In [1]:
```
pip install numpy
```

```
Defaulting to user installation because normal site-packages is not writeab
Requirement already satisfied: numpy in /home/pict/.local/lib/python3.6/site-
packages (1.19.5)
Note: you may need to restart the kernel to use updated packages.
```

In [2]:
```
pip install pandas
```

```
Defaulting to user installation because normal site-packages is not writeab
Requirement already satisfied: pandas in /home/pict/.local/lib/python3.6/site
-packages (1.1.5)
Requirement already satisfied: pytz>=2017.2 in /usr/lib/python3/dist-packages
(from pandas) (2018.3)
Requirement already satisfied: numpy>=1.15.4 in /home/pict/.local/lib/python
3.6/site-packages (from pandas) (1.19.5)
Requirement already satisfied: python-dateutil>=2.7.3 in /home/pict/.local/li
b/python3.6/site-packages (from pandas) (2.8.2)
Requirement already satisfied: six>=1.5 in /usr/lib/python3/dist-packages (fr
om python-dateutil>=2.7.3->pandas) (1.11.0)
Note: you may need to restart the kernel to use updated packages.
```

In [3]:
```
pip install seaborn
```

```
Defaulting to user installation because normal site-packages is not writeab
Requirement already satisfied: seaborn in /home/pict/.local/lib/python3.6/sit
e-packages (0.11.2)
Requirement already satisfied: scipy>=1.0 in /home/pict/.local/lib/python3.6/
site-packages (from seaborn) (1.5.4)
Requirement already satisfied: numpy>=1.15 in /home/pict/.local/lib/python3.
6/site-packages (from seaborn) (1.19.5)
Requirement already satisfied: pandas>=0.23 in /home/pict/.local/lib/python3.
6/site-packages (from seaborn) (1.1.5)
Requirement already satisfied: matplotlib>=2.2 in /home/pict/.local/lib/pytho
n3.6/site-packages (from seaborn) (3.3.4)
Requirement already satisfied: python-dateutil>=2.1 in /home/pict/.local/lib/
python3.6/site-packages (from matplotlib>=2.2->seaborn) (2.8.2)
Requirement already satisfied: cycler>=0.10 in /usr/lib/python3/dist-packages
(from matplotlib>=2.2->seaborn) (0.10.0)
Requirement already satisfied: kiwisolver>=1.0.1 in /home/pict/.local/lib/pyt
hon3.6/site-packages (from matplotlib>=2.2->seaborn) (1.3.1)
Requirement already satisfied: pillow>=6.2.0 in /home/pict/.local/lib/python
3.6/site-packages (from matplotlib>=2.2->seaborn) (8.4.0)
Requirement already satisfied: pyparsing!=2.0.4,!=2.1.2,!=2.1.6,>=2.0.3 in /u
sr/lib/python3/dist-packages (from matplotlib>=2.2->seaborn) (2.2.0)
Requirement already satisfied: pytz>=2017.2 in /usr/lib/python3/dist-packages
(from pandas>=0.23->seaborn) (2018.3)
Requirement already satisfied: six>=1.5 in /usr/lib/python3/dist-packages (fr
om python-dateutil>=2.1->matplotlib>=2.2->seaborn) (1.11.0)
Note: you may need to restart the kernel to use updated packages.
```

In [8]:
```
pip install matplotlib
```

```
Defaulting to user installation because normal site-packages is not writeab
Requirement already satisfied: matplotlib in /home/pict/.local/lib/python3.6/
site-packages (3.3.4)
Requirement already satisfied: cycler>=0.10 in /usr/lib/python3/dist-packages
(from matplotlib) (0.10.0)
Requirement already satisfied: python-dateutil>=2.1 in /home/pict/.local/lib/
python3.6/site-packages (from matplotlib) (2.8.2)
Requirement already satisfied: pillow>=6.2.0 in /home/pict/.local/lib/python
3.6/site-packages (from matplotlib) (8.4.0)
Requirement already satisfied: numpy>=1.15 in /home/pict/.local/lib/python3.
6/site-packages (from matplotlib) (1.19.5)
```

```
Requirement already satisfied: pyparsing!=2.0.4,!=2.1.2,!=2.1.6,>=2.0.3 in /u
sr/lib/python3/dist-packages (from matplotlib) (2.2.0)
Requirement already satisfied: kiwisolver>=1.0.1 in /home/pict/.local/lib/pyt
hon3.6/site-packages (from matplotlib) (1.3.1)
Requirement already satisfied: six>=1.5 in /usr/lib/python3/dist-packages (fr
om python-dateutil>=2.1->matplotlib) (1.11.0)
Note: you may need to restart the kernel to use updated packages.
```

In [9]:

```
import numpy as np
import seaborn as sns
import pandas as pd
import matplotlib.pyplot as plt
```

In [10]:

```
data = pd.read_csv('./iris.csv')
print(data.head())
```

```
   sepal_length  sepal_width  petal_length  petal_width        class
0           5.1          3.5           1.4          0.2  Iris-setosa
1           4.9          3.0           1.4          0.2  Iris-setosa
2           4.7          3.2           1.3          0.2  Iris-setosa
3           4.6          3.1           1.5          0.2  Iris-setosa
4           5.0          3.6           1.4          0.2  Iris-setosa
```

In [32]:

```
data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 150 entries, 0 to 149
Data columns (total 5 columns):
 #   Column        Non-Null Count  Dtype
---  ------        --------------  -----
 0   sepal_length  150 non-null    float64
 1   sepal_width   150 non-null    float64
 2   petal_length  150 non-null    float64
 3   petal_width   150 non-null    float64
 4   class         150 non-null    object
dtypes: float64(4), object(1)
memory usage: 6.0+ KB
```

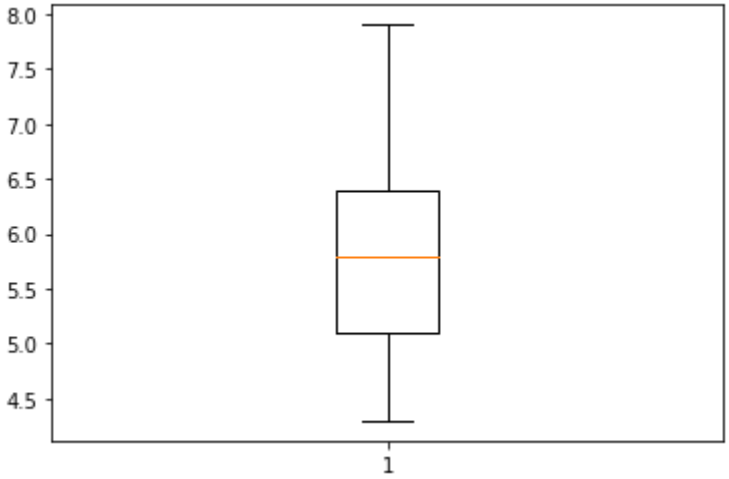
Create a boxplot for each feature in the dataset.

In [17]:

```
plt.boxplot(data['sepal_length'])
```

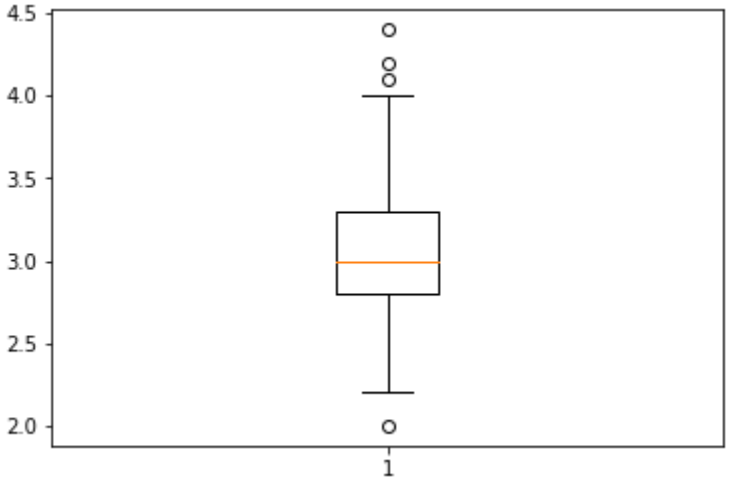
Out[17]:

```
{'whiskers': [<matplotlib.lines.Line2D at 0x7f6d1cb305c0>,
  <matplotlib.lines.Line2D at 0x7f6d1cb30898>],
 'caps': [<matplotlib.lines.Line2D at 0x7f6d1cb30b70>,
  <matplotlib.lines.Line2D at 0x7f6d1cb30e48>],
 'boxes': [<matplotlib.lines.Line2D at 0x7f6d1cb30358>],
 'medians': [<matplotlib.lines.Line2D at 0x7f6d1cb3f160>],
 'fliers': [<matplotlib.lines.Line2D at 0x7f6d1cb3f438>],
 'means': []}
```



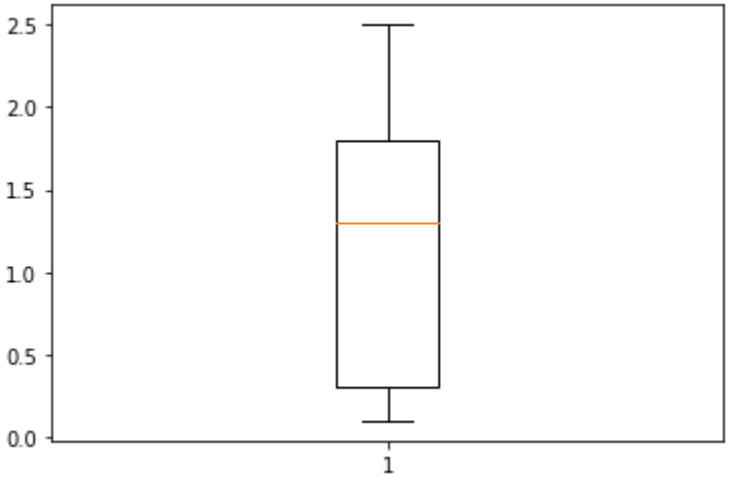
In [18]:
```
plt.boxplot(data['sepal_width'])
```

Out[18]:
```
{'whiskers': [<matplotlib.lines.Line2D at 0x7f6d1ca9d438>,
  <matplotlib.lines.Line2D at 0x7f6d1ca9d710>],
 'caps': [<matplotlib.lines.Line2D at 0x7f6d1ca9d9e8>,
  <matplotlib.lines.Line2D at 0x7f6d1ca9dcc0>],
 'boxes': [<matplotlib.lines.Line2D at 0x7f6d1ca9d1d0>],
 'medians': [<matplotlib.lines.Line2D at 0x7f6d1ca9df98>],
 'fliers': [<matplotlib.lines.Line2D at 0x7f6d1caad2b0>],
 'means': []}
```



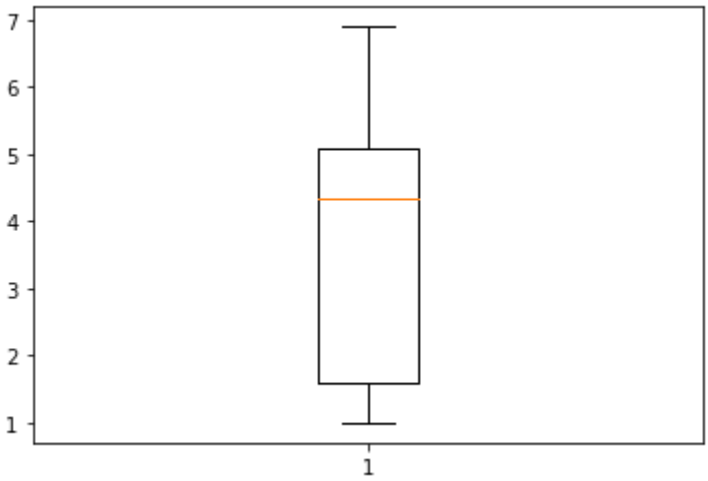
In [19]:
```
plt.boxplot(data['petal_width'])
```

Out[19]:
```
{'whiskers': [<matplotlib.lines.Line2D at 0x7f6d1ca827b8>,
  <matplotlib.lines.Line2D at 0x7f6d1ca82a90>],
 'caps': [<matplotlib.lines.Line2D at 0x7f6d1ca82d68>,
  <matplotlib.lines.Line2D at 0x7f6d1ca90080>],
 'boxes': [<matplotlib.lines.Line2D at 0x7f6d1ca82550>],
 'medians': [<matplotlib.lines.Line2D at 0x7f6d1ca90358>],
 'fliers': [<matplotlib.lines.Line2D at 0x7f6d1ca90630>],
 'means': []}
```



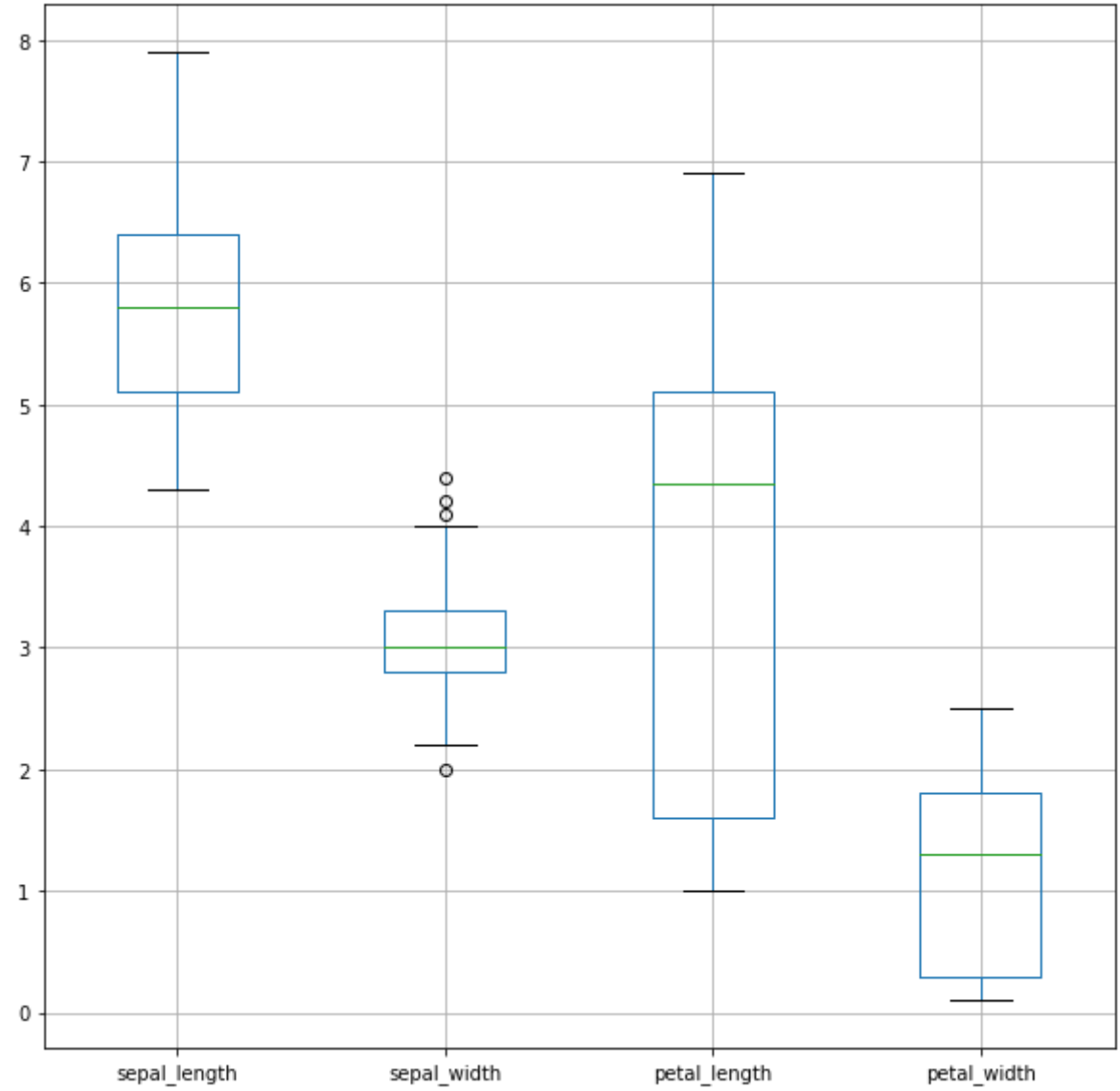
In [20]:
```
plt.boxplot(data['petal_length'])
```

Out[20]:
```
{'whiskers': [<matplotlib.lines.Line2D at 0x7f6d1c9e5b00>,
  <matplotlib.lines.Line2D at 0x7f6d1c9e5dd8>],
 'caps': [<matplotlib.lines.Line2D at 0x7f6d1c9f50f0>,
  <matplotlib.lines.Line2D at 0x7f6d1c9f53c8>],
 'boxes': [<matplotlib.lines.Line2D at 0x7f6d1c9e5898>],
 'medians': [<matplotlib.lines.Line2D at 0x7f6d1c9f56a0>],
 'fliers': [<matplotlib.lines.Line2D at 0x7f6d1c9f5978>],
 'means': []}
```



In [29]:
```
data.boxplot(figsize=[10,10], grid=True)
```

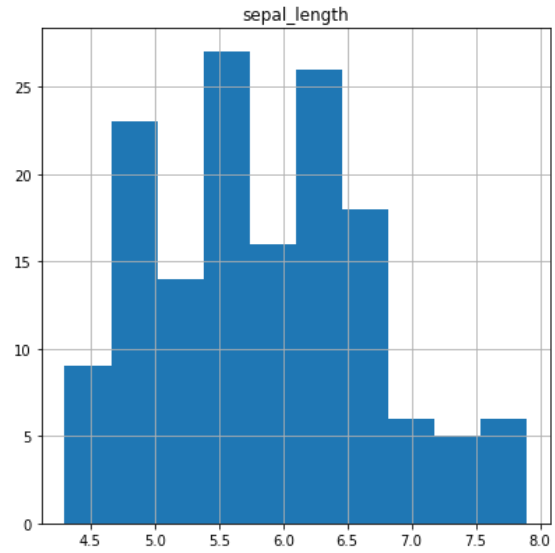
Out[29]:
```
<AxesSubplot:>
```

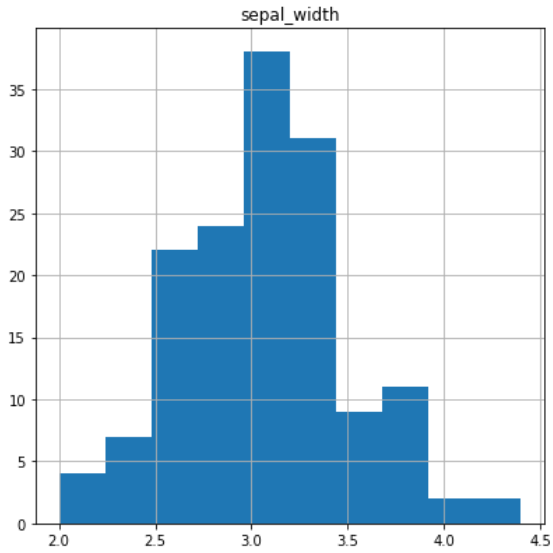


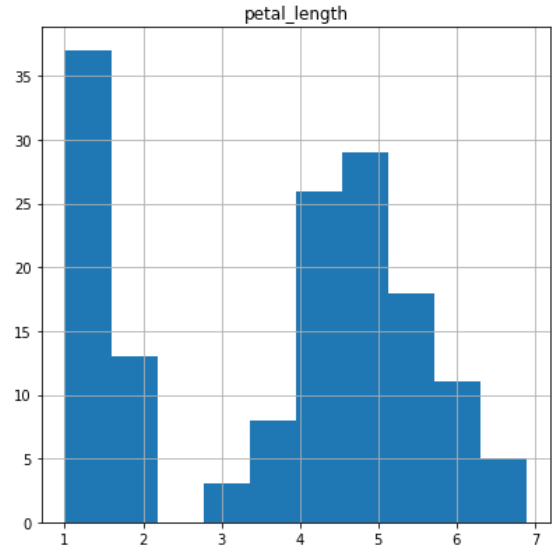
Create a histogram for each feature

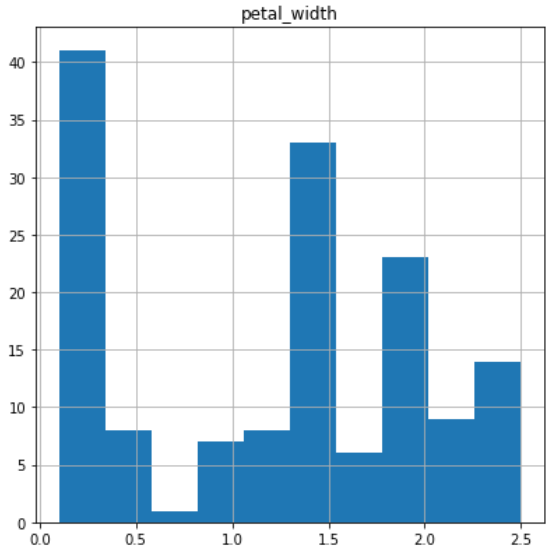
In [31]:
```
data.hist(figsize=[15,15], grid=True)
```

Out[31]:
```
array([[<AxesSubplot:title={'center':'sepal_length'}>,
        <AxesSubplot:title={'center':'sepal_width'}>],
       [<AxesSubplot:title={'center':'petal_length'}>,
        <AxesSubplot:title={'center':'petal_width'}>]], dtype=object)
```


sepal_length
0
5
10
15
20
25
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0


sepal_width
0
5
10
15
20
25
30
35
2.0
2.5
3.0
3.5
4.0
4.5


petal_length
0
5
10
15
20
25
30
35
1
2
3
4
5
6
7


petal_width
0
5
10
15
20
25
30
35
40
0.0
0.5
1.0
1.5
2.0
2.5

In [ ]: