```
In [1]: import pandas as pd
        import matplotlib.pyplot as pt
        import numpy as np
        import requests as r
```

```
In [3]: df=pd.read_csv("iris.data")
        df
```

Out[3]:

	5.1	3.5	1.4	0.2	Iris-setosa
0	4.9	3.0	1.4	0.2	Iris-setosa
1	4.7	3.2	1.3	0.2	Iris-setosa
2	4.6	3.1	1.5	0.2	Iris-setosa
3	5.0	3.6	1.4	0.2	Iris-setosa
4	5.4	3.9	1.7	0.4	Iris-setosa
...	...	...	...	...	...
144	6.7	3.0	5.2	2.3	Iris-virginica
145	6.3	2.5	5.0	1.9	Iris-virginica
146	6.5	3.0	5.2	2.0	Iris-virginica
147	6.2	3.4	5.4	2.3	Iris-virginica
148	5.9	3.0	5.1	1.8	Iris-virginica

149 rows × 5 columns

```
In [4]: df.columns=["sepallengthcm","sepalwidthcm","petallengthcm","petalwidthcm","spe
```

```
In [5]: df
```

Out[5]:

	sepallengthcm	sepalwidthcm	petallengthcm	petalwidthcm	species
0	4.9	3.0	1.4	0.2	Iris-setosa
1	4.7	3.2	1.3	0.2	Iris-setosa
2	4.6	3.1	1.5	0.2	Iris-setosa
3	5.0	3.6	1.4	0.2	Iris-setosa
4	5.4	3.9	1.7	0.4	Iris-setosa
...	...	...	...	...	...
144	6.7	3.0	5.2	2.3	Iris-virginica
145	6.3	2.5	5.0	1.9	Iris-virginica
146	6.5	3.0	5.2	2.0	Iris-virginica
147	6.2	3.4	5.4	2.3	Iris-virginica
148	5.9	3.0	5.1	1.8	Iris-virginica

149 rows × 5 columns

```
In [6]: df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 149 entries, 0 to 148
Data columns (total 5 columns):
 #   Column         Non-Null Count  Dtype
---  ------         --------------  -----
 0   sepallengthcm  149 non-null    float64
 1   sepalwidthcm   149 non-null    float64
 2   petallengthcm  149 non-null    float64
 3   petalwidthcm   149 non-null    float64
 4   species        149 non-null    object
dtypes: float64(4), object(1)
memory usage: 5.9+ KB
```

```
In [7]: df.isnull().sum()
```

Out[7]:
```
sepallengthcm    0
sepalwidthcm     0
petallengthcm    0
petalwidthcm     0
species          0
dtype: int64
```

In [8]: `df.describe()`

Out[8]:

	sepallengthcm	sepalwidthcm	petallengthcm	petalwidthcm
count	149.000000	149.000000	149.000000	149.000000
mean	5.848322	3.051007	3.774497	1.205369
std	0.828594	0.433499	1.759651	0.761292
min	4.300000	2.000000	1.000000	0.100000
25%	5.100000	2.800000	1.600000	0.300000
50%	5.800000	3.000000	4.400000	1.300000
75%	6.400000	3.300000	5.100000	1.800000
max	7.900000	4.400000	6.900000	2.500000

In [9]: `df.drop_duplicates()`

Out[9]:
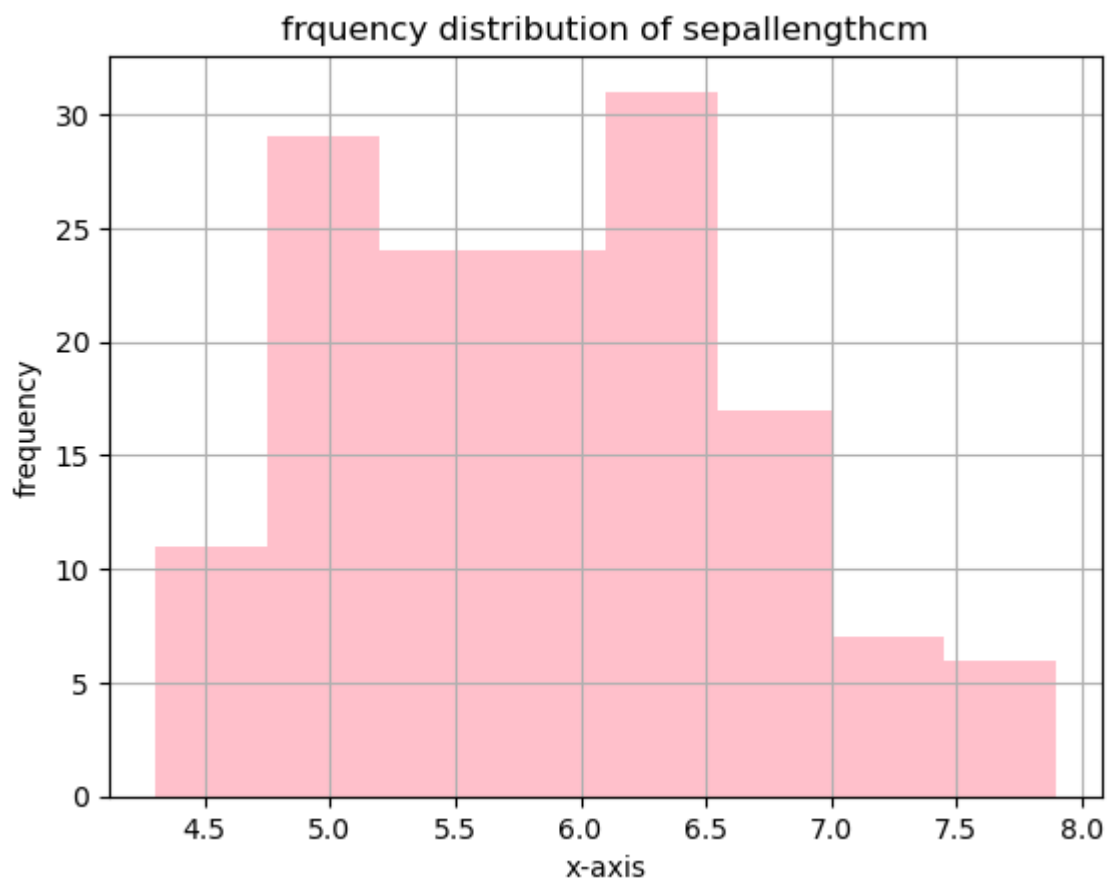
	sepallengthcm	sepalwidthcm	petallengthcm	petalwidthcm	species
0	4.9	3.0	1.4	0.2	Iris-setosa
1	4.7	3.2	1.3	0.2	Iris-setosa
2	4.6	3.1	1.5	0.2	Iris-setosa
3	5.0	3.6	1.4	0.2	Iris-setosa
4	5.4	3.9	1.7	0.4	Iris-setosa
...	...	...	...	...	...
144	6.7	3.0	5.2	2.3	Iris-virginica
145	6.3	2.5	5.0	1.9	Iris-virginica
146	6.5	3.0	5.2	2.0	Iris-virginica
147	6.2	3.4	5.4	2.3	Iris-virginica
148	5.9	3.0	5.1	1.8	Iris-virginica

146 rows × 5 columns

```
In [10]:  pt.title("frquency distribution of sepallengthcm")
          pt.xlabel("x-axis")
          pt.ylabel("frequency")
          df["sepallengthcm"].hist(color="pink",bins=8)
```

Out[10]: <AxesSubplot:title={'center':'frquency distribution of sepallengthcm'}, xlabe
          l='x-axis', ylabel='frequency'>

```
In [11]: pt.title("frquency distribution of sepallengthcm")
         pt.xlabel("x-axis")
         pt.ylabel("frequency")
         df["sepalwidththcm"].hist(color="pink",bins=8)
```

```
---------------------------------------------------------------------------
KeyError                                  Traceback (most recent call last)
~\anaconda3\lib\site-packages\pandas\core\indexes\base.py in get_loc(self, ke
y, method, tolerance)
   3628            try:
-> 3629                return self._engine.get_loc(casted_key)
   3630            except KeyError as err:

~\anaconda3\lib\site-packages\pandas\_libs\index.pyx in pandas._libs.index.In
dexEngine.get_loc()

~\anaconda3\lib\site-packages\pandas\_libs\index.pyx in pandas._libs.index.In
dexEngine.get_loc()

pandas\_libs\hashtable_class_helper.pxi in pandas._libs.hashtable.PyObjectHas
hTable.get_item()

pandas\_libs\hashtable_class_helper.pxi in pandas._libs.hashtable.PyObjectHas
hTable.get_item()

KeyError: 'sepalwidththcm'

The above exception was the direct cause of the following exception:

KeyError                                  Traceback (most recent call last)
~\AppData\Local\Temp\ipykernel_6568\116439172.py in <module>
     2 pt.xlabel("x-axis")
     3 pt.ylabel("frequency")
----> 4 df["sepalwidththcm"].hist(color="pink",bins=8)

~\anaconda3\lib\site-packages\pandas\core\frame.py in __getitem__(self, key)
   3503            if self.columns.nlevels > 1:
   3504                return self._getitem_multilevel(key)
-> 3505            indexer = self.columns.get_loc(key)
   3506            if is_integer(indexer):
   3507                indexer = [indexer]

~\anaconda3\lib\site-packages\pandas\core\indexes\base.py in get_loc(self, ke
y, method, tolerance)
   3629                return self._engine.get_loc(casted_key)
   3630            except KeyError as err:
-> 3631                raise KeyError(key) from err
   3632            except TypeError:
   3633                # If we have a listlike key, _check_indexing_error wi
ll raise

KeyError: 'sepalwidththcm'
```
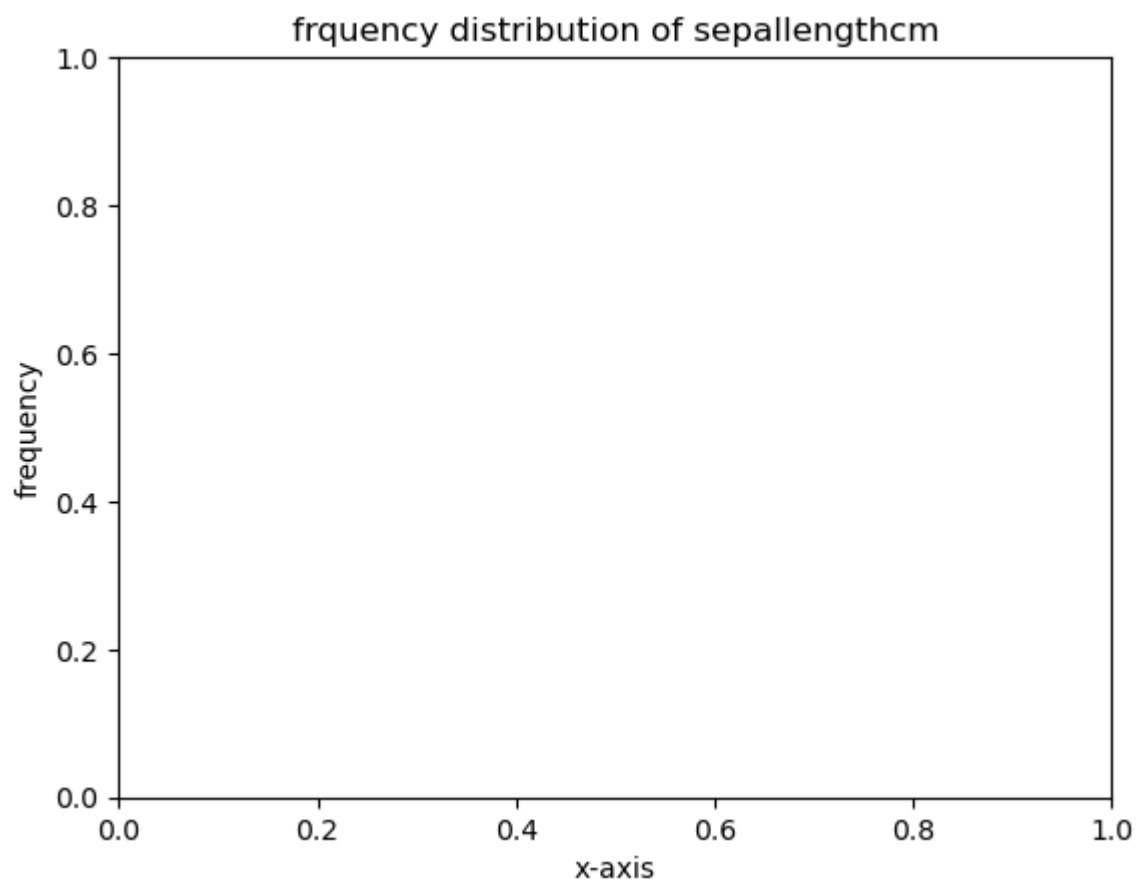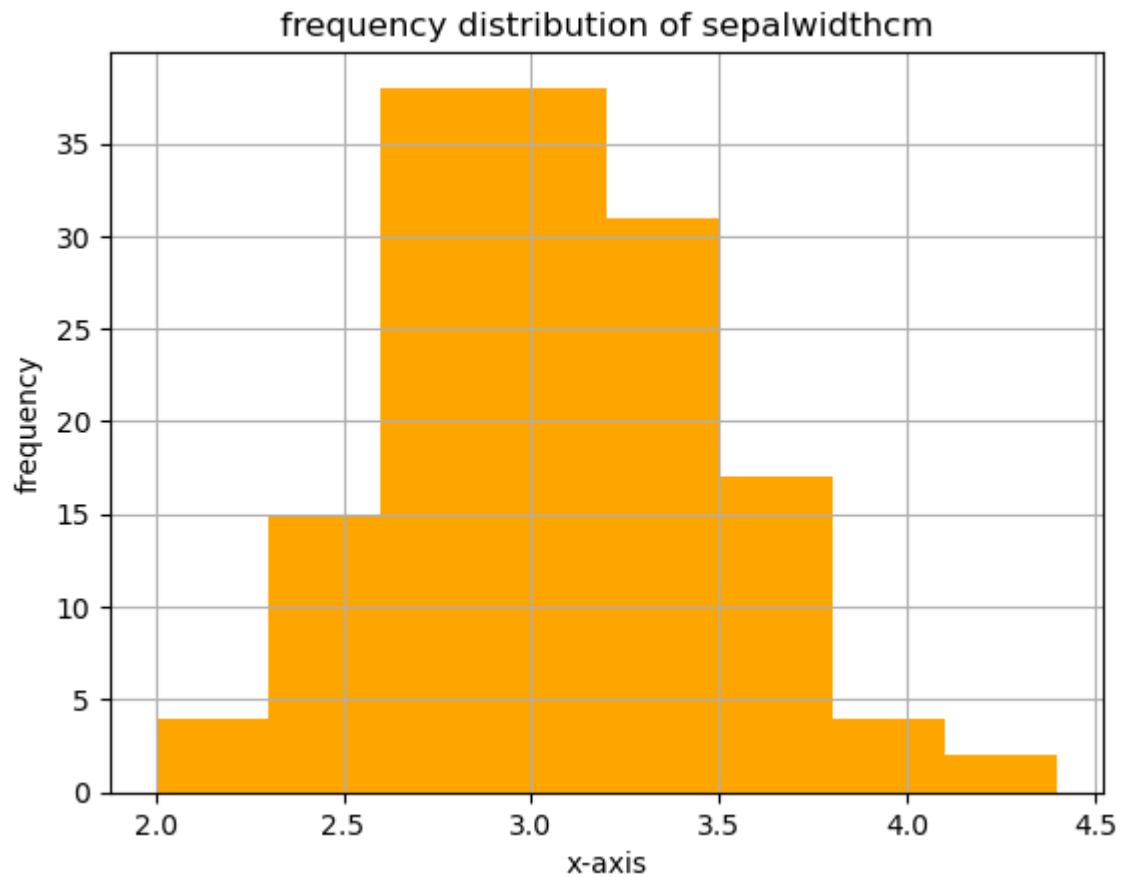
frquency distribution of sepallengthcm
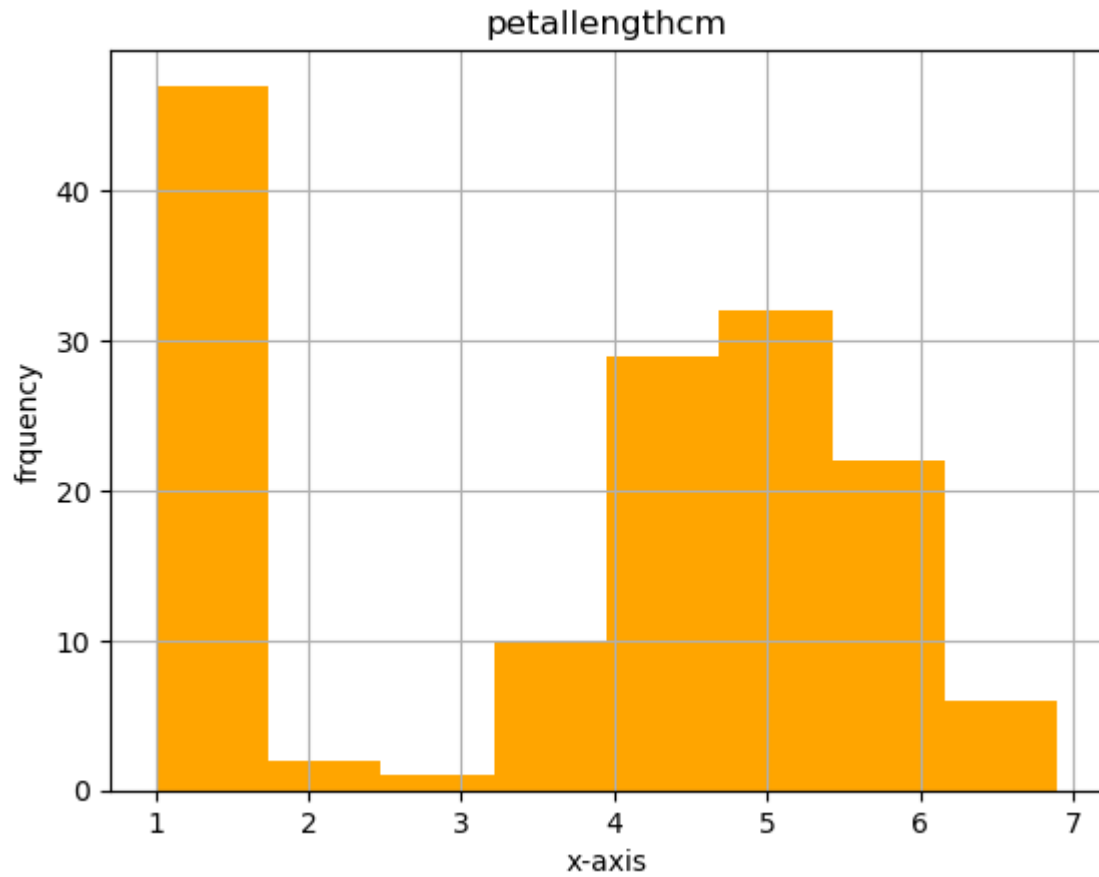
x-axis

frequency

```
In [12]: pt.title("frequency distribution of sepalwidthcm")
         pt.xlabel("x-axis")
         pt.ylabel("frequency")
         df["sepalwidthcm"].hist(color="orange",bins=8)
```

Out[12]: <AxesSubplot:title={'center':'frequency distribution of sepalwidthcm'}, xlabe
   l='x-axis', ylabel='frequency'>

```
In [14]:  pt.title("petallengthcm")
          pt.xlabel("x-axis")
          pt.ylabel("frquency")
          df["petallengthcm"].hist(color="orange",bins=8)
```

Out[14]: <AxesSubplot:title={'center':'petallengthcm'}, xlabel='x-axis', ylabel='frque
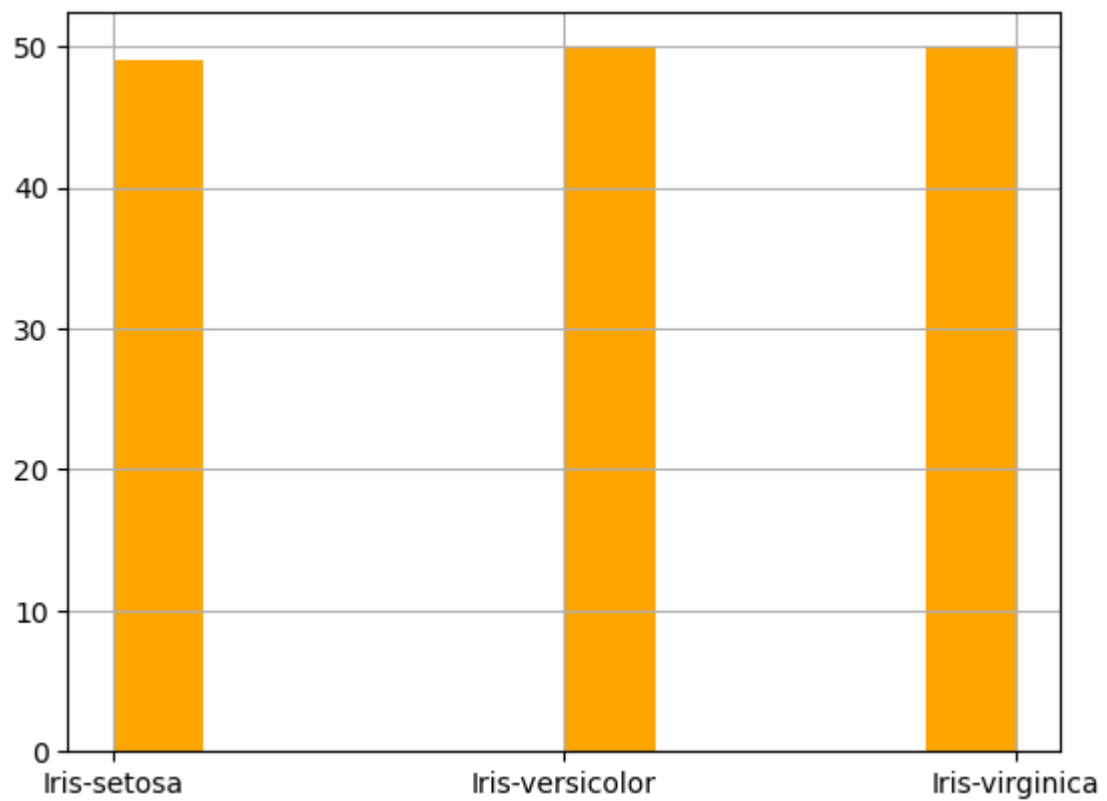   ncy'>

```
In [15]: pt.title("petalwidthhcm")
         pt.xlabel("x-axis")
         pt.ylabel("frquency")
         df["petalwidthcm"].hist(color="orange",bins=8)
```

Out[15]: <AxesSubplot:title={'center':'petalwidthhcm'}, xlabel='x-axis', ylabel='frque
ncy'>
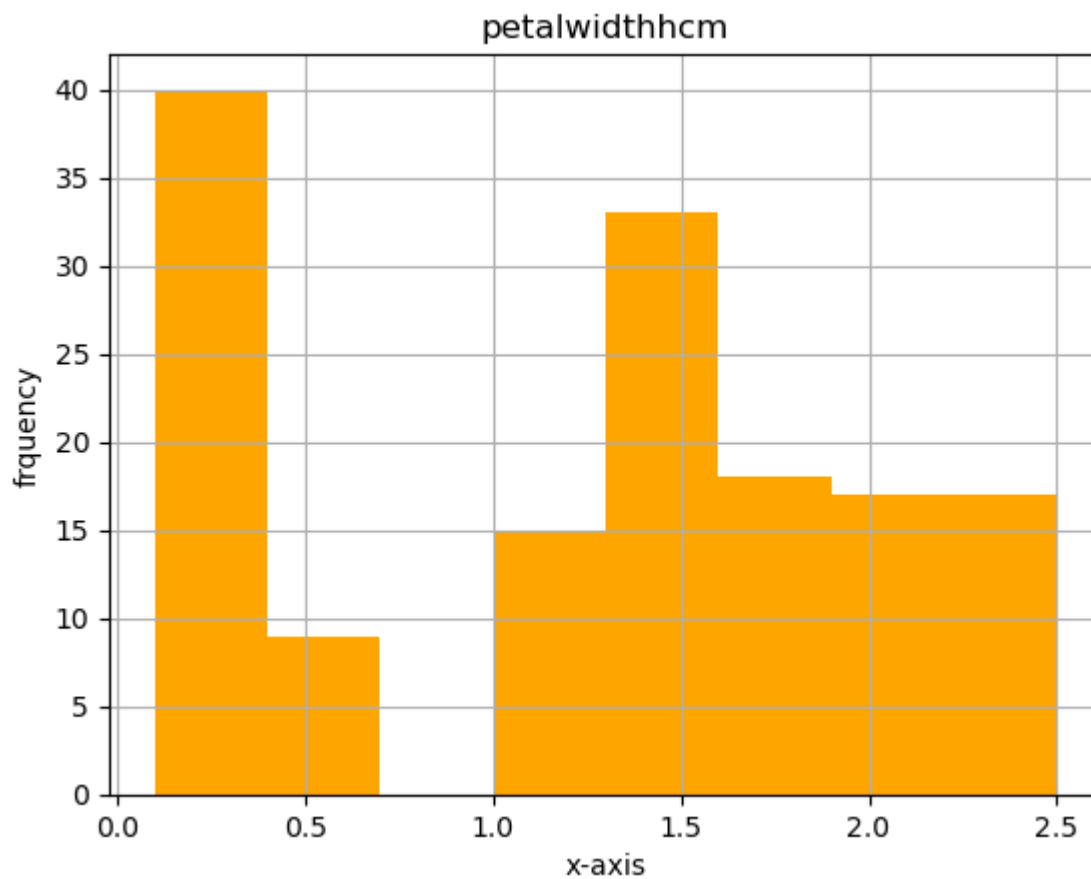
```
In [18]: df["species"].hist(color="orange")
```
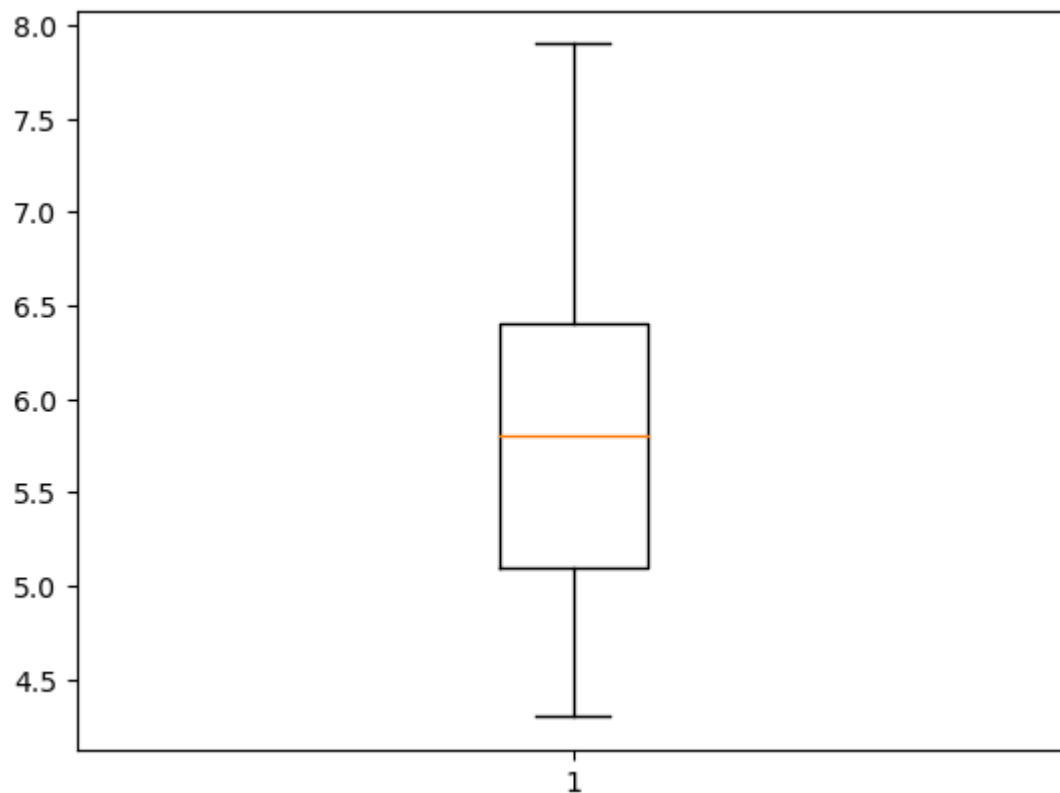
Out[18]: <AxesSubplot:>
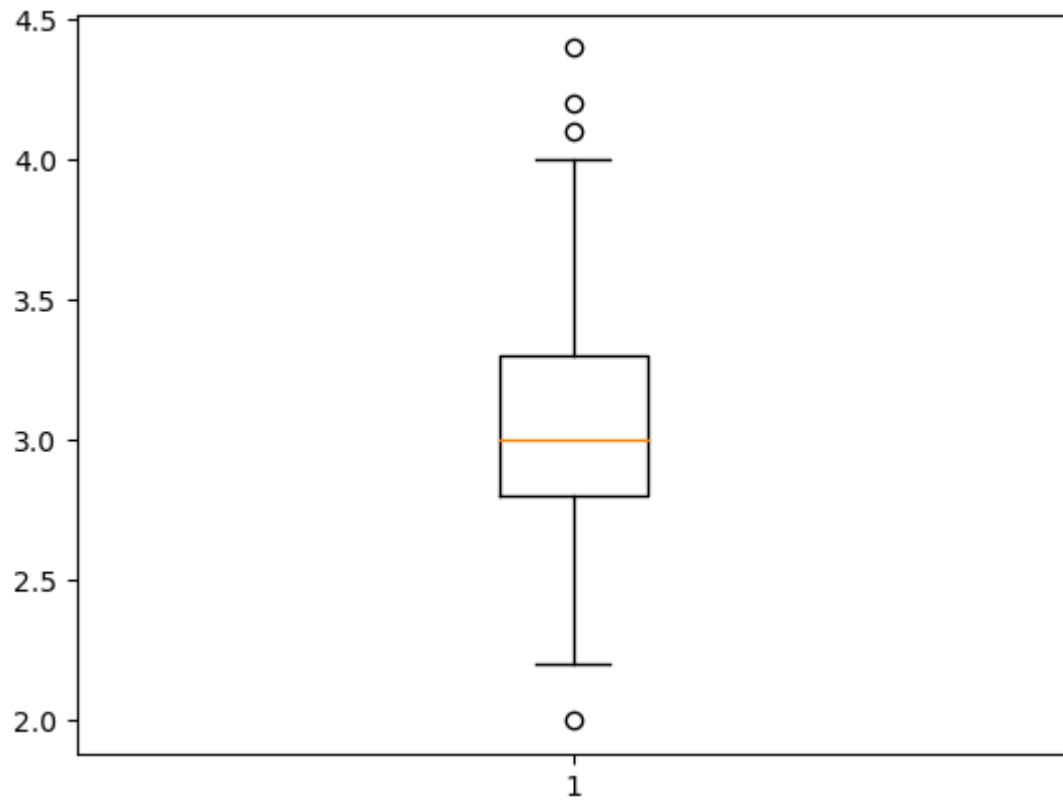
```
In [19]: pt.boxplot(df["sepallengthcm"])
```

Out[19]: {'whiskers': [<matplotlib.lines.Line2D at 0x1b256f88520>,
          <matplotlib.lines.Line2D at 0x1b256f887f0>],
         'caps': [<matplotlib.lines.Line2D at 0x1b256f88ac0>,
          <matplotlib.lines.Line2D at 0x1b256f88d90>],
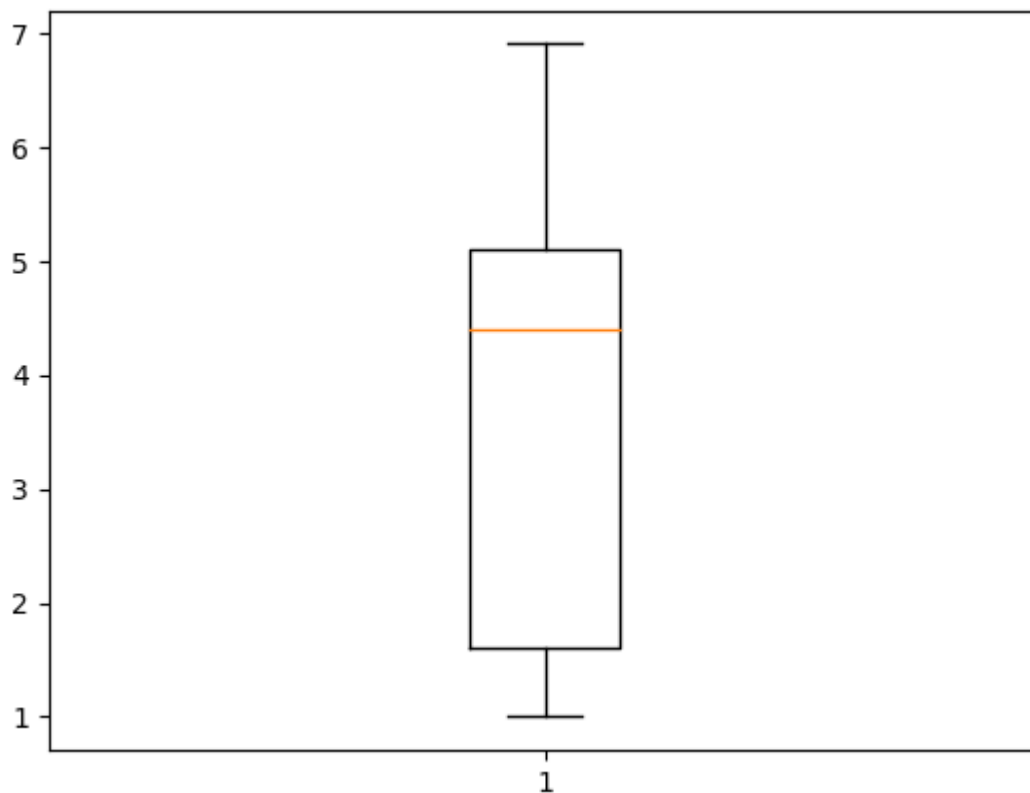   'boxes': [<matplotlib.lines.Line2D at 0x1b256f88220>],
         'medians': [<matplotlib.lines.Line2D at 0x1b256f980a0>],
         'fliers': [<matplotlib.lines.Line2D at 0x1b256f98370>],
         'means': []}

```
In [20]: pt.boxplot(df["sepalwidthcm"])
```

Out[20]: {'whiskers': [<matplotlib.lines.Line2D at 0x1b25713b460>,
          <matplotlib.lines.Line2D at 0x1b25713b730>],
          'caps': [<matplotlib.lines.Line2D at 0x1b25713ba30>,
          <matplotlib.lines.Line2D at 0x1b25713bd00>],
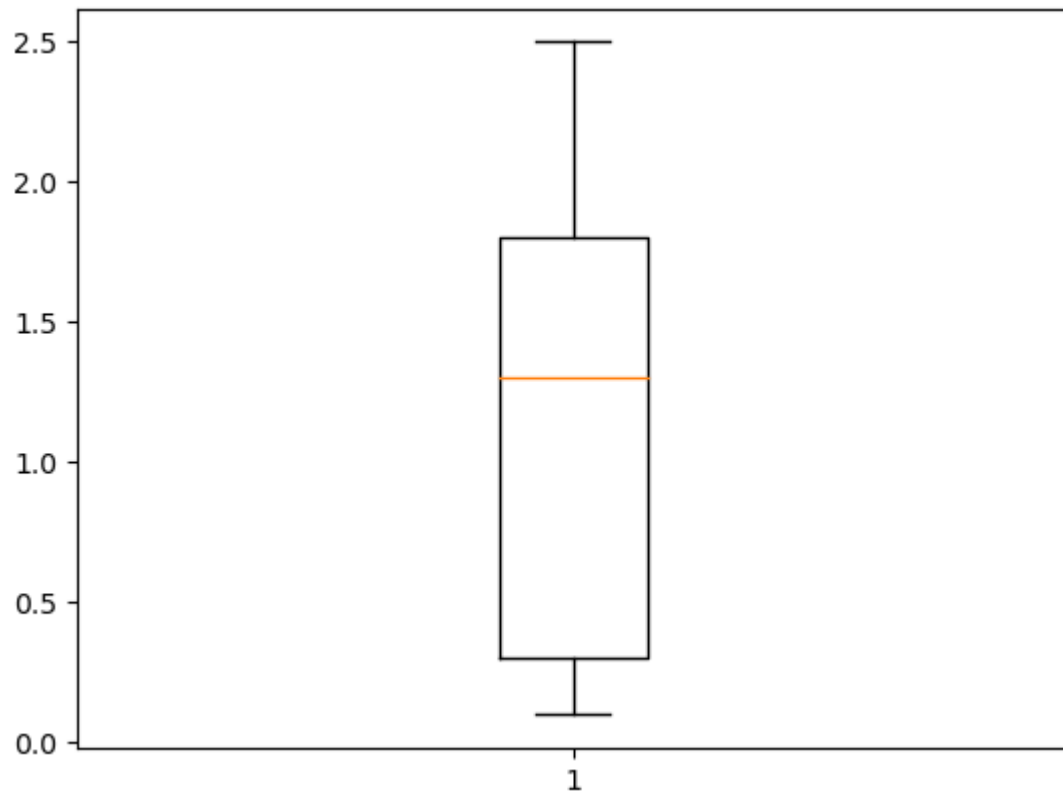   'boxes': [<matplotlib.lines.Line2D at 0x1b25713b190>],
          'medians': [<matplotlib.lines.Line2D at 0x1b25713bfd0>],
          'fliers': [<matplotlib.lines.Line2D at 0x1b256fc62e0>],
          'means': []}

```
In [21]: pt.boxplot(df["petallengthcm"])
```

Out[21]: {'whiskers': [<matplotlib.lines.Line2D at 0x1b25701c370>,
          <matplotlib.lines.Line2D at 0x1b25701c640>],
         'caps': [<matplotlib.lines.Line2D at 0x1b25701c910>,
          <matplotlib.lines.Line2D at 0x1b25701cbe0>],
         'boxes': [<matplotlib.lines.Line2D at 0x1b25701c0a0>],
         'medians': [<matplotlib.lines.Line2D at 0x1b25701ceb0>],
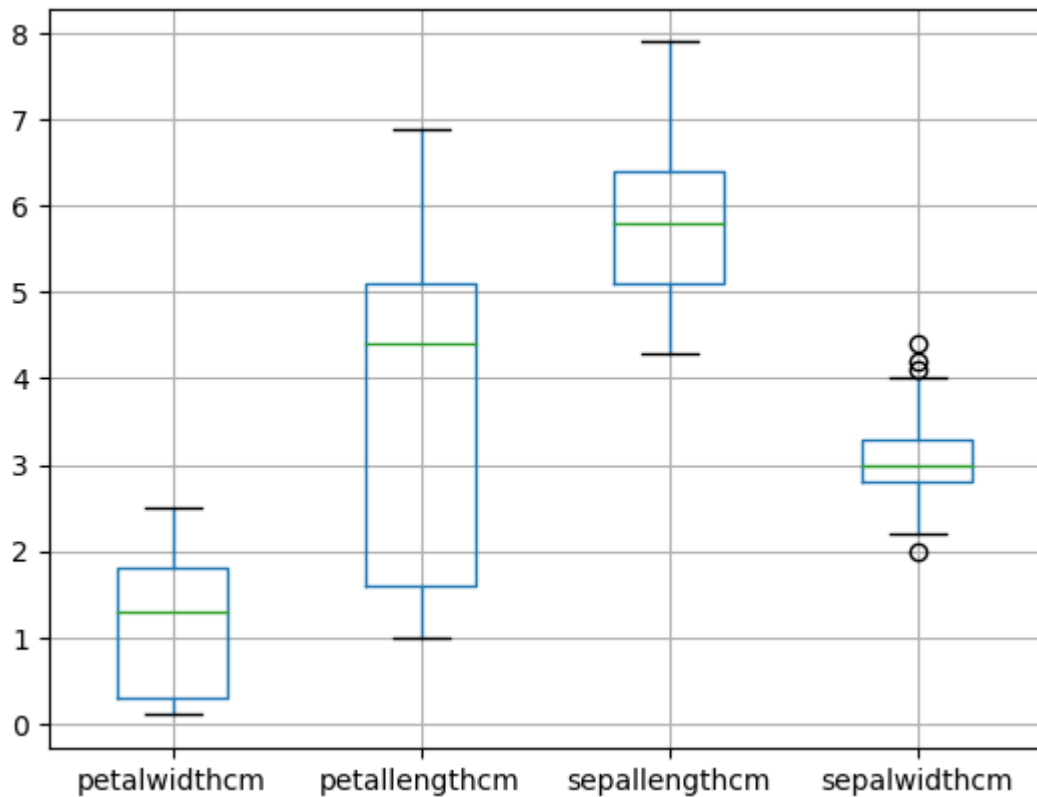   'fliers': [<matplotlib.lines.Line2D at 0x1b2570291c0>],
         'means': []}

In [22]: `pt.boxplot(df["petalwidthcm"])`

Out[22]: {'whiskers': [<matplotlib.lines.Line2D at 0x1b25707d910>,
         <matplotlib.lines.Line2D at 0x1b25707dbe0>],
        'caps': [<matplotlib.lines.Line2D at 0x1b25707deb0>,
         <matplotlib.lines.Line2D at 0x1b25708b1c0>],
        'boxes': [<matplotlib.lines.Line2D at 0x1b25707d610>],
        'medians': [<matplotlib.lines.Line2D at 0x1b25708b490>],
        'fliers': [<matplotlib.lines.Line2D at 0x1b25708b760>],
        'means': []}

In [23]: `df[{"sepallengthcm","sepalwidthcm","petallengthcm","petalwidthcm"}].boxplot()`

C:\Users\student\AppData\Local\Temp\ipykernel_6568\1660926178.py:1: FutureWar
ning: Passing a set as an indexer is deprecated and will raise in a future ve
rsion. Use a list instead.
  df[{"sepallengthcm","sepalwidthcm","petallengthcm","petalwidthcm"}].boxplot
()

Out[23]: <AxesSubplot:>

In [ ]: