assignment06

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github : https://github.com/ppooiiuuyh/datamining_assignments/tree/master/assignment06

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import modules

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```
In [1]: import numpy as np
        import matplotlib.pyplot as plt
```

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define variables and maks

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```
In [2]: num     = 201
        std     = 20
        a       = 2
        b       = 10

        n       = np.random.rand(num)
        nn      = n - np.mean(n)
        x       = np.linspace(-100,100,num)

        y1      = a * x + nn * std + b

        #cal a and b
        a_ =0
        b_ =0
```

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cal optimal variables

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```
In [3]: minimum = 999999999
        for i in np.arange(-10,10,0.1):
```

```
        temp = np.sqrt(np.sum(np.square(y1 - i*x)))
        if temp < minimum :
            minimum = temp
            a_ = i

    minimum = 999999
    for i in np.arange(-10,10,0.1):
        temp = np.sqrt(np.sum(np.square(y1 - (a_*x+i))))
        if temp < minimum :
            minimum = temp
            b_ = i

    y2      = a_ * x + b_
```

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plot

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In [4]:
```
plt.plot(x, y1, 'b.', x, y2, 'k--')
plt.show()
```