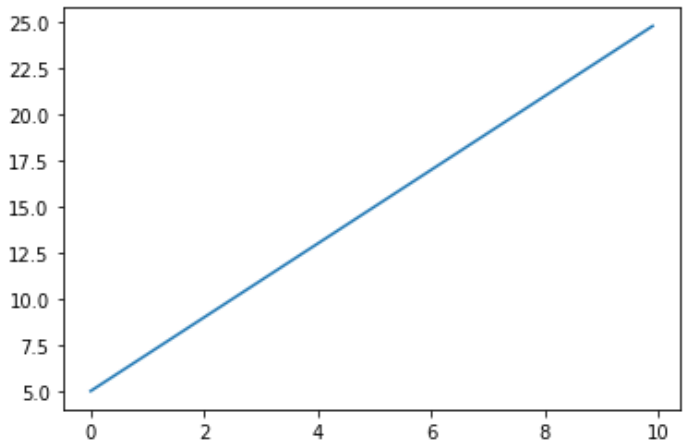
In [1]:

```
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline

x=np.arange(0,10,0.1)
y=2*x+5

plt.plot(x,y)
plt.show()
```

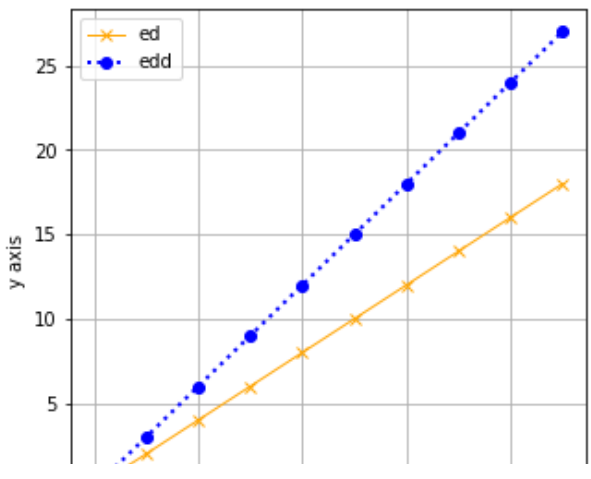


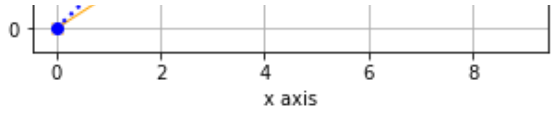
alpha= opacity, linestyle = - ,:, marker= o,x, linewidth, legend is used to describe line and could be in the list.

figure function is also useful

In [49]:

```
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline

x=np.arange(0,10,1)
y=2*x
y1=3*x
# cahnging the figure
fig=plt.figure(figsize=(5,5))
plt.plot(x,y,color="orange",linewidth=1, linestyle="-", marker="x")
plt.plot(x,y1,color="blue",linewidth=2, linestyle=":", marker="o")
plt.xlabel("x axis")
plt.ylabel("y axis")
plt.legend(["ed", "edd"], loc="best")
plt.grid(True)
plt.show()
```

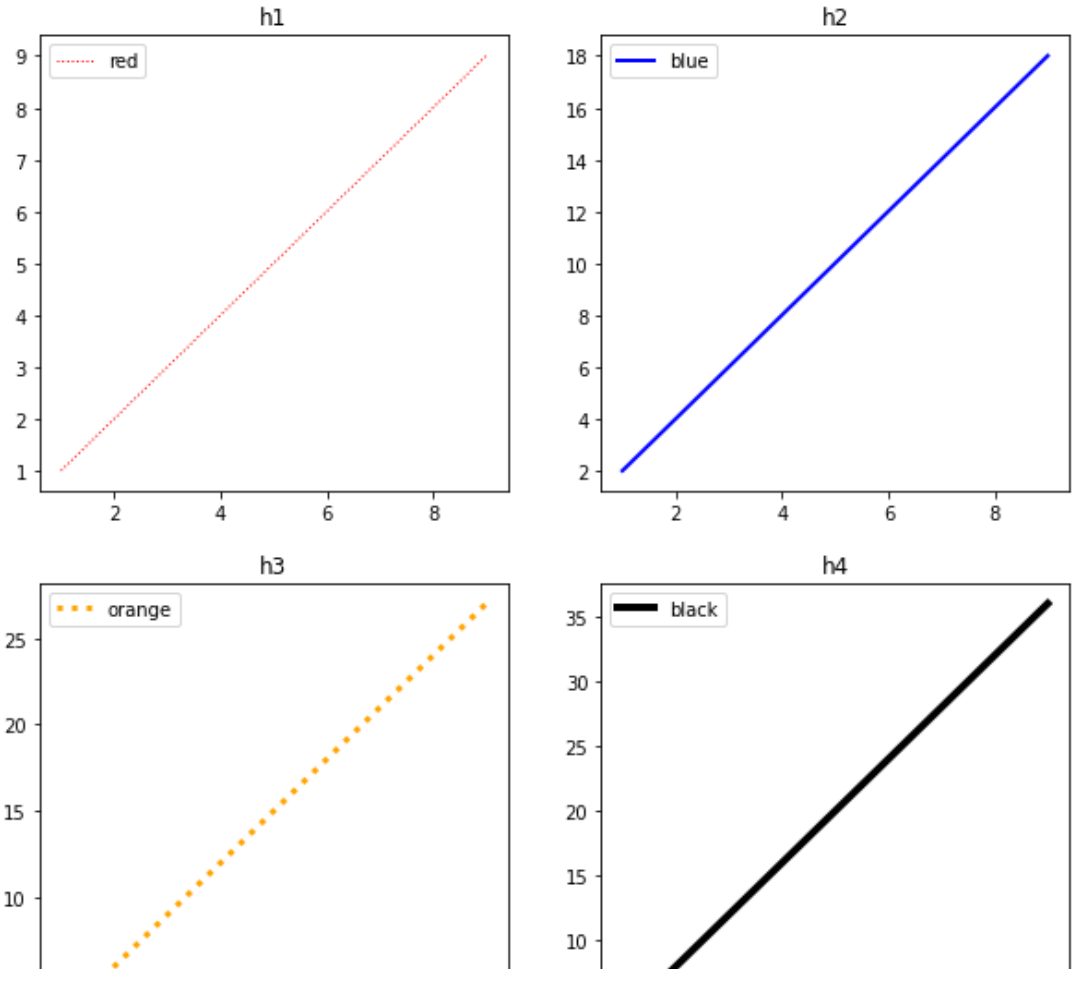


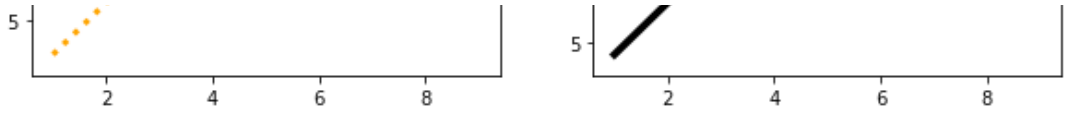


How to do subplotting plt.subplot(no of row, no of column, no)

In [69]:

```
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline

x=np.arange(1,10,1)
y1=1*x
y2=2*x
y3=3*x
y4=4*x
fig= plt.figure(figsize=(10,10))

plt.subplot(2,2,1)
plt.plot(x,y1,color="red", linestyle=":" ,linewidth= 1)
plt.title("h1")
plt.legend(["red"])
plt.subplot(2,2,2)
plt.plot(x,y2,color="blue", linewidth= 2)
plt.title("h2")
plt.legend(["blue"])

plt.subplot(2,2,3)
plt.plot(x,y3,color="orange", linestyle=":", linewidth= 3)
plt.title("h3")
plt.legend(["orange"])

plt.subplot(2,2,4)
plt.plot(x,y4,color="black", linewidth= 4)
plt.title("h4")
plt.legend(["black"])
plt.show()
```

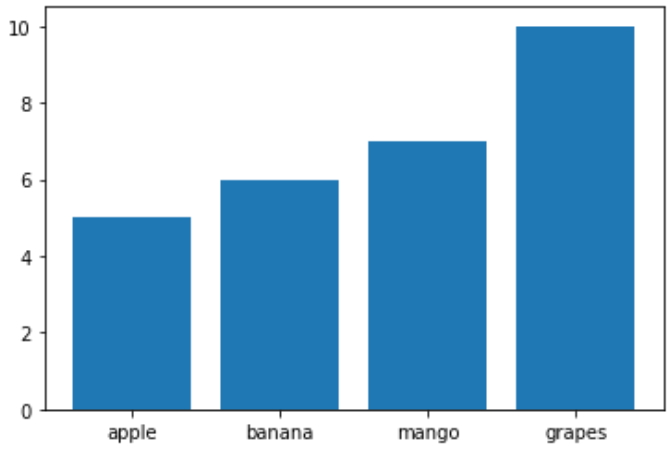




how to create bar chart plt.bar = verical bar plt.barh = horizontal bar

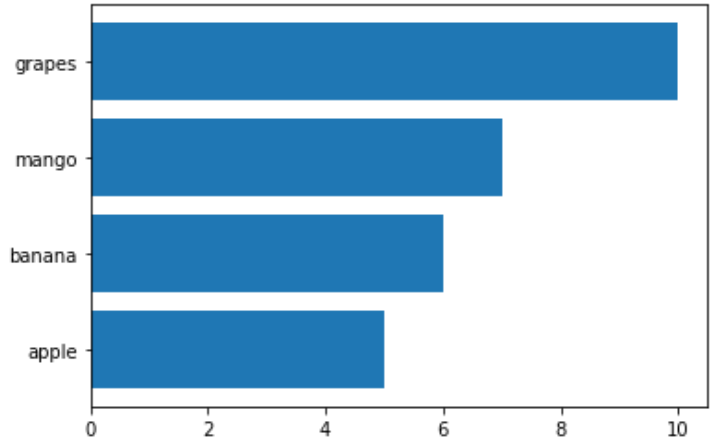
In [74]:

```
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline


data={"apple":5,"banana":6,"mango":7,"grapes":10}
name=list(data.keys())
value=list(data.values())


plt.bar(name,value)
plt.show()
```



In [75]:

```
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline


data={"apple":5,"banana":6,"mango":7,"grapes":10}
name=list(data.keys())
value=list(data.values())


plt.barh(name,value)
plt.show()
```

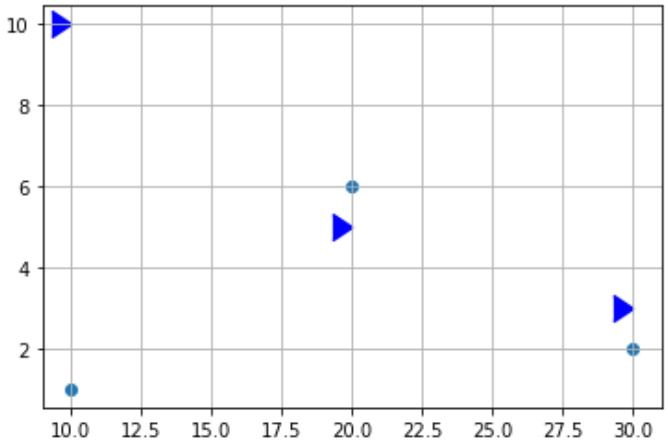


how to make scatter plot

Edgeclors and size; we denote as "s", are also used to customized plt.savefig is used to save graph as an image.

In [115]:

```
import numpy as np
import matplotlib.pyplot as plt
import random
%matplotlib inline


x=[10,20,30]
y1=[10,5,3]
y2=[1,6,2]

plt.scatter(x,y1, color="blue", marker=5, s= 200 ,alpha=1,)
plt.scatter(x,y2)
plt.grid(True)
plt.savefig("scat.png")
plt.show()
```

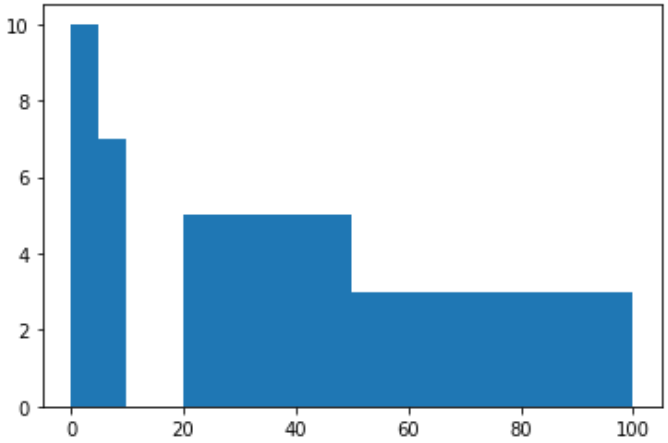


In [ ]:

```
How to make Histograms
```

In [121]:

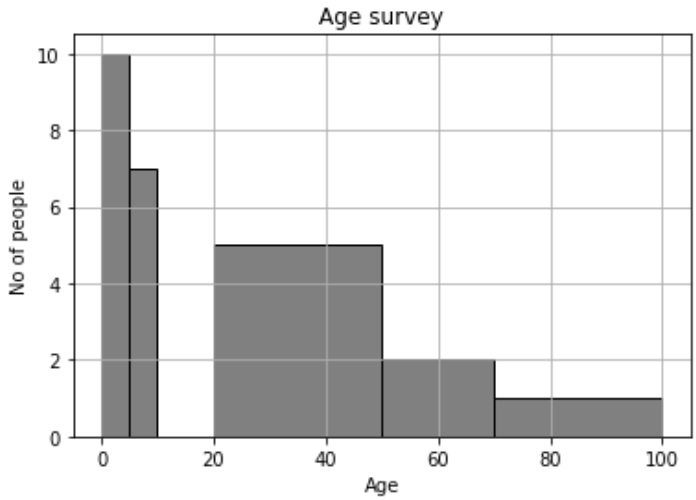
```
import numpy as np
import matplotlib.pyplot as plt
import random
%matplotlib inline


x=[1,3,5,2,5,3,6,30,6,7,6,4,32,3,6,2,4,4,56,45,34,65,45,3,100]
plt.hist(x,bins=[0,5,10,20,50,100])
plt.show()
```



In [128]:

```
import numpy as np
```

```
import matplotlib.pyplot as plt
import random
%matplotlib inline


x=[1,3,5,2,5,3,6,30,6,7,6,4,32,3,6,2,4,4,56,45,34,65,45,3,100]
plt.hist(x,bins=[0,5,10,20,50,70,100], edgecolor="black", color="gray")
plt.xlabel("Age")
plt.ylabel("No of people")
plt.title("Age survey")
plt.savefig("histdemo.png")
plt.grid(True)
plt.show()
```

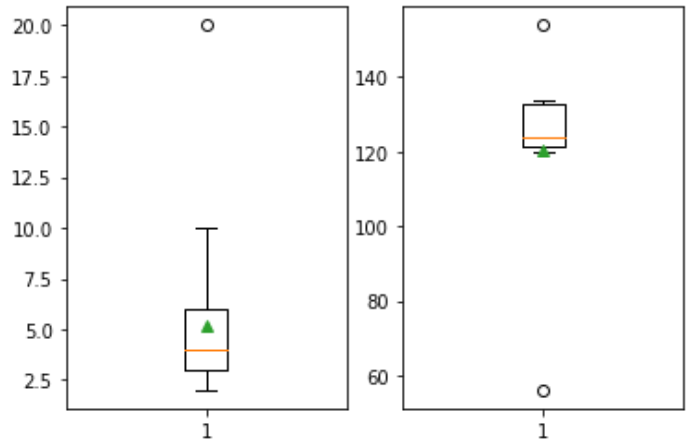


In [ ]:

```
how to use box plot?
```

In [133]:

```
import numpy as np
import matplotlib.pyplot as plt
import random
%matplotlib inline
age=[10,2,4,3,4,5,6,3,6,2,20,6,4,9,2,4,5,6,4,3,5,6,3,5,3]
hight=[120,132,134,123,154,56,124]

plt.subplot(121)
plt.boxplot(age, showmeans=True)

plt.subplot(122)
plt.boxplot(hight, showmeans=True)
plt.show()
```

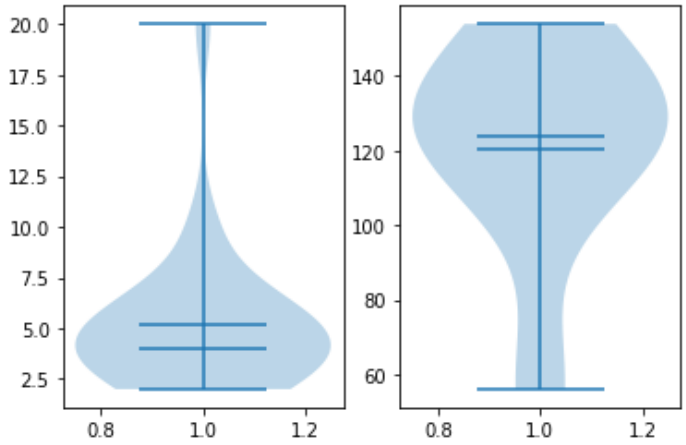


In [ ]:

```
how to use violin plot?
probability distribution function
```

In [136]:

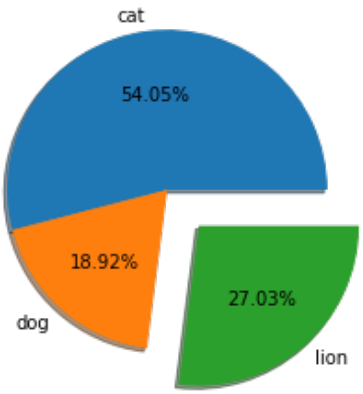
```
import numpy as np
import matplotlib.pyplot as plt
import random
%matplotlib inline
age=[10,2,4,3,4,5,6,3,6,2,20,6,4,9,2,4,5,6,4,3,5,6,3,5,3]
hight=[120,132,134,123,154,56,124]

plt.subplot(121)
plt.violinplot(age, showmeans=True, showmedians=True)

plt.subplot(122)
plt.violinplot(hight, showmeans=True, showmedians=True)
plt.show()
```



how to use pie chart? explode= cut the sclice shadow is also useful autoptc = helps you to watch decimal points startangle= angle degree labels = shows the lebel

In [152]:

```
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline


name=["cat","dog","lion"]
data=[20,7,10]

plt.pie(data, labels=name, shadow=True, explode=(0,0,0.3), autopct="%1.2f%%")
plt.show()
```

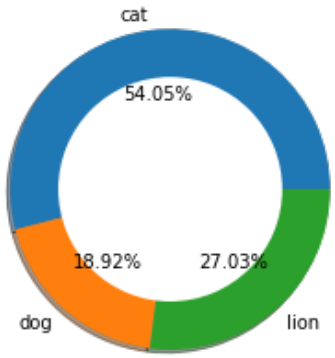


how to use dougnut chart two pie charts combined together

In [170]:

```
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline
```

```
name=["cat","dog","lion"]
data=[20,7,10]
plt.pie(data, labels=name, shadow=True, autopct="%1.2f%%")
plt.pie([1],radius=0.7,colors="w")
plt.show()
```



how to use area chart

In [173]:

```
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline

x=np.arange(0,10,0.1)
y=2*x+5
plt.stackplot(x,y, color="gray", alpha=0.3)
plt.plot(x,y)
plt.show()
```