xray/train/PNEUMONIA/person61_bacteria_295.jpeg
inflating: chest_xray/train/PNEUMONIA/person61_bacteria_296.jpeg
inflating: chest_xray/train/PNEUMONIA/person61_bacteria_297.jpeg
inflating: chest_xray/train/PNEUMONIA/person620_bacteria_2492.jpeg
inflating: chest_xray/train/PNEUMONIA/person620_virus_1191.jpeg
inflating: chest_xray/train/PNEUMONIA/person620_virus_1192.jpeg
inflating: chest_xray/train/PNEUMONIA/person621_virus_1194.jpeg
inflating: chest_xray/train/PNEUMONIA/person621_virus_1195.jpeg
inflating: chest_xray/train/PNEUMONIA/person622_bacteria_2494.jpeg
inflating: chest_xray/train/PNEUMONIA/person622_virus_1196.jpeg
inflating: chest_xray/train/PNEUMONIA/person623_bacteria_2495.jpeg
inflating: chest_xray/train/PNEUMONIA/person623_bacteria_2496.jpeg
inflating: chest_xray/train/PNEUMONIA/person623_virus_1197.jpeg
inflating: chest_xray/train/PNEUMONIA/person624_bacteria_2497.jpeg
inflating: chest_xray/train/PNEUMONIA/person624_virus_1198.jpeg
inflating: chest_xray/train/PNEUMONIA/person625_bacteria_2499.jpeg
inflating: chest_xray/train/PNEUMONIA/person625_bacteria_2500.jpeg
inflating: chest_xray/train/PNEUMONIA/person625_virus_1199.jpeg
inflating: chest_xray/train/PNEUMONIA/person626_bacteria_2502.jpeg
inflating: chest_xray/train/PNEUMONIA/person626_virus_1202.jpeg
inflating: chest_xray/train/PNEUMONIA/person627_virus_1204.jpeg
inflating: chest_xray/train/PNEUMONIA/person628_bacteria_2505.jpeg
inflating: chest_xray/train/PNEUMONIA/person628_virus_1206.jpeg
inflating: chest_xray/train/PNEUMONIA/person629_bacteria_2506.jpeg
inflating: chest_xray/train/PNEUMONIA/person629_bacteria_2507.jpeg
inflating: chest_xray/train/PNEUMONIA/person629_bacteria_2508.jpeg
inflating: chest_xray/train/PNEUMONIA/person629_bacteria_2509.jpeg
inflating: chest_xray/train/PNEUMONIA/person629_bacteria_2510.jpeg
inflating: chest_xray/train/PNEUMONIA/person629_virus_1207.jpeg
inflating: chest_xray/train/PNEUMONIA/person62_bacteria_298.jpeg
inflating: chest_xray/train/PNEUMONIA/person62_bacteria_299.jpeg
inflating: chest_xray/train/PNEUMONIA/person62_bacteria_300.jpeg
inflating: chest_xray/train/PNEUMONIA/person62_bacteria_301.jpeg

inflating: chest_xray/train/PNEUMONIA/person62_bacteria_302.jpeg
inflating: chest_xray/train/PNEUMONIA/person62_bacteria_303.jpeg
inflating: chest_xray/train/PNEUMONIA/person630_bacteria_2512.jpeg
inflating: chest_xray/train/PNEUMONIA/person630_bacteria_2513.jpeg
inflating: chest_xray/train/PNEUMONIA/person630_bacteria_2514.jpeg
inflating: chest_xray/train/PNEUMONIA/person630_bacteria_2515.jpeg
inflating: chest_xray/train/PNEUMONIA/person630_bacteria_2516.jpeg
inflating: chest_xray/train/PNEUMONIA/person630_virus_1209.jpeg
inflating: chest_xray/train/PNEUMONIA/person632_bacteria_2520.jpeg
inflating: chest_xray/train/PNEUMONIA/person632_bacteria_2521.jpeg
inflating: chest_xray/train/PNEUMONIA/person632_virus_1211.jpeg
inflating: chest_xray/train/PNEUMONIA/person633_bacteria_2522.jpeg
inflating: chest_xray/train/PNEUMONIA/person633_virus_1213.jpeg
inflating: chest_xray/train/PNEUMONIA/person634_bacteria_2525.jpeg
inflating: chest_xray/train/PNEUMONIA/person635_bacteria_2526.jpeg
inflating: chest_xray/train/PNEUMONIA/person636_bacteria_2527.jpeg
inflating: chest_xray/train/PNEUMONIA/person636_virus_1217.jpeg
inflating: chest_xray/train/PNEUMONIA/person637_bacteria_2528.jpeg
inflating: chest_xray/train/PNEUMONIA/person637_bacteria_2529.jpeg
inflating: chest_xray/train/PNEUMONIA/person637_virus_1218.jpeg
inflating: chest_xray/train/PNEUMONIA/person639_virus_1220.jpeg
inflating: chest_xray/train/PNEUMONIA/person63_bacteria_306.jpeg
inflating: chest_xray/train/PNEUMONIA/person640_bacteria_2532.jpeg
inflating: chest_xray/train/PNEUMONIA/person640_virus_1221.jpeg
inflating: chest_xray/train/PNEUMONIA/person641_bacteria_2533.jpeg
inflating: chest_xray/train/PNEUMONIA/person641_virus_1222.jpeg
inflating: chest_xray/train/PNEUMONIA/person642_virus_1223.jpeg
inflating: chest_xray/train/PNEUMONIA/person643_bacteria_2534.jpeg
inflating: chest_xray/train/PNEUMONIA/person644_bacteria_2536.jpeg
inflating: chest_xray/train/PNEUMONIA/person644_virus_1225.jpeg
inflating: chest_xray/train/PNEUMONIA/person645_bacteria_2537.jpeg
inflating: chest_xray/train/PNEUMONIA/person645_virus_1226.jpeg
inflating: chest_xray/train/PNEUMONIA/person646_bacteria_2538.jpeg
inflating: chest_xray/train/PNEUMONIA/person646_virus_1227.jpeg
inflating: chest_xray/train/PNEUMONIA/person647_bacteria_2539.jpeg
inflating: chest_xray/train/PNEUMONIA/person647_virus_1228.jpeg
inflating: chest_xray/train/PNEUMONIA/person647_virus_1229.jpeg
inflating: chest_xray/train/PNEUMONIA/person648_bacteria_2540.jpeg
inflating: chest_xray/train/PNEUMONIA/person648_virus_1230.jpeg
inflating: chest_xray/train/PNEUMONIA/person649_bacteria_2541.jpeg
inflating: chest_xray/train/PNEUMONIA/person649_virus_1231.jpeg
inflating: chest_xray/train/PNEUMONIA/person64_bacteria_310.jpeg
inflating: chest_xray/train/PNEUMONIA/person64_bacteria_312.jpeg
inflating: chest_xray/train/PNEUMONIA/person64_bacteria_316.jpeg
inflating: chest_xray/train/PNEUMONIA/person64_bacteria_317.jpeg
inflating: chest_xray/train/PNEUMONIA/person64_bacteria_318.jpeg
inflating: chest_xray/train/PNEUMONIA/person64_bacteria_319.jpeg
inflating: chest_xray/train/PNEUMONIA/person64_bacteria_320.jpeg

inflating: chest_xray/train/PNEUMONIA/person650_bacteria_2542.jpeg
inflating: chest_xray/train/PNEUMONIA/person650_virus_1232.jpeg
inflating: chest_xray/train/PNEUMONIA/person651_bacteria_2543.jpeg
inflating: chest_xray/train/PNEUMONIA/person652_bacteria_2544.jpeg
inflating: chest_xray/train/PNEUMONIA/person652_virus_1234.jpeg
inflating: chest_xray/train/PNEUMONIA/person653_bacteria_2545.jpeg
inflating: chest_xray/train/PNEUMONIA/person653_virus_1235.jpeg
inflating: chest_xray/train/PNEUMONIA/person654_bacteria_2546.jpeg
inflating: chest_xray/train/PNEUMONIA/person655_bacteria_2547.jpeg
inflating: chest_xray/train/PNEUMONIA/person656_bacteria_2548.jpeg
inflating: chest_xray/train/PNEUMONIA/person656_virus_1238.jpeg
inflating: chest_xray/train/PNEUMONIA/person657_bacteria_2549.jpeg
inflating: chest_xray/train/PNEUMONIA/person657_virus_1240.jpeg
inflating: chest_xray/train/PNEUMONIA/person658_bacteria_2550.jpeg
inflating: chest_xray/train/PNEUMONIA/person658_virus_1241.jpeg
inflating: chest_xray/train/PNEUMONIA/person659_bacteria_2551.jpeg
inflating: chest_xray/train/PNEUMONIA/person659_virus_1243.jpeg
inflating: chest_xray/train/PNEUMONIA/person65_bacteria_322.jpeg
inflating: chest_xray/train/PNEUMONIA/person660_bacteria_2552.jpeg
inflating: chest_xray/train/PNEUMONIA/person660_virus_1244.jpeg
inflating: chest_xray/train/PNEUMONIA/person661_bacteria_2553.jpeg
inflating: chest_xray/train/PNEUMONIA/person661_virus_1245.jpeg
inflating: chest_xray/train/PNEUMONIA/person662_bacteria_2554.jpeg
inflating: chest_xray/train/PNEUMONIA/person662_virus_1246.jpeg
inflating: chest_xray/train/PNEUMONIA/person663_bacteria_2555.jpeg
inflating: chest_xray/train/PNEUMONIA/person663_virus_1247.jpeg
inflating: chest_xray/train/PNEUMONIA/person663_virus_1248.jpeg
inflating: chest_xray/train/PNEUMONIA/person664_virus_1249.jpeg
inflating: chest_xray/train/PNEUMONIA/person665_bacteria_2557.jpeg
inflating: chest_xray/train/PNEUMONIA/person665_virus_1250.jpeg
inflating: chest_xray/train/PNEUMONIA/person666_bacteria_2558.jpeg
inflating: chest_xray/train/PNEUMONIA/person666_virus_1251.jpeg
inflating: chest_xray/train/PNEUMONIA/person667_virus_1252.jpeg
inflating: chest_xray/train/PNEUMONIA/person667_virus_1253.jpeg
inflating: chest_xray/train/PNEUMONIA/person669_bacteria_2561.jpeg
inflating: chest_xray/train/PNEUMONIA/person669_bacteria_2562.jpeg
inflating: chest_xray/train/PNEUMONIA/person669_virus_1255.jpeg
inflating: chest_xray/train/PNEUMONIA/person66_bacteria_323.jpeg
inflating: chest_xray/train/PNEUMONIA/person66_bacteria_324.jpeg
inflating: chest_xray/train/PNEUMONIA/person66_bacteria_325.jpeg
inflating: chest_xray/train/PNEUMONIA/person66_bacteria_326.jpeg
inflating: chest_xray/train/PNEUMONIA/person670_bacteria_2563.jpeg
inflating: chest_xray/train/PNEUMONIA/person670_virus_1256.jpeg
inflating: chest_xray/train/PNEUMONIA/person670_virus_1259.jpeg
inflating: chest_xray/train/PNEUMONIA/person671_bacteria_2564.jpeg
inflating: chest_xray/train/PNEUMONIA/person671_virus_1260.jpeg
inflating: chest_xray/train/PNEUMONIA/person672_bacteria_2565.jpeg
inflating: chest_xray/train/PNEUMONIA/person672_virus_1261.jpeg

inflating: chest_xray/train/PNEUMONIA/person673_bacteria_2566.jpeg
inflating: chest_xray/train/PNEUMONIA/person673_virus_1263.jpeg
inflating: chest_xray/train/PNEUMONIA/person674_bacteria_2568.jpeg
inflating: chest_xray/train/PNEUMONIA/person675_bacteria_2569.jpeg
inflating: chest_xray/train/PNEUMONIA/person677_bacteria_2571.jpeg
inflating: chest_xray/train/PNEUMONIA/person677_virus_1268.jpeg
inflating: chest_xray/train/PNEUMONIA/person678_bacteria_2572.jpeg
inflating: chest_xray/train/PNEUMONIA/person679_virus_1270.jpeg
inflating: chest_xray/train/PNEUMONIA/person67_bacteria_328.jpeg
inflating: chest_xray/train/PNEUMONIA/person67_bacteria_329.jpeg
inflating: chest_xray/train/PNEUMONIA/person67_bacteria_330.jpeg
inflating: chest_xray/train/PNEUMONIA/person67_bacteria_331.jpeg
inflating: chest_xray/train/PNEUMONIA/person67_bacteria_332.jpeg
inflating: chest_xray/train/PNEUMONIA/person67_bacteria_333.jpeg
inflating: chest_xray/train/PNEUMONIA/person67_bacteria_334.jpeg
inflating: chest_xray/train/PNEUMONIA/person680_bacteria_2575.jpeg
inflating: chest_xray/train/PNEUMONIA/person681_bacteria_2576.jpeg
inflating: chest_xray/train/PNEUMONIA/person681_virus_1272.jpeg
inflating: chest_xray/train/PNEUMONIA/person682_virus_1273.jpeg
inflating: chest_xray/train/PNEUMONIA/person683_bacteria_2578.jpeg
inflating: chest_xray/train/PNEUMONIA/person684_bacteria_2580.jpeg
inflating: chest_xray/train/PNEUMONIA/person684_virus_1275.jpeg
inflating: chest_xray/train/PNEUMONIA/person685_bacteria_2581.jpeg
inflating: chest_xray/train/PNEUMONIA/person687_bacteria_2583.jpeg
inflating: chest_xray/train/PNEUMONIA/person688_bacteria_2584.jpeg
inflating: chest_xray/train/PNEUMONIA/person688_virus_1281.jpeg
inflating: chest_xray/train/PNEUMONIA/person688_virus_1282.jpeg
inflating: chest_xray/train/PNEUMONIA/person689_bacteria_2585.jpeg
inflating: chest_xray/train/PNEUMONIA/person689_bacteria_2586.jpeg
inflating: chest_xray/train/PNEUMONIA/person68_bacteria_335.jpeg
inflating: chest_xray/train/PNEUMONIA/person68_bacteria_336.jpeg
inflating: chest_xray/train/PNEUMONIA/person68_bacteria_337.jpeg
inflating: chest_xray/train/PNEUMONIA/person690_bacteria_2587.jpeg
inflating: chest_xray/train/PNEUMONIA/person691_bacteria_2588.jpeg
inflating: chest_xray/train/PNEUMONIA/person692_bacteria_2589.jpeg
inflating: chest_xray/train/PNEUMONIA/person692_virus_1286.jpeg
inflating: chest_xray/train/PNEUMONIA/person693_bacteria_2590.jpeg
inflating: chest_xray/train/PNEUMONIA/person696_bacteria_2594.jpeg
inflating: chest_xray/train/PNEUMONIA/person698_virus_1294.jpeg
inflating: chest_xray/train/PNEUMONIA/person699_bacteria_2598.jpeg
inflating: chest_xray/train/PNEUMONIA/person699_virus_1295.jpeg
inflating: chest_xray/train/PNEUMONIA/person69_bacteria_338.jpeg
inflating: chest_xray/train/PNEUMONIA/person6_bacteria_22.jpeg
inflating: chest_xray/train/PNEUMONIA/person700_bacteria_2599.jpeg
inflating: chest_xray/train/PNEUMONIA/person701_bacteria_2600.jpeg
inflating: chest_xray/train/PNEUMONIA/person701_virus_1297.jpeg
inflating: chest_xray/train/PNEUMONIA/person702_bacteria_2601.jpeg
inflating: chest_xray/train/PNEUMONIA/person702_virus_1299.jpeg

inflating: chest_xray/train/PNEUMONIA/person703_bacteria_2602.jpeg
inflating: chest_xray/train/PNEUMONIA/person703_virus_1300.jpeg
inflating: chest_xray/train/PNEUMONIA/person704_bacteria_2603.jpeg
inflating: chest_xray/train/PNEUMONIA/person704_virus_1301.jpeg
inflating: chest_xray/train/PNEUMONIA/person705_virus_1302.jpeg
inflating: chest_xray/train/PNEUMONIA/person705_virus_1303.jpeg
inflating: chest_xray/train/PNEUMONIA/person706_virus_1304.jpeg
inflating: chest_xray/train/PNEUMONIA/person707_bacteria_2606.jpeg
inflating: chest_xray/train/PNEUMONIA/person707_virus_1305.jpeg
inflating: chest_xray/train/PNEUMONIA/person709_bacteria_2608.jpeg
inflating: chest_xray/train/PNEUMONIA/person70_bacteria_341.jpeg
inflating: chest_xray/train/PNEUMONIA/person70_bacteria_342.jpeg
inflating: chest_xray/train/PNEUMONIA/person70_bacteria_343.jpeg
inflating: chest_xray/train/PNEUMONIA/person70_bacteria_344.jpeg
inflating: chest_xray/train/PNEUMONIA/person70_bacteria_345.jpeg
inflating: chest_xray/train/PNEUMONIA/person70_bacteria_346.jpeg
inflating: chest_xray/train/PNEUMONIA/person710_bacteria_2611.jpeg
inflating: chest_xray/train/PNEUMONIA/person710_virus_1308.jpeg
inflating: chest_xray/train/PNEUMONIA/person711_bacteria_2612.jpeg
inflating: chest_xray/train/PNEUMONIA/person711_virus_1309.jpeg
inflating: chest_xray/train/PNEUMONIA/person712_bacteria_2613.jpeg
inflating: chest_xray/train/PNEUMONIA/person712_virus_1310.jpeg
inflating: chest_xray/train/PNEUMONIA/person713_bacteria_2614.jpeg
inflating: chest_xray/train/PNEUMONIA/person714_bacteria_2615.jpeg
inflating: chest_xray/train/PNEUMONIA/person716_bacteria_2617.jpeg
inflating: chest_xray/train/PNEUMONIA/person716_virus_1314.jpeg
inflating: chest_xray/train/PNEUMONIA/person717_bacteria_2618.jpeg
inflating: chest_xray/train/PNEUMONIA/person718_bacteria_2620.jpeg
inflating: chest_xray/train/PNEUMONIA/person718_virus_1316.jpeg
inflating: chest_xray/train/PNEUMONIA/person719_bacteria_2621.jpeg
inflating: chest_xray/train/PNEUMONIA/person719_virus_1338.jpeg
inflating: chest_xray/train/PNEUMONIA/person71_bacteria_347.jpeg
inflating: chest_xray/train/PNEUMONIA/person71_bacteria_348.jpeg
inflating: chest_xray/train/PNEUMONIA/person71_bacteria_349.jpeg
inflating: chest_xray/train/PNEUMONIA/person71_bacteria_350.jpeg
inflating: chest_xray/train/PNEUMONIA/person71_bacteria_351.jpeg
inflating: chest_xray/train/PNEUMONIA/person720_bacteria_2622.jpeg
inflating: chest_xray/train/PNEUMONIA/person720_virus_1339.jpeg
inflating: chest_xray/train/PNEUMONIA/person721_bacteria_2623.jpeg
inflating: chest_xray/train/PNEUMONIA/person721_virus_1340.jpeg
inflating: chest_xray/train/PNEUMONIA/person722_virus_1341.jpeg
inflating: chest_xray/train/PNEUMONIA/person723_bacteria_2625.jpeg
inflating: chest_xray/train/PNEUMONIA/person723_virus_1342.jpeg
inflating: chest_xray/train/PNEUMONIA/person724_bacteria_2626.jpeg
inflating: chest_xray/train/PNEUMONIA/person724_virus_1343.jpeg
inflating: chest_xray/train/PNEUMONIA/person724_virus_1344.jpeg
inflating: chest_xray/train/PNEUMONIA/person725_bacteria_2627.jpeg
inflating: chest_xray/train/PNEUMONIA/person726_bacteria_2628.jpeg

inflating: chest_xray/train/PNEUMONIA/person727_bacteria_2629.jpeg
inflating: chest_xray/train/PNEUMONIA/person727_virus_1347.jpeg
inflating: chest_xray/train/PNEUMONIA/person728_bacteria_2630.jpeg
inflating: chest_xray/train/PNEUMONIA/person72_bacteria_352.jpeg
inflating: chest_xray/train/PNEUMONIA/person72_bacteria_353.jpeg
inflating: chest_xray/train/PNEUMONIA/person72_bacteria_354.jpeg
inflating: chest_xray/train/PNEUMONIA/person730_bacteria_2632.jpeg
inflating: chest_xray/train/PNEUMONIA/person730_virus_1351.jpeg
inflating: chest_xray/train/PNEUMONIA/person731_bacteria_2633.jpeg
inflating: chest_xray/train/PNEUMONIA/person731_virus_1352.jpeg
inflating: chest_xray/train/PNEUMONIA/person732_bacteria_2634.jpeg
inflating: chest_xray/train/PNEUMONIA/person732_virus_1353.jpeg
inflating: chest_xray/train/PNEUMONIA/person733_bacteria_2635.jpeg
inflating: chest_xray/train/PNEUMONIA/person734_bacteria_2637.jpeg
inflating: chest_xray/train/PNEUMONIA/person734_virus_1355.jpeg
inflating: chest_xray/train/PNEUMONIA/person735_bacteria_2638.jpeg
inflating: chest_xray/train/PNEUMONIA/person735_virus_1356.jpeg
inflating: chest_xray/train/PNEUMONIA/person736_bacteria_2639.jpeg
inflating: chest_xray/train/PNEUMONIA/person736_virus_1358.jpeg
inflating: chest_xray/train/PNEUMONIA/person737_bacteria_2640.jpeg
inflating: chest_xray/train/PNEUMONIA/person738_bacteria_2641.jpeg
inflating: chest_xray/train/PNEUMONIA/person738_virus_1360.jpeg
inflating: chest_xray/train/PNEUMONIA/person739_bacteria_2642.jpeg
inflating: chest_xray/train/PNEUMONIA/person739_virus_1361.jpeg
inflating: chest_xray/train/PNEUMONIA/person73_bacteria_355.jpeg
inflating: chest_xray/train/PNEUMONIA/person73_bacteria_356.jpeg
inflating: chest_xray/train/PNEUMONIA/person73_bacteria_357.jpeg
inflating: chest_xray/train/PNEUMONIA/person73_bacteria_358.jpeg
inflating: chest_xray/train/PNEUMONIA/person73_bacteria_359.jpeg
inflating: chest_xray/train/PNEUMONIA/person73_bacteria_360.jpeg
inflating: chest_xray/train/PNEUMONIA/person740_bacteria_2643.jpeg
inflating: chest_xray/train/PNEUMONIA/person740_virus_1362.jpeg
inflating: chest_xray/train/PNEUMONIA/person740_virus_1363.jpeg
inflating: chest_xray/train/PNEUMONIA/person741_bacteria_2644.jpeg
inflating: chest_xray/train/PNEUMONIA/person741_virus_1364.jpeg
inflating: chest_xray/train/PNEUMONIA/person742_virus_1365.jpeg
inflating: chest_xray/train/PNEUMONIA/person743_bacteria_2646.jpeg
inflating: chest_xray/train/PNEUMONIA/person743_virus_1366.jpeg
inflating: chest_xray/train/PNEUMONIA/person744_bacteria_2647.jpeg
inflating: chest_xray/train/PNEUMONIA/person744_virus_1367.jpeg
inflating: chest_xray/train/PNEUMONIA/person745_bacteria_2648.jpeg
inflating: chest_xray/train/PNEUMONIA/person745_virus_1368.jpeg
inflating: chest_xray/train/PNEUMONIA/person746_bacteria_2649.jpeg
inflating: chest_xray/train/PNEUMONIA/person746_virus_1369.jpeg
inflating: chest_xray/train/PNEUMONIA/person747_bacteria_2650.jpeg
inflating: chest_xray/train/PNEUMONIA/person747_virus_1370.jpeg
inflating: chest_xray/train/PNEUMONIA/person747_virus_1372.jpeg
inflating: chest_xray/train/PNEUMONIA/person748_virus_1373.jpeg

inflating: chest_xray/train/PNEUMONIA/person749_bacteria_2652.jpeg
inflating: chest_xray/train/PNEUMONIA/person749_virus_1374.jpeg
inflating: chest_xray/train/PNEUMONIA/person74_bacteria_361.jpeg
inflating: chest_xray/train/PNEUMONIA/person74_bacteria_362.jpeg
inflating: chest_xray/train/PNEUMONIA/person74_bacteria_363.jpeg
inflating: chest_xray/train/PNEUMONIA/person750_bacteria_2653.jpeg
inflating: chest_xray/train/PNEUMONIA/person751_bacteria_2654.jpeg
inflating: chest_xray/train/PNEUMONIA/person752_virus_1377.jpeg
inflating: chest_xray/train/PNEUMONIA/person753_bacteria_2656.jpeg
inflating: chest_xray/train/PNEUMONIA/person753_virus_1378.jpeg
inflating: chest_xray/train/PNEUMONIA/person754_virus_1379.jpeg
inflating: chest_xray/train/PNEUMONIA/person755_bacteria_2659.jpeg
inflating: chest_xray/train/PNEUMONIA/person755_virus_1380.jpeg
inflating: chest_xray/train/PNEUMONIA/person755_virus_1382.jpeg
inflating: chest_xray/train/PNEUMONIA/person756_bacteria_2660.jpeg
inflating: chest_xray/train/PNEUMONIA/person757_bacteria_2661.jpeg
inflating: chest_xray/train/PNEUMONIA/person757_virus_1385.jpeg
inflating: chest_xray/train/PNEUMONIA/person758_bacteria_2662.jpeg
inflating: chest_xray/train/PNEUMONIA/person759_bacteria_2663.jpeg
inflating: chest_xray/train/PNEUMONIA/person759_virus_1387.jpeg
inflating: chest_xray/train/PNEUMONIA/person75_bacteria_364.jpeg
inflating: chest_xray/train/PNEUMONIA/person75_bacteria_365.jpeg
inflating: chest_xray/train/PNEUMONIA/person75_bacteria_366.jpeg
inflating: chest_xray/train/PNEUMONIA/person75_bacteria_367.jpeg
inflating: chest_xray/train/PNEUMONIA/person75_bacteria_368.jpeg
inflating: chest_xray/train/PNEUMONIA/person75_bacteria_369.jpeg
inflating: chest_xray/train/PNEUMONIA/person760_bacteria_2664.jpeg
inflating: chest_xray/train/PNEUMONIA/person760_virus_1388.jpeg
inflating: chest_xray/train/PNEUMONIA/person761_bacteria_2665.jpeg
inflating: chest_xray/train/PNEUMONIA/person761_virus_1389.jpeg
inflating: chest_xray/train/PNEUMONIA/person762_virus_1390.jpeg
inflating: chest_xray/train/PNEUMONIA/person763_bacteria_2667.jpeg
inflating: chest_xray/train/PNEUMONIA/person763_virus_1391.jpeg
inflating: chest_xray/train/PNEUMONIA/person764_bacteria_2668.jpeg
inflating: chest_xray/train/PNEUMONIA/person764_virus_1392.jpeg
inflating: chest_xray/train/PNEUMONIA/person765_bacteria_2669.jpeg
inflating: chest_xray/train/PNEUMONIA/person765_virus_1393.jpeg
inflating: chest_xray/train/PNEUMONIA/person766_bacteria_2670.jpeg
inflating: chest_xray/train/PNEUMONIA/person767_bacteria_2671.jpeg
inflating: chest_xray/train/PNEUMONIA/person768_bacteria_2672.jpeg
inflating: chest_xray/train/PNEUMONIA/person768_virus_1396.jpeg
inflating: chest_xray/train/PNEUMONIA/person769_bacteria_2673.jpeg
inflating: chest_xray/train/PNEUMONIA/person76_bacteria_370.jpeg
inflating: chest_xray/train/PNEUMONIA/person76_bacteria_371.jpeg
inflating: chest_xray/train/PNEUMONIA/person76_bacteria_372.jpeg
inflating: chest_xray/train/PNEUMONIA/person770_bacteria_2674.jpeg
inflating: chest_xray/train/PNEUMONIA/person770_virus_1398.jpeg
inflating: chest_xray/train/PNEUMONIA/person771_bacteria_2675.jpeg

inflating: chest_xray/train/PNEUMONIA/person771_virus_1399.jpeg
inflating: chest_xray/train/PNEUMONIA/person772_virus_1401.jpeg
inflating: chest_xray/train/PNEUMONIA/person773_virus_1402.jpeg
inflating: chest_xray/train/PNEUMONIA/person774_bacteria_2678.jpeg
inflating: chest_xray/train/PNEUMONIA/person774_virus_1403.jpeg
inflating: chest_xray/train/PNEUMONIA/person775_bacteria_2679.jpeg
inflating: chest_xray/train/PNEUMONIA/person775_virus_1404.jpeg
inflating: chest_xray/train/PNEUMONIA/person776_bacteria_2680.jpeg
inflating: chest_xray/train/PNEUMONIA/person776_virus_1405.jpeg
inflating: chest_xray/train/PNEUMONIA/person778_bacteria_2682.jpeg
inflating: chest_xray/train/PNEUMONIA/person778_virus_1408.jpeg
inflating: chest_xray/train/PNEUMONIA/person779_bacteria_2683.jpeg
inflating: chest_xray/train/PNEUMONIA/person779_virus_1409.jpeg
inflating: chest_xray/train/PNEUMONIA/person779_virus_1410.jpeg
inflating: chest_xray/train/PNEUMONIA/person77_bacteria_374.jpeg
inflating: chest_xray/train/PNEUMONIA/person77_bacteria_375.jpeg
inflating: chest_xray/train/PNEUMONIA/person77_bacteria_376.jpeg
inflating: chest_xray/train/PNEUMONIA/person77_bacteria_377.jpeg
inflating: chest_xray/train/PNEUMONIA/person780_bacteria_2684.jpeg
inflating: chest_xray/train/PNEUMONIA/person780_virus_1411.jpeg
inflating: chest_xray/train/PNEUMONIA/person781_virus_1412.jpeg
inflating: chest_xray/train/PNEUMONIA/person782_bacteria_2686.jpeg
inflating: chest_xray/train/PNEUMONIA/person783_bacteria_2687.jpeg
inflating: chest_xray/train/PNEUMONIA/person783_virus_1414.jpeg
inflating: chest_xray/train/PNEUMONIA/person785_bacteria_2689.jpeg
inflating: chest_xray/train/PNEUMONIA/person786_bacteria_2690.jpeg
inflating: chest_xray/train/PNEUMONIA/person787_bacteria_2691.jpeg
inflating: chest_xray/train/PNEUMONIA/person788_virus_1419.jpeg
inflating: chest_xray/train/PNEUMONIA/person789_bacteria_2694.jpeg
inflating: chest_xray/train/PNEUMONIA/person789_virus_1420.jpeg
inflating: chest_xray/train/PNEUMONIA/person790_virus_1421.jpeg
inflating: chest_xray/train/PNEUMONIA/person791_virus_1422.jpeg
inflating: chest_xray/train/PNEUMONIA/person793_virus_1424.jpeg
inflating: chest_xray/train/PNEUMONIA/person794_bacteria_2700.jpeg
inflating: chest_xray/train/PNEUMONIA/person795_virus_1427.jpeg
inflating: chest_xray/train/PNEUMONIA/person796_bacteria_2702.jpeg
inflating: chest_xray/train/PNEUMONIA/person796_virus_1428.jpeg
inflating: chest_xray/train/PNEUMONIA/person797_virus_1429.jpeg
inflating: chest_xray/train/PNEUMONIA/person798_virus_1430.jpeg
inflating: chest_xray/train/PNEUMONIA/person799_bacteria_2705.jpeg
inflating: chest_xray/train/PNEUMONIA/person799_virus_1431.jpeg
inflating: chest_xray/train/PNEUMONIA/person7_bacteria_24.jpeg
inflating: chest_xray/train/PNEUMONIA/person7_bacteria_25.jpeg
inflating: chest_xray/train/PNEUMONIA/person7_bacteria_28.jpeg
inflating: chest_xray/train/PNEUMONIA/person7_bacteria_29.jpeg
inflating: chest_xray/train/PNEUMONIA/person800_bacteria_2706.jpeg
inflating: chest_xray/train/PNEUMONIA/person801_virus_1434.jpeg
inflating: chest_xray/train/PNEUMONIA/person802_bacteria_2708.jpeg

inflating: chest_xray/train/PNEUMONIA/person803_bacteria_2710.jpeg
inflating: chest_xray/train/PNEUMONIA/person803_virus_1436.jpeg
inflating: chest_xray/train/PNEUMONIA/person804_bacteria_2711.jpeg
inflating: chest_xray/train/PNEUMONIA/person805_bacteria_2712.jpeg
inflating: chest_xray/train/PNEUMONIA/person806_virus_1439.jpeg
inflating: chest_xray/train/PNEUMONIA/person806_virus_1440.jpeg
inflating: chest_xray/train/PNEUMONIA/person807_virus_1441.jpeg
inflating: chest_xray/train/PNEUMONIA/person808_bacteria_2716.jpeg
inflating: chest_xray/train/PNEUMONIA/person808_virus_1442.jpeg
inflating: chest_xray/train/PNEUMONIA/person809_bacteria_2717.jpeg
inflating: chest_xray/train/PNEUMONIA/person809_bacteria_2718.jpeg
inflating: chest_xray/train/PNEUMONIA/person80_virus_150.jpeg
inflating: chest_xray/train/PNEUMONIA/person810_bacteria_2719.jpeg
inflating: chest_xray/train/PNEUMONIA/person810_virus_1445.jpeg
inflating: chest_xray/train/PNEUMONIA/person810_virus_1446.jpeg
inflating: chest_xray/train/PNEUMONIA/person811_bacteria_2721.jpeg
inflating: chest_xray/train/PNEUMONIA/person811_virus_1447.jpeg
inflating: chest_xray/train/PNEUMONIA/person813_bacteria_2723.jpeg
inflating: chest_xray/train/PNEUMONIA/person813_bacteria_2724.jpeg
inflating: chest_xray/train/PNEUMONIA/person813_virus_1449.jpeg
inflating: chest_xray/train/PNEUMONIA/person814_bacteria_2725.jpeg
inflating: chest_xray/train/PNEUMONIA/person815_bacteria_2726.jpeg
inflating: chest_xray/train/PNEUMONIA/person816_bacteria_2727.jpeg
inflating: chest_xray/train/PNEUMONIA/person817_bacteria_2728.jpeg
inflating: chest_xray/train/PNEUMONIA/person818_bacteria_2729.jpeg
inflating: chest_xray/train/PNEUMONIA/person819_bacteria_2730.jpeg
inflating: chest_xray/train/PNEUMONIA/person819_virus_1455.jpeg
inflating: chest_xray/train/PNEUMONIA/person81_virus_152.jpeg
inflating: chest_xray/train/PNEUMONIA/person81_virus_153.jpeg
inflating: chest_xray/train/PNEUMONIA/person820_bacteria_2731.jpeg
inflating: chest_xray/train/PNEUMONIA/person820_virus_1456.jpeg
inflating: chest_xray/train/PNEUMONIA/person823_virus_1459.jpeg
inflating: chest_xray/train/PNEUMONIA/person825_bacteria_2736.jpeg
inflating: chest_xray/train/PNEUMONIA/person826_bacteria_2737.jpeg
inflating: chest_xray/train/PNEUMONIA/person826_virus_1462.jpeg
inflating: chest_xray/train/PNEUMONIA/person827_bacteria_2738.jpeg
inflating: chest_xray/train/PNEUMONIA/person829_bacteria_2740.jpeg
inflating: chest_xray/train/PNEUMONIA/person82_virus_154.jpeg
inflating: chest_xray/train/PNEUMONIA/person82_virus_155.jpeg
inflating: chest_xray/train/PNEUMONIA/person830_bacteria_2741.jpeg
inflating: chest_xray/train/PNEUMONIA/person830_virus_1466.jpeg
inflating: chest_xray/train/PNEUMONIA/person831_bacteria_2742.jpeg
inflating: chest_xray/train/PNEUMONIA/person832_bacteria_2743.jpeg
inflating: chest_xray/train/PNEUMONIA/person832_virus_1468.jpeg
inflating: chest_xray/train/PNEUMONIA/person833_virus_1469.jpeg
inflating: chest_xray/train/PNEUMONIA/person834_bacteria_2747.jpeg
inflating: chest_xray/train/PNEUMONIA/person834_bacteria_2748.jpeg
inflating: chest_xray/train/PNEUMONIA/person835_bacteria_2749.jpeg

inflating: chest_xray/train/PNEUMONIA/person835_bacteria_2750.jpeg
inflating: chest_xray/train/PNEUMONIA/person835_virus_1472.jpeg
inflating: chest_xray/train/PNEUMONIA/person836_bacteria_2752.jpeg
inflating: chest_xray/train/PNEUMONIA/person836_virus_1473.jpeg
inflating: chest_xray/train/PNEUMONIA/person837_bacteria_2753.jpeg
inflating: chest_xray/train/PNEUMONIA/person837_bacteria_2754.jpeg
inflating: chest_xray/train/PNEUMONIA/person837_virus_1475.jpeg
inflating: chest_xray/train/PNEUMONIA/person838_virus_1476.jpeg
inflating: chest_xray/train/PNEUMONIA/person839_bacteria_2757.jpeg
inflating: chest_xray/train/PNEUMONIA/person83_virus_156.jpeg
inflating: chest_xray/train/PNEUMONIA/person840_bacteria_2758.jpeg
inflating: chest_xray/train/PNEUMONIA/person840_bacteria_2759.jpeg
inflating: chest_xray/train/PNEUMONIA/person841_bacteria_2760.jpeg
inflating: chest_xray/train/PNEUMONIA/person841_bacteria_2761.jpeg
inflating: chest_xray/train/PNEUMONIA/person841_virus_1481.jpeg
inflating: chest_xray/train/PNEUMONIA/person842_bacteria_2762.jpeg
inflating: chest_xray/train/PNEUMONIA/person842_virus_1483.jpeg
inflating: chest_xray/train/PNEUMONIA/person843_bacteria_2763.jpeg
inflating: chest_xray/train/PNEUMONIA/person843_virus_1485.jpeg
inflating: chest_xray/train/PNEUMONIA/person844_virus_1487.jpeg
inflating: chest_xray/train/PNEUMONIA/person845_virus_1489.jpeg
inflating: chest_xray/train/PNEUMONIA/person846_bacteria_2766.jpeg
inflating: chest_xray/train/PNEUMONIA/person846_virus_1491.jpeg
inflating: chest_xray/train/PNEUMONIA/person847_bacteria_2767.jpeg
inflating: chest_xray/train/PNEUMONIA/person847_virus_1492.jpeg
inflating: chest_xray/train/PNEUMONIA/person848_bacteria_2769.jpeg
inflating: chest_xray/train/PNEUMONIA/person848_virus_1493.jpeg
inflating: chest_xray/train/PNEUMONIA/person849_bacteria_2770.jpeg
inflating: chest_xray/train/PNEUMONIA/person849_virus_1494.jpeg
inflating: chest_xray/train/PNEUMONIA/person84_virus_157.jpeg
inflating: chest_xray/train/PNEUMONIA/person850_bacteria_2771.jpeg
inflating: chest_xray/train/PNEUMONIA/person851_virus_1496.jpeg
inflating: chest_xray/train/PNEUMONIA/person852_virus_1497.jpeg
inflating: chest_xray/train/PNEUMONIA/person853_bacteria_2774.jpeg
inflating: chest_xray/train/PNEUMONIA/person853_bacteria_2775.jpeg
inflating: chest_xray/train/PNEUMONIA/person853_virus_1498.jpeg
inflating: chest_xray/train/PNEUMONIA/person854_bacteria_2776.jpeg
inflating: chest_xray/train/PNEUMONIA/person855_bacteria_2777.jpeg
inflating: chest_xray/train/PNEUMONIA/person855_virus_1500.jpeg
inflating: chest_xray/train/PNEUMONIA/person858_bacteria_2780.jpeg
inflating: chest_xray/train/PNEUMONIA/person859_virus_1504.jpeg
inflating: chest_xray/train/PNEUMONIA/person860_virus_1505.jpeg
inflating: chest_xray/train/PNEUMONIA/person861_virus_1506.jpeg
inflating: chest_xray/train/PNEUMONIA/person862_bacteria_2784.jpeg
inflating: chest_xray/train/PNEUMONIA/person862_virus_1507.jpeg
inflating: chest_xray/train/PNEUMONIA/person863_bacteria_2785.jpeg
inflating: chest_xray/train/PNEUMONIA/person863_virus_1508.jpeg
inflating: chest_xray/train/PNEUMONIA/person864_virus_1509.jpeg

inflating: chest_xray/train/PNEUMONIA/person866_bacteria_2788.jpeg
inflating: chest_xray/train/PNEUMONIA/person866_virus_1511.jpeg
inflating: chest_xray/train/PNEUMONIA/person867_bacteria_2789.jpeg
inflating: chest_xray/train/PNEUMONIA/person867_virus_1512.jpeg
inflating: chest_xray/train/PNEUMONIA/person868_virus_1513.jpeg
inflating: chest_xray/train/PNEUMONIA/person868_virus_1514.jpeg
inflating: chest_xray/train/PNEUMONIA/person86_virus_159.jpeg
inflating: chest_xray/train/PNEUMONIA/person870_bacteria_2792.jpeg
inflating: chest_xray/train/PNEUMONIA/person870_virus_1516.jpeg
inflating: chest_xray/train/PNEUMONIA/person871_bacteria_2793.jpeg
inflating: chest_xray/train/PNEUMONIA/person871_virus_1517.jpeg
inflating: chest_xray/train/PNEUMONIA/person872_bacteria_2795.jpeg
inflating: chest_xray/train/PNEUMONIA/person873_bacteria_2796.jpeg
inflating: chest_xray/train/PNEUMONIA/person874_bacteria_2797.jpeg
inflating: chest_xray/train/PNEUMONIA/person875_bacteria_2798.jpeg
inflating: chest_xray/train/PNEUMONIA/person876_bacteria_2799.jpeg
inflating: chest_xray/train/PNEUMONIA/person877_bacteria_2800.jpeg
inflating: chest_xray/train/PNEUMONIA/person877_virus_1525.jpeg
inflating: chest_xray/train/PNEUMONIA/person878_bacteria_2801.jpeg
inflating: chest_xray/train/PNEUMONIA/person878_virus_1526.jpeg
inflating: chest_xray/train/PNEUMONIA/person87_virus_160.jpeg
inflating: chest_xray/train/PNEUMONIA/person880_bacteria_2804.jpeg
inflating: chest_xray/train/PNEUMONIA/person880_virus_1529.jpeg
inflating: chest_xray/train/PNEUMONIA/person881_bacteria_2805.jpeg
inflating: chest_xray/train/PNEUMONIA/person881_virus_1531.jpeg
inflating: chest_xray/train/PNEUMONIA/person882_bacteria_2806.jpeg
inflating: chest_xray/train/PNEUMONIA/person883_bacteria_2807.jpeg
inflating: chest_xray/train/PNEUMONIA/person883_virus_1533.jpeg
inflating: chest_xray/train/PNEUMONIA/person884_bacteria_2808.jpeg
inflating: chest_xray/train/PNEUMONIA/person884_virus_1534.jpeg
inflating: chest_xray/train/PNEUMONIA/person885_bacteria_2809.jpeg
inflating: chest_xray/train/PNEUMONIA/person886_bacteria_2810.jpeg
inflating: chest_xray/train/PNEUMONIA/person886_virus_1536.jpeg
inflating: chest_xray/train/PNEUMONIA/person887_bacteria_2811.jpeg
inflating: chest_xray/train/PNEUMONIA/person888_bacteria_2812.jpeg
inflating: chest_xray/train/PNEUMONIA/person888_virus_1538.jpeg
inflating: chest_xray/train/PNEUMONIA/person889_bacteria_2813.jpeg
inflating: chest_xray/train/PNEUMONIA/person88_virus_161.jpeg
inflating: chest_xray/train/PNEUMONIA/person88_virus_163.jpeg
inflating: chest_xray/train/PNEUMONIA/person88_virus_164.jpeg
inflating: chest_xray/train/PNEUMONIA/person88_virus_165.jpeg
inflating: chest_xray/train/PNEUMONIA/person88_virus_166.jpeg
inflating: chest_xray/train/PNEUMONIA/person88_virus_167.jpeg
inflating: chest_xray/train/PNEUMONIA/person890_bacteria_2814.jpeg
inflating: chest_xray/train/PNEUMONIA/person890_virus_1540.jpeg
inflating: chest_xray/train/PNEUMONIA/person891_virus_1541.jpeg
inflating: chest_xray/train/PNEUMONIA/person892_bacteria_2817.jpeg
inflating: chest_xray/train/PNEUMONIA/person893_bacteria_2818.jpeg

inflating: chest_xray/train/PNEUMONIA/person894_bacteria_2819.jpeg
inflating: chest_xray/train/PNEUMONIA/person894_virus_1546.jpeg
inflating: chest_xray/train/PNEUMONIA/person895_bacteria_2820.jpeg
inflating: chest_xray/train/PNEUMONIA/person895_virus_1547.jpeg
inflating: chest_xray/train/PNEUMONIA/person896_bacteria_2821.jpeg
inflating: chest_xray/train/PNEUMONIA/person896_virus_1548.jpeg
inflating: chest_xray/train/PNEUMONIA/person897_bacteria_2822.jpeg
inflating: chest_xray/train/PNEUMONIA/person898_bacteria_2823.jpeg
inflating: chest_xray/train/PNEUMONIA/person898_virus_1552.jpeg
inflating: chest_xray/train/PNEUMONIA/person899_virus_1553.jpeg
inflating: chest_xray/train/PNEUMONIA/person89_virus_168.jpeg
inflating: chest_xray/train/PNEUMONIA/person8_bacteria_37.jpeg
inflating: chest_xray/train/PNEUMONIA/person900_virus_1554.jpeg
inflating: chest_xray/train/PNEUMONIA/person901_virus_1555.jpeg
inflating: chest_xray/train/PNEUMONIA/person902_bacteria_2827.jpeg
inflating: chest_xray/train/PNEUMONIA/person903_bacteria_2828.jpeg
inflating: chest_xray/train/PNEUMONIA/person904_bacteria_2829.jpeg
inflating: chest_xray/train/PNEUMONIA/person905_bacteria_2830.jpeg
inflating: chest_xray/train/PNEUMONIA/person905_virus_1561.jpeg
inflating: chest_xray/train/PNEUMONIA/person906_bacteria_2831.jpeg
inflating: chest_xray/train/PNEUMONIA/person906_virus_1562.jpeg
inflating: chest_xray/train/PNEUMONIA/person907_bacteria_2832.jpeg
inflating: chest_xray/train/PNEUMONIA/person907_virus_1563.jpeg
inflating: chest_xray/train/PNEUMONIA/person908_virus_1564.jpeg
inflating: chest_xray/train/PNEUMONIA/person909_bacteria_2834.jpeg
inflating: chest_xray/train/PNEUMONIA/person909_virus_1565.jpeg
inflating: chest_xray/train/PNEUMONIA/person90_virus_169.jpeg
inflating: chest_xray/train/PNEUMONIA/person90_virus_170.jpeg
inflating: chest_xray/train/PNEUMONIA/person911_bacteria_2836.jpeg
inflating: chest_xray/train/PNEUMONIA/person911_virus_1567.jpeg
inflating: chest_xray/train/PNEUMONIA/person912_bacteria_2837.jpeg
inflating: chest_xray/train/PNEUMONIA/person913_bacteria_2838.jpeg
inflating: chest_xray/train/PNEUMONIA/person913_virus_1570.jpeg
inflating: chest_xray/train/PNEUMONIA/person914_bacteria_2839.jpeg
inflating: chest_xray/train/PNEUMONIA/person914_virus_1571.jpeg
inflating: chest_xray/train/PNEUMONIA/person915_virus_1572.jpeg
inflating: chest_xray/train/PNEUMONIA/person916_bacteria_2841.jpeg
inflating: chest_xray/train/PNEUMONIA/person917_bacteria_2842.jpeg
inflating: chest_xray/train/PNEUMONIA/person918_bacteria_2843.jpeg
inflating: chest_xray/train/PNEUMONIA/person918_virus_1575.jpeg
inflating: chest_xray/train/PNEUMONIA/person919_bacteria_2844.jpeg
inflating: chest_xray/train/PNEUMONIA/person919_virus_1576.jpeg
inflating: chest_xray/train/PNEUMONIA/person920_bacteria_2845.jpeg
inflating: chest_xray/train/PNEUMONIA/person920_virus_1577.jpeg
inflating: chest_xray/train/PNEUMONIA/person921_bacteria_2846.jpeg
inflating: chest_xray/train/PNEUMONIA/person921_virus_1578.jpeg
inflating: chest_xray/train/PNEUMONIA/person922_bacteria_2847.jpeg
inflating: chest_xray/train/PNEUMONIA/person923_bacteria_2848.jpeg

inflating: chest_xray/train/PNEUMONIA/person924_bacteria_2849.jpeg
inflating: chest_xray/train/PNEUMONIA/person924_virus_1581.jpeg
inflating: chest_xray/train/PNEUMONIA/person925_bacteria_2850.jpeg
inflating: chest_xray/train/PNEUMONIA/person925_virus_1582.jpeg
inflating: chest_xray/train/PNEUMONIA/person926_virus_1583.jpeg
inflating: chest_xray/train/PNEUMONIA/person927_bacteria_2852.jpeg
inflating: chest_xray/train/PNEUMONIA/person927_virus_1584.jpeg
inflating: chest_xray/train/PNEUMONIA/person928_virus_1586.jpeg
inflating: chest_xray/train/PNEUMONIA/person929_bacteria_2854.jpeg
inflating: chest_xray/train/PNEUMONIA/person929_virus_1588.jpeg
inflating: chest_xray/train/PNEUMONIA/person929_virus_1589.jpeg
inflating: chest_xray/train/PNEUMONIA/person92_virus_174.jpeg
inflating: chest_xray/train/PNEUMONIA/person930_bacteria_2855.jpeg
inflating: chest_xray/train/PNEUMONIA/person931_bacteria_2856.jpeg
inflating: chest_xray/train/PNEUMONIA/person931_virus_1592.jpeg
inflating: chest_xray/train/PNEUMONIA/person932_virus_1593.jpeg
inflating: chest_xray/train/PNEUMONIA/person933_bacteria_2858.jpeg
inflating: chest_xray/train/PNEUMONIA/person933_virus_1594.jpeg
inflating: chest_xray/train/PNEUMONIA/person934_bacteria_2859.jpeg
inflating: chest_xray/train/PNEUMONIA/person934_virus_1595.jpeg
inflating: chest_xray/train/PNEUMONIA/person935_virus_1597.jpeg
inflating: chest_xray/train/PNEUMONIA/person936_bacteria_2861.jpeg
inflating: chest_xray/train/PNEUMONIA/person936_virus_1598.jpeg
inflating: chest_xray/train/PNEUMONIA/person937_bacteria_2862.jpeg
inflating: chest_xray/train/PNEUMONIA/person937_virus_1599.jpeg
inflating: chest_xray/train/PNEUMONIA/person938_bacteria_2863.jpeg
inflating: chest_xray/train/PNEUMONIA/person938_virus_1600.jpeg
inflating: chest_xray/train/PNEUMONIA/person939_bacteria_2864.jpeg
inflating: chest_xray/train/PNEUMONIA/person93_virus_175.jpeg
inflating: chest_xray/train/PNEUMONIA/person940_bacteria_2865.jpeg
inflating: chest_xray/train/PNEUMONIA/person940_virus_1602.jpeg
inflating: chest_xray/train/PNEUMONIA/person940_virus_1604.jpeg
inflating: chest_xray/train/PNEUMONIA/person940_virus_1605.jpeg
inflating: chest_xray/train/PNEUMONIA/person940_virus_1607.jpeg
inflating: chest_xray/train/PNEUMONIA/person940_virus_1609.jpeg
inflating: chest_xray/train/PNEUMONIA/person941_virus_1610.jpeg
inflating: chest_xray/train/PNEUMONIA/person942_bacteria_2867.jpeg
inflating: chest_xray/train/PNEUMONIA/person942_virus_1611.jpeg
inflating: chest_xray/train/PNEUMONIA/person943_bacteria_2868.jpeg
inflating: chest_xray/train/PNEUMONIA/person944_bacteria_2869.jpeg
inflating: chest_xray/train/PNEUMONIA/person945_bacteria_2870.jpeg
inflating: chest_xray/train/PNEUMONIA/person945_virus_1616.jpeg
inflating: chest_xray/train/PNEUMONIA/person946_bacteria_2871.jpeg
inflating: chest_xray/train/PNEUMONIA/person947_bacteria_2872.jpeg
inflating: chest_xray/train/PNEUMONIA/person947_virus_1618.jpeg
inflating: chest_xray/train/PNEUMONIA/person949_bacteria_2874.jpeg
inflating: chest_xray/train/PNEUMONIA/person949_virus_1620.jpeg
inflating: chest_xray/train/PNEUMONIA/person94_virus_176.jpeg

inflating: chest_xray/train/PNEUMONIA/person950_virus_1621.jpeg
inflating: chest_xray/train/PNEUMONIA/person951_bacteria_2876.jpeg
inflating: chest_xray/train/PNEUMONIA/person951_virus_1622.jpeg
inflating: chest_xray/train/PNEUMONIA/person952_bacteria_2877.jpeg
inflating: chest_xray/train/PNEUMONIA/person952_virus_1623.jpeg
inflating: chest_xray/train/PNEUMONIA/person953_bacteria_2878.jpeg
inflating: chest_xray/train/PNEUMONIA/person954_bacteria_2879.jpeg
inflating: chest_xray/train/PNEUMONIA/person954_virus_1626.jpeg
inflating: chest_xray/train/PNEUMONIA/person955_bacteria_2880.jpeg
inflating: chest_xray/train/PNEUMONIA/person955_virus_1627.jpeg
inflating: chest_xray/train/PNEUMONIA/person956_bacteria_2881.jpeg
inflating: chest_xray/train/PNEUMONIA/person956_virus_1628.jpeg
inflating: chest_xray/train/PNEUMONIA/person957_bacteria_2882.jpeg
inflating: chest_xray/train/PNEUMONIA/person957_virus_1629.jpeg
inflating: chest_xray/train/PNEUMONIA/person958_bacteria_2883.jpeg
inflating: chest_xray/train/PNEUMONIA/person958_virus_1630.jpeg
inflating: chest_xray/train/PNEUMONIA/person959_bacteria_2884.jpeg
inflating: chest_xray/train/PNEUMONIA/person95_virus_177.jpeg
inflating: chest_xray/train/PNEUMONIA/person960_bacteria_2885.jpeg
inflating: chest_xray/train/PNEUMONIA/person960_virus_1633.jpeg
inflating: chest_xray/train/PNEUMONIA/person961_bacteria_2886.jpeg
inflating: chest_xray/train/PNEUMONIA/person961_virus_1634.jpeg
inflating: chest_xray/train/PNEUMONIA/person962_bacteria_2887.jpeg
inflating: chest_xray/train/PNEUMONIA/person962_virus_1635.jpeg
inflating: chest_xray/train/PNEUMONIA/person963_bacteria_2888.jpeg
inflating: chest_xray/train/PNEUMONIA/person963_virus_1636.jpeg
inflating: chest_xray/train/PNEUMONIA/person964_bacteria_2889.jpeg
inflating: chest_xray/train/PNEUMONIA/person964_virus_1637.jpeg
inflating: chest_xray/train/PNEUMONIA/person965_bacteria_2890.jpeg
inflating: chest_xray/train/PNEUMONIA/person965_virus_1638.jpeg
inflating: chest_xray/train/PNEUMONIA/person966_bacteria_2891.jpeg
inflating: chest_xray/train/PNEUMONIA/person966_virus_1639.jpeg
inflating: chest_xray/train/PNEUMONIA/person967_bacteria_2892.jpeg
inflating: chest_xray/train/PNEUMONIA/person967_virus_1640.jpeg
inflating: chest_xray/train/PNEUMONIA/person968_bacteria_2893.jpeg
inflating: chest_xray/train/PNEUMONIA/person968_virus_1642.jpeg
inflating: chest_xray/train/PNEUMONIA/person969_bacteria_2894.jpeg
inflating: chest_xray/train/PNEUMONIA/person969_virus_1643.jpeg
inflating: chest_xray/train/PNEUMONIA/person96_virus_178.jpeg
inflating: chest_xray/train/PNEUMONIA/person96_virus_179.jpeg
inflating: chest_xray/train/PNEUMONIA/person970_bacteria_2895.jpeg
inflating: chest_xray/train/PNEUMONIA/person970_virus_1644.jpeg
inflating: chest_xray/train/PNEUMONIA/person971_bacteria_2896.jpeg
inflating: chest_xray/train/PNEUMONIA/person972_bacteria_2897.jpeg
inflating: chest_xray/train/PNEUMONIA/person972_virus_1646.jpeg
inflating: chest_xray/train/PNEUMONIA/person973_virus_1647.jpeg
inflating: chest_xray/train/PNEUMONIA/person974_bacteria_2899.jpeg
inflating: chest_xray/train/PNEUMONIA/person974_virus_1649.jpeg

inflating: chest_xray/train/PNEUMONIA/person975_virus_1650.jpeg
inflating: chest_xray/train/PNEUMONIA/person976_bacteria_2901.jpeg
inflating: chest_xray/train/PNEUMONIA/person976_virus_1651.jpeg
inflating: chest_xray/train/PNEUMONIA/person977_bacteria_2902.jpeg
inflating: chest_xray/train/PNEUMONIA/person977_virus_1652.jpeg
inflating: chest_xray/train/PNEUMONIA/person978_bacteria_2904.jpeg
inflating: chest_xray/train/PNEUMONIA/person978_virus_1653.jpeg
inflating: chest_xray/train/PNEUMONIA/person979_bacteria_2905.jpeg
inflating: chest_xray/train/PNEUMONIA/person979_virus_1654.jpeg
inflating: chest_xray/train/PNEUMONIA/person97_virus_180.jpeg
inflating: chest_xray/train/PNEUMONIA/person97_virus_181.jpeg
inflating: chest_xray/train/PNEUMONIA/person980_bacteria_2906.jpeg
inflating: chest_xray/train/PNEUMONIA/person980_virus_1655.jpeg
inflating: chest_xray/train/PNEUMONIA/person981_bacteria_2907.jpeg
inflating: chest_xray/train/PNEUMONIA/person981_bacteria_2908.jpeg
inflating: chest_xray/train/PNEUMONIA/person981_virus_1657.jpeg
inflating: chest_xray/train/PNEUMONIA/person982_bacteria_2909.jpeg
inflating: chest_xray/train/PNEUMONIA/person982_virus_1658.jpeg
inflating: chest_xray/train/PNEUMONIA/person983_bacteria_2910.jpeg
inflating: chest_xray/train/PNEUMONIA/person983_virus_1660.jpeg
inflating: chest_xray/train/PNEUMONIA/person984_bacteria_2911.jpeg
inflating: chest_xray/train/PNEUMONIA/person985_bacteria_2912.jpeg
inflating: chest_xray/train/PNEUMONIA/person986_bacteria_2913.jpeg
inflating: chest_xray/train/PNEUMONIA/person987_bacteria_2914.jpeg
inflating: chest_xray/train/PNEUMONIA/person988_bacteria_2915.jpeg
inflating: chest_xray/train/PNEUMONIA/person988_virus_1666.jpeg
inflating: chest_xray/train/PNEUMONIA/person989_virus_1667.jpeg
inflating: chest_xray/train/PNEUMONIA/person98_virus_182.jpeg
inflating: chest_xray/train/PNEUMONIA/person990_bacteria_2917.jpeg
inflating: chest_xray/train/PNEUMONIA/person991_bacteria_2918.jpeg
inflating: chest_xray/train/PNEUMONIA/person991_virus_1669.jpeg
inflating: chest_xray/train/PNEUMONIA/person992_bacteria_2919.jpeg
inflating: chest_xray/train/PNEUMONIA/person992_bacteria_2920.jpeg
inflating: chest_xray/train/PNEUMONIA/person992_virus_1670.jpeg
inflating: chest_xray/train/PNEUMONIA/person993_bacteria_2921.jpeg
inflating: chest_xray/train/PNEUMONIA/person993_virus_1671.jpeg
inflating: chest_xray/train/PNEUMONIA/person994_bacteria_2922.jpeg
inflating: chest_xray/train/PNEUMONIA/person994_virus_1672.jpeg
inflating: chest_xray/train/PNEUMONIA/person995_bacteria_2923.jpeg
inflating: chest_xray/train/PNEUMONIA/person995_virus_1676.jpeg
inflating: chest_xray/train/PNEUMONIA/person996_bacteria_2924.jpeg
inflating: chest_xray/train/PNEUMONIA/person996_virus_1677.jpeg
inflating: chest_xray/train/PNEUMONIA/person997_bacteria_2926.jpeg
inflating: chest_xray/train/PNEUMONIA/person997_virus_1678.jpeg
inflating: chest_xray/train/PNEUMONIA/person998_bacteria_2927.jpeg
inflating: chest_xray/train/PNEUMONIA/person998_bacteria_2928.jpeg
inflating: chest_xray/train/PNEUMONIA/person99_virus_183.jpeg
inflating: chest_xray/train/PNEUMONIA/person9_bacteria_38.jpeg

```

inflating: chest_xray/train/PNEUMONIA/person9_bacteria_39.jpeg
inflating: chest_xray/train/PNEUMONIA/person9_bacteria_40.jpeg
inflating: chest_xray/train/PNEUMONIA/person9_bacteria_41.jpeg
inflating: chest_xray/val/NORMAL/NORMAL2-IM-1427-0001.jpeg
inflating: chest_xray/val/NORMAL/NORMAL2-IM-1430-0001.jpeg
inflating: chest_xray/val/NORMAL/NORMAL2-IM-1431-0001.jpeg
inflating: chest_xray/val/NORMAL/NORMAL2-IM-1436-0001.jpeg
inflating: chest_xray/val/NORMAL/NORMAL2-IM-1437-0001.jpeg
inflating: chest_xray/val/NORMAL/NORMAL2-IM-1438-0001.jpeg
inflating: chest_xray/val/NORMAL/NORMAL2-IM-1440-0001.jpeg
inflating: chest_xray/val/NORMAL/NORMAL2-IM-1442-0001.jpeg
inflating: chest_xray/val/PNEUMONIA/person1946_bacteria_4874.jpeg
inflating: chest_xray/val/PNEUMONIA/person1946_bacteria_4875.jpeg
inflating: chest_xray/val/PNEUMONIA/person1947_bacteria_4876.jpeg
inflating: chest_xray/val/PNEUMONIA/person1949_bacteria_4880.jpeg
inflating: chest_xray/val/PNEUMONIA/person1950_bacteria_4881.jpeg
inflating: chest_xray/val/PNEUMONIA/person1951_bacteria_4882.jpeg
inflating: chest_xray/val/PNEUMONIA/person1952_bacteria_4883.jpeg
inflating: chest_xray/val/PNEUMONIA/person1954_bacteria_4886.jpeg
chest_xray chest-xray-pneumonia.zip sample_data

```

```

[ ]: import pandas as pd
import cv2
import os
import tensorflow as tf
import matplotlib.pyplot as plt
import matplotlib.gridspec as gridspec

```

```

[ ]: train_list = []

rootdir = "../content/chest_xray/train/NORMAL"
for subdir, dirs, files in os.walk(rootdir):
    for file in files:
        image = cv2.imread(os.path.join(subdir, file))
        gray = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)
        train_list.append(gray)
        # tensor = tf.convert_to_tensor(gray, dtype=tf.uint8)
        # train_list.append(tensor)

train_df = pd.DataFrame(train_list, columns= ['image'])
del train_list

train_df['pneumonia'] = 0

print(train_df.sample(5))

train_list = []

```

```

rootdir = "../content/chest_xray/train/PNEUMONIA"
for subdir, dirs, files in os.walk(rootdir):
    for file in files:
        image = cv2.imread(os.path.join(subdir, file))
        gray = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)
        train_list.append(gray)
        # tensor = tf.convert_to_tensor(gray, dtype=tf.uint8)
        # train_list.append(tensor)

temporary_df = pd.DataFrame(train_list, columns= ['image'])
del train_list

temporary_df['pneumonia'] = 1

print(temporary_df.sample(5))

train_df = train_df.append(temporary_df, ignore_index= True)

print(train_df.sample(5))
train_df.groupby('pneumonia').count()

```

```

/usr/local/lib/python3.7/dist-
packages/pandas/core/internals/construction.py:305: VisibleDeprecationWarning:
Creating an ndarray from ragged nested sequences (which is a list-or-tuple of
lists-or-tuples-or ndarrays with different lengths or shapes) is deprecated. If
you meant to do this, you must specify 'dtype=object' when creating the ndarray
values = np.array([convert(v) for v in values])

```

	image	pneumonia
1316	[[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, ...	0
358	[[2, 3, 9, 9, 7, 7, 6, 8, 7, 8, 7, 9, 7, 9, 7, ...	0
1221	[[143, 144, 147, 147, 144, 144, 144, 143, 144, ...	0
85	[[80, 79, 78, 81, 84, 79, 77, 81, 82, 86, 88, ...	0
938	[[0, 13, 11, 12, 11, 9, 7, 6, 5, 4, 2, 6, 8, 7, ...	0

```

/usr/local/lib/python3.7/dist-
packages/pandas/core/internals/construction.py:305: VisibleDeprecationWarning:
Creating an ndarray from ragged nested sequences (which is a list-or-tuple of
lists-or-tuples-or ndarrays with different lengths or shapes) is deprecated. If
you meant to do this, you must specify 'dtype=object' when creating the ndarray
values = np.array([convert(v) for v in values])

```

	image	pneumonia
2049	[[5, 4, 3, 2, 1, 0, 1, 1, 3, 3, 2, 2, 2, 1, 1, ...	1
1762	[[0, 88, 86, 93, 90, 81, 76, 83, 79, 87, 92, 9, ...	1
3870	[[132, 133, 138, 143, 144, 140, 134, 131, 121, ...	1
785	[[32, 32, 33, 33, 34, 35, 36, 36, 37, 37, 38, ...	1
3564	[[163, 162, 162, 164, 166, 163, 157, 151, 144, ...	1

	image	pneumonia
3107	[[35, 35, 35, 36, 36, 37, 37, 37, 35, 37, 38, ...	1
4896	[[19, 19, 20, 21, 21, 22, 23, 23, 24, 24, 24, ...	1
3110	[[120, 120, 121, 121, 122, 124, 127, 130, 127,...	1
2020	[[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,...	1
2237	[[10, 11, 13, 14, 15, 16, 16, 16, 16, 16, 17, ...	1

```
[ ]:          image
pneumonia
0          1341
1          3875
```

```
[ ]: val_list = []

rootdir = "../content/chest_xray/val/NORMAL"
for subdir, dirs, files in os.walk(rootdir):
    for file in files:
        image = cv2.imread(os.path.join(subdir, file))
        gray = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)
        val_list.append(gray)
        # tensor = tf.convert_to_tensor(gray, dtype=tf.uint8)
        # val_list.append(tensor)

val_df = pd.DataFrame(val_list, columns= ['image'])
del val_list

val_df['pneumonia'] = 0

print(val_df.sample(5))

val_list = []

rootdir = "../content/chest_xray/val/PNEUMONIA"
for subdir, dirs, files in os.walk(rootdir):
    for file in files:
        image = cv2.imread(os.path.join(subdir, file))
        gray = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)
        val_list.append(gray)
        # tensor = tf.convert_to_tensor(gray, dtype=tf.uint8)
        # val_list.append(tensor)

temporary_df = pd.DataFrame(val_list, columns= ['image'])
del val_list

temporary_df['pneumonia'] = 1

print(val_df.sample(5))
```

```
val_df = val_df.append(temporary_df,ignore_index= True)

print(val_df.sample(5))
val_df.groupby('pneumonia').count()
```

```
/usr/local/lib/python3.7/dist-
packages/pandas/core/internals/construction.py:305: VisibleDeprecationWarning:
Creating an ndarray from ragged nested sequences (which is a list-or-tuple of
lists-or-tuples-or ndarrays with different lengths or shapes) is deprecated. If
you meant to do this, you must specify 'dtype=object' when creating the ndarray
values = np.array([convert(v) for v in values])
```

	image	pneumonia
7	[[1, 12, 7, 7, 8, 9, 9, 8, 10, 11, 14, 17, 18,...	0
1	[[84, 85, 93, 96, 100, 255, 252, 254, 254, 254...	0
0	[[3, 0, 4, 1, 5, 254, 248, 255, 250, 255, 252,...	0
5	[[169, 171, 156, 167, 163, 255, 253, 251, 255,...	0
3	[[20, 22, 16, 25, 20, 255, 254, 254, 252, 253,...	0

```
/usr/local/lib/python3.7/dist-
packages/pandas/core/internals/construction.py:305: VisibleDeprecationWarning:
Creating an ndarray from ragged nested sequences (which is a list-or-tuple of
lists-or-tuples-or ndarrays with different lengths or shapes) is deprecated. If
you meant to do this, you must specify 'dtype=object' when creating the ndarray
values = np.array([convert(v) for v in values])
```

	image	pneumonia
0	[[3, 0, 4, 1, 5, 254, 248, 255, 250, 255, 252,...	0
2	[[46, 54, 59, 60, 60, 255, 251, 251, 254, 255,...	0
6	[[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,...	0
5	[[169, 171, 156, 167, 163, 255, 253, 251, 255,...	0
4	[[67, 60, 68, 56, 67, 255, 255, 251, 250, 255,...	0

	image	pneumonia
12	[[15, 15, 16, 17, 17, 18, 19, 19, 20, 20, 20, ...	1
14	[[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,...	1
6	[[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,...	0
9	[[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,...	1
3	[[20, 22, 16, 25, 20, 255, 254, 254, 252, 253,...	0

```
[ ]:          image
pneumonia
0              8
1              8
```

```
[ ]: test_list = []

rootdir = "../content/chest_xray/test/NORMAL"
for subdir, dirs, files in os.walk(rootdir):
```

```

for file in files:
    image = cv2.imread(os.path.join(subdir, file))
    gray = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)
    test_list.append(gray)
    # tensor = tf.convert_to_tensor(gray, dtype=tf.uint8)
    # test_list.append(tensor)

test_df = pd.DataFrame(test_list, columns= ['image'])
del test_list

test_df['pneumonia'] = 0

print(test_df.sample(5))

test_list = []

rootdir = "../content/chest_xray/test/PNEUMONIA"
for subdir, dirs, files in os.walk(rootdir):
    for file in files:
        image = cv2.imread(os.path.join(subdir, file))
        gray = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)
        test_list.append(gray)
        # tensor = tf.convert_to_tensor(gray, dtype=tf.uint8)
        # test_list.append(tensor)

temporary_df = pd.DataFrame(test_list, columns= ['image'])
del test_list

temporary_df['pneumonia'] = 1

print(test_df.sample(5))

test_df = test_df.append(temporary_df, ignore_index= True)

print(test_df.sample(5))
test_df.groupby('pneumonia').count()

```

/usr/local/lib/python3.7/dist-packages/pandas/core/internals/construction.py:305: VisibleDeprecationWarning: Creating an ndarray from ragged nested sequences (which is a list-or-tuple of lists-or-tuples-or ndarrays with different lengths or shapes) is deprecated. If you meant to do this, you must specify 'dtype=object' when creating the ndarray

```
values = np.array([convert(v) for v in values])
```

	image	pneumonia
3	[[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, ...	0
207	[[12, 11, 8, 5, 3, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, ...	0
139	[[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, ...	0

```
200 [[1, 1, 0, 1, 2, 3, 4, 5, 8, 9, 10, 10, 9, 11,...      0
83  [[4, 154, 155, 147, 150, 150, 151, 148, 146, 1...      0
```

```
/usr/local/lib/python3.7/dist-
packages/pandas/core/internals/construction.py:305: VisibleDeprecationWarning:
Creating an ndarray from ragged nested sequences (which is a list-or-tuple of
lists-or-tuples-or ndarrays with different lengths or shapes) is deprecated. If
you meant to do this, you must specify 'dtype=object' when creating the ndarray
    values = np.array([convert(v) for v in values])
```

```

                                image  pneumonia
195 [[82, 84, 77, 88, 74, 82, 78, 90, 78, 92, 86, ...      0
86  [[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, ...      0
42  [[42, 39, 38, 39, 43, 46, 45, 44, 51, 51, 51, ...      0
192 [[1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 2, 2, 1, ...      0
175 [[57, 56, 55, 55, 56, 58, 59, 61, 65, 67, 67, ...      0

                                image  pneumonia
602 [[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, ...      1
274 [[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, ...      1
393 [[22, 22, 22, 23, 24, 26, 27, 28, 27, 27, 28, ...      1
237 [[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, ...      1
588 [[6, 6, 6, 6, 6, 6, 6, 6, 7, 2, 7, 7, 3, 8, 25...      1
```

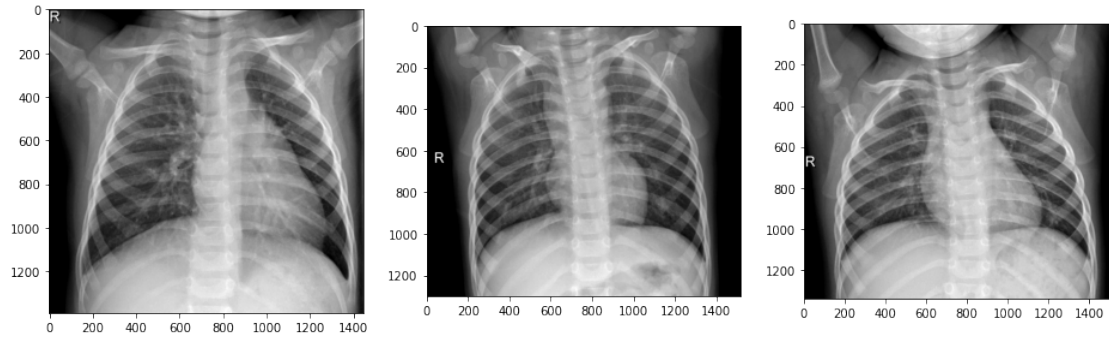
```
[ ]:          image
      pneumonia
0          234
1          390
```

EDA Important to note that training data is biased with over twice as many cases with pneumonia than not. Validation data is evenly split but with only 16 total data entries. Testing data has about 1.5 times as many cases with pneumonia than not.

```
[ ]: # three sample x-rays are shown from the category 'No Pneumonia'.
rootdir = "../content/chest_xray/train/NORMAL"
normalImages = []
for subdir, dirs, files in os.walk(rootdir):
    for file in files:
        image = cv2.imread(os.path.join(subdir, file))
        normalImages.append(image)

plt.figure(figsize=(16,16))
plt.subplot(131)
plt.imshow(normalImages[0])
plt.subplot(132)
plt.imshow(normalImages[1])
plt.subplot(133)
plt.imshow(normalImages[2])
```

```
[ ]: <matplotlib.image.AxesImage at 0x7f3328524690>
```

```
[ ]: # three sample x-rays are shown from the category 'Pneumonia'.
rootdir = "../content/chest_xray/train/PNEUMONIA"
normalImages = []
for subdir, dirs, files in os.walk(rootdir):
    for file in files:
        image = cv2.imread(os.path.join(subdir, file))
        normalImages.append(image)

plt.figure(figsize=(16,16))
plt.subplot(131)
plt.imshow(normalImages[0])
plt.subplot(132)
plt.imshow(normalImages[1])
plt.subplot(133)
plt.imshow(normalImages[2])
```

```
[ ]: <matplotlib.image.AxesImage at 0x7f332835db90>
```



It can be seen that images vary in orientation (rotation) and size (height, width). Images will need to be resized to consistent target size, but orientation should not affect model training.

Model Iteration 1

- target_size set as (100, 100)
- batch_size set as {train:64, val:16, test:64}
- early_stopping {min_delta=0.2, patience:3}

```
[ ]: train_dir = "../content/chest_xray/train/"
train_categories = set(os.listdir(train_dir))
val_dir = "../content/chest_xray/val/"
val_categories = set(os.listdir(val_dir))
test_dir = "../content/chest_xray/test/"
test_categories = set(os.listdir(test_dir))

if train_categories.symmetric_difference(test_categories):
    print("Warning!: ", train_categories.symmetric_difference(test_categories))

print(sorted(train_categories))
print(len(train_categories))
```

['NORMAL', 'PNEUMONIA']

2

```
[ ]: model = tf.keras.Sequential([
    tf.keras.layers.Conv2D(16, 3, padding='same', activation='relu',
                           input_shape=(100, 100, 3)),
    tf.keras.layers.MaxPooling2D(),
    tf.keras.layers.Conv2D(32, 3, padding='same', activation='relu'),
    tf.keras.layers.MaxPooling2D(),
    tf.keras.layers.Conv2D(64, 3, padding='same', activation='relu'),
    tf.keras.layers.MaxPooling2D(),
    tf.keras.layers.Flatten(),
    tf.keras.layers.Dense(512, activation='relu'),
    tf.keras.layers.Dense(2, activation='softmax')
])

model.compile(optimizer='adam',
              loss='binary_crossentropy',
              metrics=['binary_accuracy', 'accuracy'])
# both of these accuracies should be the same, sanity check
model.summary()
```

Model: "sequential_2"

Layer (type)	Output Shape	Param #
conv2d_6 (Conv2D)	(None, 100, 100, 16)	448
max_pooling2d_6 (MaxPooling2D)	(None, 50, 50, 16)	0
conv2d_7 (Conv2D)	(None, 50, 50, 32)	4640

max_pooling2d_7 (MaxPooling2)	(None, 25, 25, 32)	0

conv2d_8 (Conv2D)	(None, 25, 25, 64)	18496

max_pooling2d_8 (MaxPooling2)	(None, 12, 12, 64)	0

flatten_2 (Flatten)	(None, 9216)	0

dense_4 (Dense)	(None, 512)	4719104

dense_5 (Dense)	(None, 2)	1026
=====		
Total params: 4,743,714		
Trainable params: 4,743,714		
Non-trainable params: 0		

```
[ ]: train_image_iterator = tf.keras.preprocessing.image.DirectoryIterator(
    target_size=(100, 100),
    directory=train_dir,
    batch_size=64,
    image_data_generator=None)

val_image_iterator = tf.keras.preprocessing.image.DirectoryIterator(
    target_size=(100, 100),
    directory=val_dir,
    batch_size=16,
    image_data_generator=None)

test_image_iterator = tf.keras.preprocessing.image.DirectoryIterator(
    target_size=(100, 100),
    directory=test_dir,
    batch_size=64,
    image_data_generator=None)
```

Found 5216 images belonging to 2 classes.

Found 16 images belonging to 2 classes.

Found 624 images belonging to 2 classes.

```
[ ]: early_stopping = tf.keras.callbacks.EarlyStopping(
    monitor='val_accuracy',
    # minimum change in loss that qualifies as "improvement"
    # higher values of min_delta lead to earlier stopping
    min_delta=.2,
    # threshold for number of epochs with no improvement
    patience=3,
    verbose=1
)
```

```
[ ]: history = model.fit(
    train_image_iterator,
    epochs=100,
    # validation_data=(np.asarray(val_df.image), np.asarray(val_df.pneumonia)),
    validation_data=val_image_iterator,
    callbacks=[early_stopping]
)
```

Epoch 1/100

82/82 [=====] - 53s 646ms/step - loss: 9.6246 -
 binary_accuracy: 0.8808 - accuracy: 0.8808 - val_loss: 0.1946 -
 val_binary_accuracy: 0.9375 - val_accuracy: 0.9375

Epoch 2/100

82/82 [=====] - 53s 643ms/step - loss: 0.1110 -
 binary_accuracy: 0.9588 - accuracy: 0.9588 - val_loss: 0.1077 -
 val_binary_accuracy: 0.9375 - val_accuracy: 0.9375

Epoch 3/100

82/82 [=====] - 53s 641ms/step - loss: 0.0770 -
 binary_accuracy: 0.9716 - accuracy: 0.9716 - val_loss: 0.3413 -
 val_binary_accuracy: 0.8125 - val_accuracy: 0.8125

Epoch 4/100

82/82 [=====] - 53s 642ms/step - loss: 0.0678 -
 binary_accuracy: 0.9730 - accuracy: 0.9730 - val_loss: 0.2570 -
 val_binary_accuracy: 0.8750 - val_accuracy: 0.8750

Epoch 5/100

82/82 [=====] - 51s 622ms/step - loss: 0.0604 -
 binary_accuracy: 0.9776 - accuracy: 0.9776 - val_loss: 0.1811 -
 val_binary_accuracy: 0.8125 - val_accuracy: 0.8125

Epoch 00005: early stopping

```
[ ]: plt.figure(figsize=(16,5))

gs = gridspec.GridSpec(2, 2)
gs.update(wspace=0.4, hspace=0.5)
fig = plt.figure()

ax1 = fig.add_subplot(gs[0,0])
ax1.plot(history.history['accuracy'])
plt.title('Training Accuracy')
plt.ylabel('accuracy')
plt.xlabel('epoch')
# plt.legend(['train_accuracy'], loc='best')

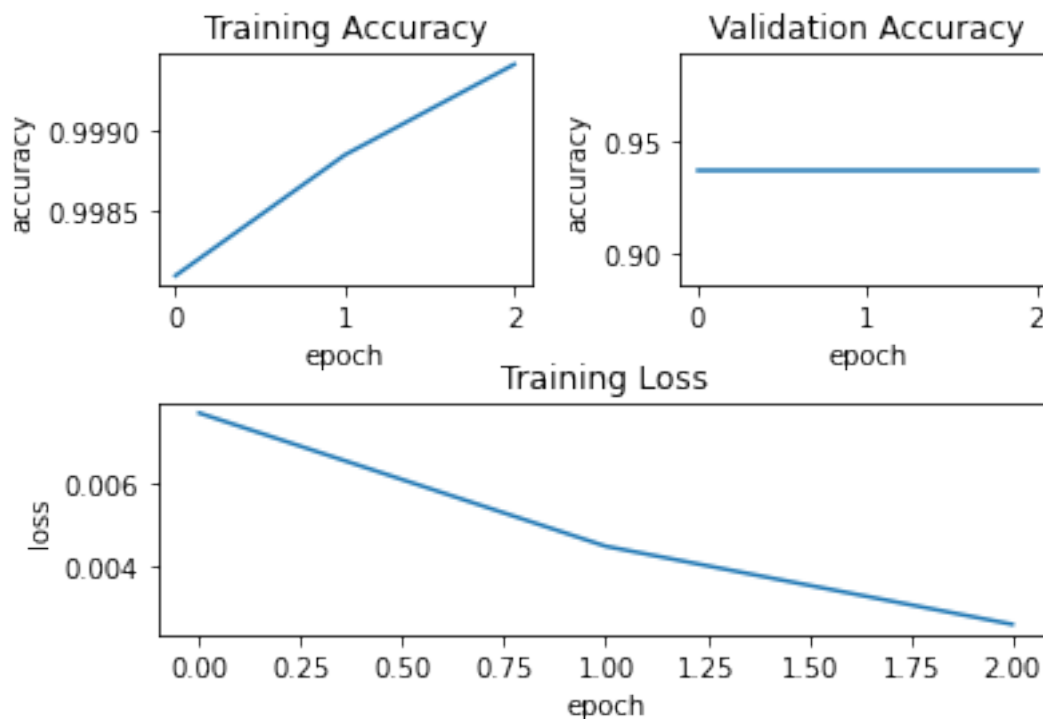
ax2 = fig.add_subplot(gs[0,1])
plt.plot(history.history['val_accuracy'])
plt.title('Validation Accuracy')
plt.ylabel('accuracy')
plt.xlabel('epoch')
```

```
# plt.legend(['val_accuracy'], loc='best')

ax3 = fig.add_subplot(gs[1,:])
plt.plot(history.history['loss'])
plt.title('Training Loss')
plt.ylabel('loss')
plt.xlabel('epoch')
# plt.legend(['train_loss'], loc='best')
```

```
[ ]: Text(0.5, 0, 'epoch')
```

<Figure size 1152x360 with 0 Axes>



Model Iteration 2

- target_size set as (100, 100)
- batch_size set as {train:256, val:16, test:256}
- early_stopping {min_delta=0.2, patience:3}

```
[ ]: train_dir = "../content/chest_xray/train/"
train_categories = set(os.listdir(train_dir))
val_dir = "../content/chest_xray/val/"
val_categories = set(os.listdir(val_dir))
```

```

test_dir = "../content/chest_xray/test/"
test_categories = set(os.listdir(test_dir))

if train_categories.symmetric_difference(test_categories):
    print("Warning!: ", train_categories.symmetric_difference(test_categories))

print(sorted(train_categories))
print(len(train_categories))

```

```
['NORMAL', 'PNEUMONIA']
```

```
2
```

```

[ ]: model = tf.keras.Sequential([
    tf.keras.layers.Conv2D(16, 3, padding='same', activation='relu',
                           input_shape=(100, 100, 3)),
    tf.keras.layers.MaxPooling2D(),
    tf.keras.layers.Conv2D(32, 3, padding='same', activation='relu'),
    tf.keras.layers.MaxPooling2D(),
    tf.keras.layers.Conv2D(64, 3, padding='same', activation='relu'),
    tf.keras.layers.MaxPooling2D(),
    tf.keras.layers.Flatten(),
    tf.keras.layers.Dense(512, activation='relu'),
    tf.keras.layers.Dense(2, activation='softmax')
])

model.compile(optimizer='adam',
              loss='binary_crossentropy',
              metrics=['binary_accuracy', 'accuracy'])
# both of these accuracies should be the same, sanity check
model.summary()

```

```
Model: "sequential_1"
```

Layer (type)	Output Shape	Param #
conv2d_3 (Conv2D)	(None, 100, 100, 16)	448
max_pooling2d_3 (MaxPooling2D)	(None, 50, 50, 16)	0
conv2d_4 (Conv2D)	(None, 50, 50, 32)	4640
max_pooling2d_4 (MaxPooling2D)	(None, 25, 25, 32)	0
conv2d_5 (Conv2D)	(None, 25, 25, 64)	18496
max_pooling2d_5 (MaxPooling2D)	(None, 12, 12, 64)	0
flatten_1 (Flatten)	(None, 9216)	0

```

-----
dense_2 (Dense)                (None, 512)                4719104
-----
dense_3 (Dense)                (None, 2)                   1026
=====
Total params: 4,743,714
Trainable params: 4,743,714
Non-trainable params: 0
-----

```

```

[ ]: train_image_iterator = tf.keras.preprocessing.image.DirectoryIterator(
    target_size=(100, 100),
    directory=train_dir,
    batch_size=256,
    image_data_generator=None)

val_image_iterator = tf.keras.preprocessing.image.DirectoryIterator(
    target_size=(100, 100),
    directory=val_dir,
    batch_size=16,
    image_data_generator=None)

test_image_iterator = tf.keras.preprocessing.image.DirectoryIterator(
    target_size=(100, 100),
    directory=test_dir,
    batch_size=256,
    image_data_generator=None)

```

Found 5216 images belonging to 2 classes.
Found 16 images belonging to 2 classes.
Found 624 images belonging to 2 classes.

```

[ ]: early_stopping = tf.keras.callbacks.EarlyStopping(
    monitor='val_accuracy',
    # minimum change in loss that qualifies as "improvement"
    # higher values of min_delta lead to earlier stopping
    min_delta=.2,
    # threshold for number of epochs with no improvement
    patience=3,
    verbose=1
)

```

```

[ ]: model_2 = model.fit(
    train_image_iterator,
    epochs=100,
    validation_data=val_image_iterator,
    callbacks=[early_stopping]
)

```

```

Epoch 1/100
21/21 [=====] - 52s 2s/step - loss: 23.1357 -
binary_accuracy: 0.7370 - accuracy: 0.7370 - val_loss: 0.5710 -
val_binary_accuracy: 0.6250 - val_accuracy: 0.6250
Epoch 2/100
21/21 [=====] - 51s 2s/step - loss: 0.1964 -
binary_accuracy: 0.9266 - accuracy: 0.9266 - val_loss: 0.1762 -
val_binary_accuracy: 0.9375 - val_accuracy: 0.9375
Epoch 3/100
21/21 [=====] - 52s 2s/step - loss: 0.0859 -
binary_accuracy: 0.9688 - accuracy: 0.9688 - val_loss: 0.4363 -
val_binary_accuracy: 0.8125 - val_accuracy: 0.8125
Epoch 4/100
21/21 [=====] - 52s 2s/step - loss: 0.0537 -
binary_accuracy: 0.9808 - accuracy: 0.9808 - val_loss: 0.3409 -
val_binary_accuracy: 0.8125 - val_accuracy: 0.8125
Epoch 5/100
21/21 [=====] - 52s 2s/step - loss: 0.0355 -
binary_accuracy: 0.9877 - accuracy: 0.9877 - val_loss: 0.5588 -
val_binary_accuracy: 0.8125 - val_accuracy: 0.8125
Epoch 6/100
21/21 [=====] - 53s 3s/step - loss: 0.0335 -
binary_accuracy: 0.9885 - accuracy: 0.9885 - val_loss: 0.4751 -
val_binary_accuracy: 0.8750 - val_accuracy: 0.8750
Epoch 00006: early stopping

```

```

[ ]: plt.figure(figsize=(16,5))

gs = gridspec.GridSpec(2, 2)
gs.update(wspace=0.4, hspace=0.5)
fig = plt.figure()

ax1 = fig.add_subplot(gs[0,0])
ax1.plot(model_2.history['accuracy'])
plt.title('Training Accuracy')
plt.ylabel('accuracy')
plt.xlabel('epoch')
# plt.legend(['train_accuracy'], loc='best')

ax2 = fig.add_subplot(gs[0,1])
plt.plot(model_2.history['val_accuracy'])
plt.title('Validation Accuracy')
plt.ylabel('accuracy')
plt.xlabel('epoch')
# plt.legend(['val_accuracy'], loc='best')

ax3 = fig.add_subplot(gs[1,:])

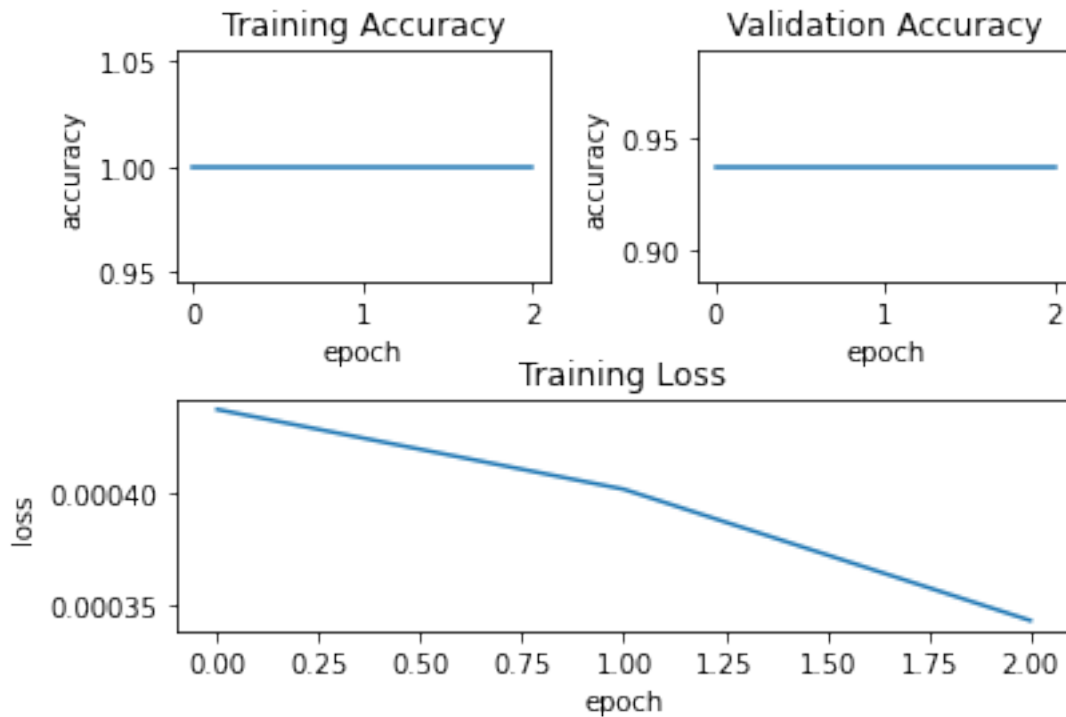
```



```
plt.plot(model_2.history['loss'])
plt.title('Training Loss')
plt.ylabel('loss')
plt.xlabel('epoch')
# plt.legend(['train_loss'], loc='best')
```

```
[ ]: Text(0.5, 0, 'epoch')
```

<Figure size 1152x360 with 0 Axes>



Model Iteration 3

- target_size set as (500, 500)
- batch_size set as {train:64, val:16, test:64}
- early_stopping {min_delta=0.2, patience:3}

```
[ ]: train_dir = "../content/chest_xray/train/"
train_categories = set(os.listdir(train_dir))
val_dir = "../content/chest_xray/val/"
val_categories = set(os.listdir(val_dir))
test_dir = "../content/chest_xray/test/"
test_categories = set(os.listdir(test_dir))
```

```

if train_categories.symmetric_difference(test_categories):
    print("Warning!: ", train_categories.symmetric_difference(test_categories))

print(sorted(train_categories))
print(len(train_categories))

```

```
['NORMAL', 'PNEUMONIA']
```

```
2
```

```

[ ]: model = tf.keras.Sequential([
    tf.keras.layers.Conv2D(16, 3, padding='same', activation='relu',
                           input_shape=(500, 500, 3)),
    tf.keras.layers.MaxPooling2D(),
    tf.keras.layers.Conv2D(32, 3, padding='same', activation='relu'),
    tf.keras.layers.MaxPooling2D(),
    tf.keras.layers.Conv2D(64, 3, padding='same', activation='relu'),
    tf.keras.layers.MaxPooling2D(),
    tf.keras.layers.Flatten(),
    tf.keras.layers.Dense(512, activation='relu'),
    tf.keras.layers.Dense(2, activation='softmax')
])

model.compile(optimizer='adam',
              loss='binary_crossentropy',
              metrics=['binary_accuracy', 'accuracy'])
              # both of these accuracies should be the same, sanity check
model.summary()

```

```
Model: "sequential_3"
```

Layer (type)	Output Shape	Param #
conv2d_9 (Conv2D)	(None, 500, 500, 16)	448
max_pooling2d_9 (MaxPooling2D)	(None, 250, 250, 16)	0
conv2d_10 (Conv2D)	(None, 250, 250, 32)	4640
max_pooling2d_10 (MaxPooling2D)	(None, 125, 125, 32)	0
conv2d_11 (Conv2D)	(None, 125, 125, 64)	18496
max_pooling2d_11 (MaxPooling2D)	(None, 62, 62, 64)	0
flatten_3 (Flatten)	(None, 246016)	0
dense_6 (Dense)	(None, 512)	125960704

dense_7 (Dense) (None, 2) 1026

=====

Total params: 125,985,314

Trainable params: 125,985,314

Non-trainable params: 0

```
[ ]: train_image_iterator = tf.keras.preprocessing.image.DirectoryIterator(
    target_size=(500, 500),
    directory=train_dir,
    batch_size=64,
    image_data_generator=None)

val_image_iterator = tf.keras.preprocessing.image.DirectoryIterator(
    target_size=(500, 500),
    directory=val_dir,
    batch_size=16,
    image_data_generator=None)

test_image_iterator = tf.keras.preprocessing.image.DirectoryIterator(
    target_size=(500, 500),
    directory=test_dir,
    batch_size=64,
    image_data_generator=None)
```

Found 5216 images belonging to 2 classes.

Found 16 images belonging to 2 classes.

Found 624 images belonging to 2 classes.

```
[ ]: early_stopping = tf.keras.callbacks.EarlyStopping(
    monitor='val_accuracy',
    # minimum change in loss that qualifies as "improvement"
    # higher values of min_delta lead to earlier stopping
    min_delta=.2,
    # threshold for number of epochs with no improvement
    patience=3,
    verbose=1
)
```

```
[ ]: model_3 = model.fit(
    train_image_iterator,
    epochs=100,
    validation_data=val_image_iterator,
    callbacks=[early_stopping]
)
```

Epoch 1/100

82/82 [=====] - 73s 893ms/step - loss: 6.6292e-04 -
binary_accuracy: 1.0000 - accuracy: 1.0000 - val_loss: 0.1139 -

```

val_binary_accuracy: 0.9375 - val_accuracy: 0.9375
Epoch 2/100
82/82 [=====] - 74s 903ms/step - loss: 4.5202e-04 -
binary_accuracy: 1.0000 - accuracy: 1.0000 - val_loss: 0.1435 -
val_binary_accuracy: 0.9375 - val_accuracy: 0.9375
Epoch 3/100
82/82 [=====] - 74s 905ms/step - loss: 3.3150e-04 -
binary_accuracy: 1.0000 - accuracy: 1.0000 - val_loss: 0.1609 -
val_binary_accuracy: 0.9375 - val_accuracy: 0.9375
Epoch 4/100
82/82 [=====] - 75s 919ms/step - loss: 2.4885e-04 -
binary_accuracy: 1.0000 - accuracy: 1.0000 - val_loss: 0.1025 -
val_binary_accuracy: 0.9375 - val_accuracy: 0.9375
Epoch 5/100
82/82 [=====] - 75s 925ms/step - loss: 2.0091e-04 -
binary_accuracy: 1.0000 - accuracy: 1.0000 - val_loss: 0.1578 -
val_binary_accuracy: 0.9375 - val_accuracy: 0.9375
Epoch 00005: early stopping

```

```

[ ]: plt.figure(figsize=(16,5))

gs = gridspec.GridSpec(2, 2)
gs.update(wspace=0.4, hspace=0.5)
fig = plt.figure()

ax1 = fig.add_subplot(gs[0,0])
ax1.plot(model_3.history['accuracy'])
plt.title('Training Accuracy')
plt.ylabel('accuracy')
plt.xlabel('epoch')
# plt.legend(['train_accuracy'], loc='best')

ax2 = fig.add_subplot(gs[0,1])
plt.plot(model_3.history['val_accuracy'])
plt.title('Validation Accuracy')
plt.ylabel('accuracy')
plt.xlabel('epoch')
# plt.legend(['val_accuracy'], loc='best')

ax3 = fig.add_subplot(gs[1,:])
plt.plot(model_3.history['loss'])
plt.title('Training Loss')
plt.ylabel('loss')
plt.xlabel('epoch')
# plt.legend(['train_loss'], loc='best')

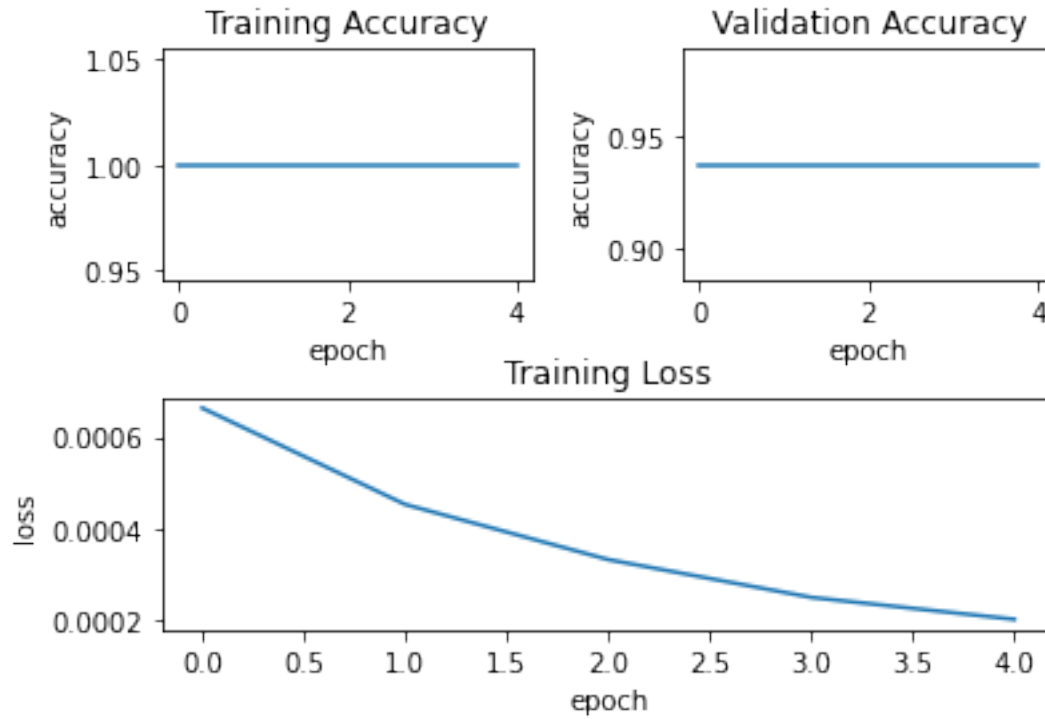
```

```

[ ]: Text(0.5, 0, 'epoch')

```

<Figure size 1152x360 with 0 Axes>



Evaluating Model 3

```
[ ]: model.evaluate(test_image_iterator)
```

```
10/10 [=====] - 9s 868ms/step - loss: 2.5063 -  
binary_accuracy: 0.7276 - accuracy: 0.7276
```

```
[ ]: [2.5062930583953857, 0.7275640964508057, 0.7275640964508057]
```