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1.Use normrnd() to generate 100 i.i.d observations from normal distribution with mean=0,variance=0.1

```
>> sigma=0.1

sigma =

    0.1000

>> u=0

u =

    0

>> n=100

n =

    100

>> x=normrnd(u,sigma,[1,n])
```

2.Use function_handle with value to define its likelihood function and the negative log(likelihood)----because the function we will use can only computer the minimum.

```
>> Lfunction=@(x,u)(1/sqrt(2*pi*sigma*sigma)*exp(-(x-u).^2/(2*sigma*sigma)))

Lfunction =

  function_handle with value:

    @(x,u)(1/sqrt(2*pi*sigma*sigma)*exp(-(x-u).^2/(2*sigma*sigma)))

>> Like=@(u)(-sum(log(Lfunction(x,u))))

Like =

  function_handle with value:

    @(u)(-sum(log(Lfunction(x,u))))
```

3.Use fminsearch() with initial guess u1=0 to find the minimum of the negative log(likelyhood). Then, we got u=0.0123,theta=71.4817

```
>> u1=[0]

u1 =

     0

>> ans=fminsearch(Like,u1)

ans =

    0.0123

>> Theta=Like(ans)

Theta =

  -71.4817
```

4.Use normfit() to get the parameter estimates and confidence intervals for u1 and sigma1.

```
>> [u1,sigma1,muc,sigmac]=normfit(x,0.05)

u1 =

    0.0123


sigma1 =

   0.1162


muc =

   -0.0108
    0.0354


sigmac =

    0.1021
    0.1350
```

5.
```
>> pvalue=1.96*(1-normcdf(u1,0,sigma))

pvalue =

    0.8840
```