In [2]:

```
# 20142776 JinsolHa
# https://github.com/JinsolHa/assignment01

import numpy as np
import matplotlib.pyplot as plt


num      = 1001
std      = 5


# x  : x-coordinate data
# y1 : (noisy) y-coordinate data
# y2 : (clean) y-coordinate data
```

```
  File "<ipython-input-2-0985353da548>", line 11
    def fun(x):
    ^
IndentationError: unexpected indent
```
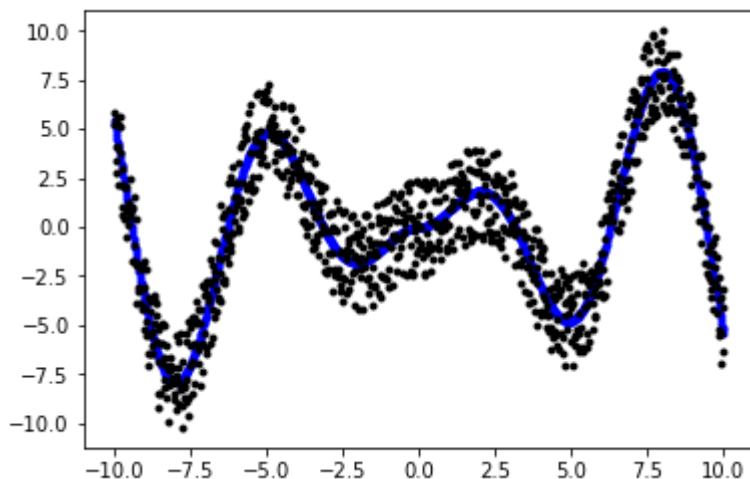
In [3]:

```
def fun(x):

    # f = np.sin(x) * (1 / (1 + np.exp(-x)))
    f = np.abs(x) * np.sin(x)
    return f
```

In [4]:
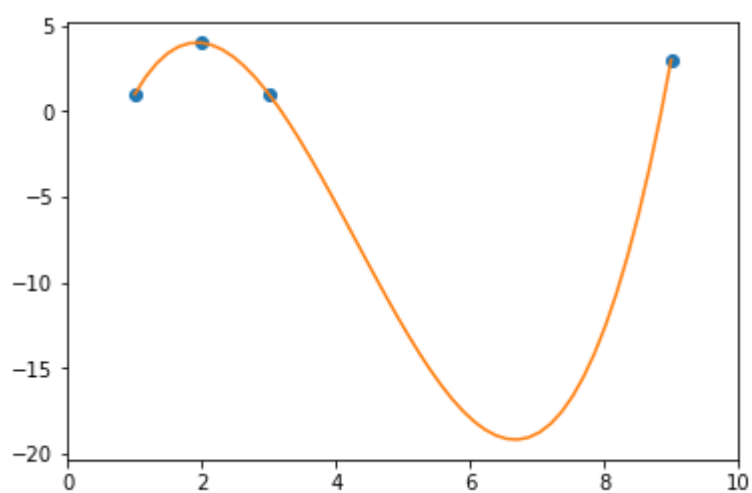
```
n        = np.random.rand(num)
nn       = n - np.mean(n)
x        = np.linspace(-10,10,num)
y1       = fun(x)
y2       = y1 + nn * std

plt.plot(x, y1, 'b.', x, y2, 'k.')
plt.show()
```

In [5]:

```python
points = np.array([(1, 1), (2, 4), (3, 1), (9, 3)])
# Plot the noisy data (x, y1)
#Plot the clean data (x, y2)

x = points[:,0]
y = points[:,1]

# calculate polynomial CURVE
z = np.polyfit(x, y, 3)
f = np.poly1d(z)

# calculate new x's and y's
x_new = np.linspace(x[0], x[-1], 50)
y_new = f(x_new)

plt.plot(x,y,'o', x_new, y_new)
plt.xlim([x[0]-1, x[-1] + 1 ])
plt.show()
```


In [ ]: