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```

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    "from tensorflow.keras.layers import Dense\\n",  
    "from tensorflow.keras.layers import Convolution2D\\n",  
    "from tensorflow.keras.layers import MaxPooling2D\\n",  
    "from tensorflow.keras.layers import Flatten"  
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```

```
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    "model = Sequential()\n"
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  ],
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```
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  "model.add(MaxPooling2D(pool_size=(2,2)))"  
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  "metadata": {  
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  },  
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```

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    "model.add(Flatten()) #ANN Input..."
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```

```
},  
  
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```
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  ],  
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  },  
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  ],
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},
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  ],
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},
{
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  ],
  "metadata": {
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  "execution_count": 22,
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```



```

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{
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    "model.summary()"
  ],
  "metadata": {
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        " _____\n",
        " Layer (type)      Output Shape      Param #   \n",
        " =====\n",
        " conv2d (Conv2D)    (None, 62, 62, 32)  896      \n",
        " \n",

```

```

" max_pooling2d (MaxPooling2D (None, 31, 31, 32)    0    \n",
" )
"
"
" conv2d_1 (Conv2D)    (None, 29, 29, 32)    9248    \n",
"
"
" max_pooling2d_1 (MaxPooling (None, 14, 14, 32)    0    \n",
" 2D)
"
"
" flatten (Flatten)    (None, 6272)    0    \n",
"
"
" dense (Dense)    (None, 128)    802944    \n",
"
"
" dense_1 (Dense)    (None, 128)    16512    \n",
"
"
" dense_2 (Dense)    (None, 128)    16512    \n",
"
"
" dense_3 (Dense)    (None, 128)    16512    \n",
"
"
" dense_4 (Dense)    (None, 128)    16512    \n",
"
"
" dense_5 (Dense)    (None, 6)    774    \n",
"
"
"===== \n",
"Total params: 879,910 \n",
"Trainable params: 879,910 \n",

```

```
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"  
]  
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]  
},  
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```

```

},
{
  "cell_type": "code",
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    "model.fit_generator(generator=x_train,steps_per_epoch=len(x_train), epochs=9,
validation_data=x_test,validation_steps=len(x_test))"
  ],
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  },
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    {
      "output_type": "stream",
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        "/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:1: UserWarning:
`Model.fit_generator` is deprecated and will be removed in a future version. Please use `Model.fit`,
which supports generators.\n",
        " \\\"\\\"Entry point for launching an IPython kernel.\n"
      ]
    },
  ],
}

```

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"text": [

    "Epoch 1/9\n",

    "480/480 [=====] - 41s 66ms/step - loss: 1.3631 - accuracy: 0.5007\n",
    - val_loss: 1.6149 - val_accuracy: 0.4544\n",

    "Epoch 2/9\n",

    "480/480 [=====] - 31s 65ms/step - loss: 0.7976 - accuracy: 0.6908\n",
    - val_loss: 0.9267 - val_accuracy: 0.6988\n",

    "Epoch 3/9\n",

    "480/480 [=====] - 34s 71ms/step - loss: 0.3399 - accuracy: 0.8819\n",
    - val_loss: 0.6958 - val_accuracy: 0.7965\n",

    "Epoch 4/9\n",

    "480/480 [=====] - 30s 63ms/step - loss: 0.2286 - accuracy: 0.9223\n",
    - val_loss: 0.5724 - val_accuracy: 0.8095\n",

    "Epoch 5/9\n",

    "480/480 [=====] - 30s 63ms/step - loss: 0.1798 - accuracy: 0.9439\n",
    - val_loss: 0.4829 - val_accuracy: 0.8488\n",

    "Epoch 6/9\n",

    "480/480 [=====] - 30s 63ms/step - loss: 0.1416 - accuracy: 0.9555\n",
    - val_loss: 0.5124 - val_accuracy: 0.8549\n",

    "Epoch 7/9\n",

    "480/480 [=====] - 30s 62ms/step - loss: 0.1068 - accuracy: 0.9662\n",
    - val_loss: 0.5708 - val_accuracy: 0.8585\n",

    "Epoch 8/9\n",

    "480/480 [=====] - 30s 63ms/step - loss: 0.0917 - accuracy: 0.9710\n",
    - val_loss: 0.4615 - val_accuracy: 0.8714\n",

    "Epoch 9/9\n",
```

"480/480 [=====] - 30s 62ms/step - loss: 0.0796 - accuracy: 0.9750
- val_loss: 0.7387 - val_accuracy: 0.8535\n"

```
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  ],
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```
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{
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        "from tensorflow.keras.models import load_model\n",
        "from tensorflow.keras.preprocessing import image"
```

```
],  
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  "execution_count": 27,  
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    "img=image.load_img(\"/content/fig_44.png\",target_size=(64,64))"  
  ],  
  "metadata": {  
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```



```
},
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  },
  "execution_count": 31,
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  "cell_type": "code",
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  ],
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      "height": 81
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          3z+Xz3sUkZ2hCCPWX5bD6BH4qG8Bq2QBWYwawWjaA1bIBNCgWi+HMzQDY3d3FmcMBCCEfHx84fzgAx3
          HBYBDnDwdwuVxerxfnDwcYDAY+nw/nDwcYDoeBQADnDwfo9/tQfzjA3t7eer3G+cMB1us1z/M4fzjAdDql
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          n7XY7Ho+nUqlisSj0v76+SpPr9bqCFcuyj4+Pxx7DOICCKsnkRk8ikVDIT6fTmUzG2FiQG9nFxcVGz7Zf3tVqJay
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          EnrD1ToyW3+/XkhYOh8PhMEVR2/4lMeITA/nwDKOvdg7H96dqEoD8Ribds/iJ7O11baJpemMVbbxzGne26
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```

```
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  "metadata": {  
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```

```
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  "pred = model.predict(x)\n",
  "y_pred=np.argmax(pred)\n",
  "y_pred"
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  "colab": {
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```

```
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  ]
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}
]
},
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    "    'Normal',\n",
    "    'Premature Atrial Contraction',\n",
    "    'Premature Ventricular Contraction',\n",
    "    'Right Bundle Branch Block',\n",
    "    'Ventricular Fibrillation']\n",
  ],
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  },
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{
```

```
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    "result = str(index[y_pred])\n",
    "result"
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    "colab": {
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        "height": 36
    },
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},
"execution_count": 37,
"outputs": [
    {
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        "data": {
            "text/plain": [
                "'Right Bundle Branch Block'"
            ],
            "application/vnd.google.colaboratory.intrinsic+json": {
                "type": "string"
            }
        }
    ]
}
```

```
},  
  "metadata": {},  
  "execution_count": 37  
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]  
}  
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}
```