hypothesis-testing

August 29, 2023

[6]:
```
import numpy as np
from scipy.stats import ttest_ind
A1 = np.array([1.11,23.5,43.2,56.2,23.6])
A2 = np.array([78.1,12.3,34.5,43.6,23.8])

t_stat,p_value = ttest_ind(A1,A2)
print(ttest_ind)
print(p_value)

if p_value < 0.05:
  print("Its a null Hypothesis")
else:
  print("Fail to test the null hypothesis")
```

```
<function ttest_ind at 0x7fd4f5f6ee60>
0.5586152642823798
Fail to test the null hypothesis
```

[7]:
```
import numpy as np
from scipy.stats import ttest_ind
A1 = np.array([11,12,13,14,15])
A2 = np.array([16,17,18,19,20])

t_stat,p_value = ttest_ind(A1,A2)
print(ttest_ind)
print(p_value)

if p_value < 0.05:
  print("Its a null Hypothesis")
else:
  print("Fail to test the null hypothesis")
```

```
<function ttest_ind at 0x7fd4f5f6ee60>
0.001052825793366539
Its a null Hypothesis
```

[9]:
```
#Chi_Sq_test
from scipy.stats import f_oneway
```

```
a=np.array([12,13,15])
b=np.array([15,21,25])
c=np.array([54,89,86])

f_stat,p_value = f_oneway(a,b,c)
print(p_value)
if p_value < 0.05:
  print("Its a null Hypothesis")
else:
   print("Fail to test the null hypothesis")
```

```
0.0010451233783607978
Its a null Hypothesis
```

[10]:
```
#Chi_Sq_test
from scipy.stats import f_oneway
a=np.array([12.5,13.6,15])
b=np.array([15.7,21,25.1])
c=np.array([54.5,89,86.7])

f_stat,p_value = f_oneway(a,b,c)
print(p_value)
if p_value < 0.05:
  print("Its a null Hypothesis")
else:
   print("Fail to test the null hypothesis")
```

```
0.000982553939395163
Its a null Hypothesis
```

[23]:
```
#Chi2_comtingency
from scipy.stats import chi2_contingency
import numpy as np
a=np.array([[14,15],[21,65]])
chi2_stat,p_value,dof,expected=chi2_contingency(a)
print(p_value)
if p_value < 0.05:
  print("reject the null hypothesis: There is a significant association between␣
 ↪variables")
else:
   print("Fail to reject the null hypothesis")
```

```
0.0291668967180607
reject the null hypothesis: There is a significant association between variables
```

[24]:
```
import numpy as np
from scipy.stats import chi2_contingency
```

```
a = np.array([[10, 21], [21, 12]])

chi2_stat, p_value, _, _ = chi2_contingency(a)

if p_value < 0.05:
    print("Reject the null hypothesis: There is a significant association␣
 ↪between variables")
else:
    print("Fail to reject the null hypothesis")
```

```
Reject the null hypothesis: There is a significant association between variables
```

[ ]: