```
In[228]:=
       (*Como ejemplo vamos a comparar 10^5 resultados
        aleatorios con respecto a una PDF Normal teorica*)
       data = RandomVariate[NormalDistribution[], 10^5];
       (*Nos entrega el p-value*)
       PearsonChiSquareTest[data]
Out[229]= 0.111058
In[230]:= (*Nos entrega un pequeño analisis*)
|n(231)| = \mathcal{H} = DistributionFitTest[data, Automatic, "HypothesisTestData"]
                                           Type: DistributionFitTest
Out[231]= HypothesisTestData
                                           p-Value: 0.757
                                           Test: CramerVonMises
                                           Test statistic: 0.0355
                                           Data: Univariate
                                           Conclusion: The null hypothesis that the data is distributed
                                                      according to the NormalDistribution[x, y] is not rejected
                                                      at the 5 percent level based on the Cramér-von Mises
                                                      test.
In[232]:=
       (*Graficamo el histograma de los datos
        experimentales contra la PDF Normal Teorica*)
In[233]:= Show[Histogram[data, Automatic, "ProbabilityDensity"],
        \texttt{Plot}[\texttt{PDF}[\mathcal{H}[\texttt{"FittedDistribution"}], x], \{x, -5, 5\}, \texttt{PlotStyle} \rightarrow \texttt{Thick}]]
      0.4
      0.3
```

Out[233]= 0.2

0.1

Out[236]= HypothesisTestData

p-Value: 1.05 × 10⁻¹²⁴

Test: N/A

Test statistic: 571.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

In[237]:= PearsonChiSquareTest[X1, X4, "HypothesisTestData"]

Out[237]= HypothesisTestData

Type: PearsonChiSquareTest

p-Value: 6.66 × 10⁻¹²⁴

Test: N/A

Test statistic: 567. Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

> the 2

Pearson χ test.

In[238]:= PearsonChiSquareTest[X1, X5, "HypothesisTestData"]



Type: PearsonChiSquareTest

p-Value: 2.77 × 10⁻⁵⁴

Test: N/A

Test statistic: 247.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the

Pearson χ test.

In[239]:= PearsonChiSquareTest[X1, X5, "HypothesisTestData"]

Out[239]= HypothesisTestData



Type: PearsonChiSquareTest

p-Value: 2.77 × 10⁻⁵⁴

Test: N/A

Test statistic: 247.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the

Pearson χ test.

In[240]:= PearsonChiSquareTest[X1, X6, "HypothesisTestData"]

Out[240]= HypothesisTestData



Type: PearsonChiSquareTest

p-Value: 5.82 × 10⁻¹⁰⁴

Test: N/A

Test statistic: 475.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

> 2 the

In[241]:= PearsonChiSquareTest[X1, X7, "HypothesisTestData"]

Out[241]= HypothesisTestData

Type: PearsonChiSquareTest

p-Value: 0.118

Test: N/A

Test statistic: 4.27

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is not rejected at the 5 percent level based

on the 2

Pearson χ test.

In[242]:= PearsonChiSquareTest[X1, X8, "HypothesisTestData"]

Out[242]= HypothesisTestData



Type: PearsonChiSquareTest

p-Value: 1.39 × 10⁻¹³⁸

Test: N/A

Test statistic: 635.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the 2

Pearson χ test.

In[243]:= (***)

In[244]:= PearsonChiSquareTest[X2, X2, "HypothesisTestData"]

Out[244]= HypothesisTestData



Type: PearsonChiSquareTest

p-Value: 1.

Test: N/A

Test statistic: 0.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is not rejected at the 5 percent level based

on the 2

Pearson χ test.

In[245]:= PearsonChiSquareTest[X2, X3, "HypothesisTestData"]

Out[245]= HypothesisTestData



Type: PearsonChiSquareTest

p-Value: 1.63 × 10⁻¹⁴⁹

Test: N/A

Test statistic: 685.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the 2

In[246]:= PearsonChiSquareTest[X2, X4, "HypothesisTestData"]

Out[246]= HypothesisTestData

Type: PearsonChiSquareTest

p-Value: 0.000726

Test: N/A

Test statistic: 14.5 Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

> the 2 Pearson χ test.

In[247]:= PearsonChiSquareTest[X2, X5, "HypothesisTestData"]



Type: PearsonChiSquareTest

p-Value: 2.7 × 10⁻¹⁶²

Test: N/A

Test statistic: 744.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the

Pearson χ test.

In[248]:= PearsonChiSquareTest[X2, X6, "HypothesisTestData"]

Out[248]= HypothesisTestData



Type: PearsonChiSquareTest

p-Value: 6.14 × 10⁻²⁹

Test: N/A

Test statistic: 130.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the

Pearson χ test.

In[249]:= PearsonChiSquareTest[X2, X7, "HypothesisTestData"]

Out[249]= HypothesisTestData



Type: PearsonChiSquareTest

p-Value: 1.65 × 10⁻¹²⁰

Test: N/A

Test statistic: 552.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

> 2 the

In[250]:= PearsonChiSquareTest[X2, X8, "HypothesisTestData"]

Out[250]= HypothesisTestData



Type: PearsonChiSquareTest

p-Value: 9.65 × 10⁻⁷

Test: N/A

Test statistic: 27.7 Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the 2

Pearson χ test.

In[251]:= (***)

PearsonChiSquareTest[X3, X3, "HypothesisTestData"]

Out[251]= HypothesisTestData



Type: Pears on Chi Square Test

p-Value: 1.

Test: N/A

Test statistic: 0.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is not rejected at the 5 percent level based

on the 2 Pearson χ test.

In[252]:= %32["TestDataTable"]

Out[252]=
$$\frac{|\text{Statistic}|}{|\text{Pearson } \chi^2|} = \frac{|\text{Statistic}|}{|\text{O.}|} = \frac{|\text{P-Value}|}{|\text{D.}|}$$

In[253]:= PearsonChiSquareTest[X3, X4, "HypothesisTestData"]

Out[253]= HypothesisTestData



Type: PearsonChiSquareTest

p-Value: 1.6 × 10⁻¹⁹⁵

Test: N/A

Test statistic: 897.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the 2

In[254]:= PearsonChiSquareTest[X3, X5, "HypothesisTestData"]

Out[254]= HypothesisTestData

Type: PearsonChiSquareTest

p-Value: 1.61 × 10⁻²⁷

Test: N/A

Test statistic: 123. Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

> the 2

Pearson χ test.

In[255]:= PearsonChiSquareTest[X3, X6, "HypothesisTestData"]



Type: PearsonChiSquareTest

p-Value: 2.42 × 10⁻⁵³

Test: N/A

Test statistic: 242.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the

Pearson χ test.

In[256]:= PearsonChiSquareTest[X3, X7, "HypothesisTestData"]

Out[256]= HypothesisTestData



Type: PearsonChiSquareTest

p-Value: 2.57 × 10⁻¹⁴³

Test: N/A

Test statistic: 657.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the

Pearson χ test.

In[257]:= PearsonChiSquareTest[X3, X8, "HypothesisTestData"]

Out[257]= HypothesisTestData



Type: PearsonChiSquareTest

p-Value: 8.79 × 10⁻¹³²

Test: N/A

Test statistic: 604.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

> 2 the

In[258]:= (***)

PearsonChiSquareTest[X4, X5, "HypothesisTestData"]

Out[258]= HypothesisTestData



Type: Pears on Chi Square Test

p-Value: 1.62 × 10⁻²⁰⁵

Test: N/A

Test statistic: 943.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

> the Pearson χ test.

In[259]:= PearsonChiSquareTest[X4, X6, "HypothesisTestData"]

Out[259]= HypothesisTestData



Type: Pears on Chi Square Test

p-Value: 2.38 × 10⁻⁵⁰

Test: N/A

Test statistic: 229.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the

Pearson χ test.

In[260]:= %40["PValue"]

Out[260]=
$$\frac{|\text{Statistic P-Value}|}{|\text{Pearson } y^2|} = \frac{|\text{Statistic P-Value}|}{|\text{Pearson } y^2|} = \frac{|\text{PValue}|}{|\text{Pearson } y^2|} = \frac{|\text{PValue}|}{|\text{Possible}|} = \frac{|\text{PValue}|}{|\text{Poss$$

In[261]:= PearsonChiSquareTest[X4, X7, "HypothesisTestData"]

Out[261]= HypothesisTestData



Type: PearsonChiSquareTest

p-Value: 3.39×10^{-140}

Test: N/A

Test statistic: 642.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

> the 2

In[262]:= PearsonChiSquareTest[X4, X8, "HypothesisTestData"]

Out[262]= HypothesisTestData

Type: PearsonChiSquareTest

p-Value: 1.04 × 10⁻¹³

Test: N/A

Test statistic: 59.8 Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

> the 2 Pearson χ test.

In[263]:= PearsonChiSquareTest[X5, X6, "HypothesisTestData"]



Type: PearsonChiSquareTest

p-Value: 6.71 × 10⁻⁸⁷

Test: N/A

Test statistic: 397.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the

Pearson χ test.

In[264]:= PearsonChiSquareTest[X5, X7, "HypothesisTestData"]

Out[264]= HypothesisTestData



Type: PearsonChiSquareTest

p-Value: 5.16 × 10⁻⁶³

Test: N/A

Test statistic: 287.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the

Pearson χ test.

In[265]:= PearsonChiSquareTest[X5, X8, "HypothesisTestData"]

Out[265]= HypothesisTestData



Type: PearsonChiSquareTest

p-Value: 1.37 × 10⁻¹⁶⁸

Test: N/A

Test statistic: 773.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

> 2 the

In[266]:= PearsonChiSquareTest[X6, X7, "HypothesisTestData"]

Out[266]= HypothesisTestData

Type: PearsonChiSquareTest

p-Value: 2.47 × 10⁻¹²⁴

Test: N/A

Test statistic: 569. Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the 2

Pearson χ test.

In[267]:= PearsonChiSquareTest[X6, X8, "HypothesisTestData"]

Out[267]= HypothesisTestData



Type: PearsonChiSquareTest

p-Value: 2.1 × 10⁻¹⁸

Test: N/A

Test statistic: 81.4 Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the 2

Pearson χ test.

In[268]:= PearsonChiSquareTest[X7, X8, "HypothesisTestData"]

Out[268]= HypothesisTestData



Type: PearsonChiSquareTest

p-Value: 8.71 × 10⁻¹⁶⁰

Test: N/A

Test statistic: 732.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the 2

In[270]:= PearsonChiSquareTest[X10, X1, "HypothesisTestData"]

Out[270]= HypothesisTestData

Type: PearsonChiSquareTest

p-Value: 4.2 × 10⁻¹⁵⁷

Test: N/A

Test statistic: 720.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

> the 2

Pearson χ test.

In[271]:= PearsonChiSquareTest[X10, X2, "HypothesisTestData"]



Type: PearsonChiSquareTest

p-Value: 6.79 × 10⁻¹¹

Test: N/A

Test statistic: 46.8

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the

Pearson χ test.

In[272]:= PearsonChiSquareTest[X10, X3, "HypothesisTestData"]

Print["X10, X3"]

PearsonChiSquareTest[X10, X4, "HypothesisTestData"]

Print["X10, X4"]

PearsonChiSquareTest[X10, X5, "HypothesisTestData"]

Print["X10, X5"]

PearsonChiSquareTest[X10, X6, "HypothesisTestData"]

Print["X10, X6"]

PearsonChiSquareTest[X10, X7, "HypothesisTestData"]

Print["X10, X7"]

PearsonChiSquareTest[X10, X8, "HypothesisTestData"]

Print["X10, X8"]

PearsonChiSquareTest[X10, X9, "HypothesisTestData"]

Print["X10, X9"]

Type: Pears on Chi Square TestOut[272]= HypothesisTestData p-Value: 2. × 10⁻²³⁵ Test: N/A Test statistic: 1.08 × 10³ Data: Univariate Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on the Pearson χ test. X10, X3 Type: PearsonChiSquareTest Out[274]= HypothesisTestData p-Value: 0.00465 Test: N/A Test statistic: 10.7 Data: Univariate Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on the Pearson χ test. X10, X4 Type: PearsonChiSquareTest Out[276]= HypothesisTestData p-Value: 5.5 × 10⁻²⁵¹ Test: N/A Test statistic: 1.15 × 10³ Data: Univariate Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on the Pearson χ test. X10, X5 Type: PearsonChiSquareTest Out[278]= HypothesisTestData p-Value: 3.47 × 10⁻⁶⁹ Test: N/A Test statistic: 315. Data: Univariate

Conclusion: The null hypothesis that the datasets have the same

the

Pearson χ test.

distribution is rejected at the 5 percent level based on

Out[280]= HypothesisTestData



Type: Pears on Chi Square Test

p-Value: 1.75 × 10⁻¹⁷⁴

Test: N/A

Test statistic: 800. Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the

Pearson χ test.

X10, X7

Out[282]= HypothesisTestData



Type: PearsonChiSquareTest

p-Value: 2.92 × 10⁻²⁰

Test: N/A

Test statistic: 90. Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the

Pearson χ test.

X10, X8

Out[284]= HypothesisTestData



Type: PearsonChiSquareTest

p-Value: 7.07 × 10⁻⁷⁹

Test: N/A

Test statistic: 360.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the

Pearson χ test.

X10, X9

Print["X9, X7"]

Print["X9, X8"]

PearsonChiSquareTest[X9, X8, "HypothesisTestData"]

```
******)
      PearsonChiSquareTest[X9, X1, "HypothesisTestData"]
      Print["X9, X1"]
      PearsonChiSquareTest[X9, X2, "HypothesisTestData"]
      Print["X9, X2"]
                                      Type: PearsonChiSquareTest
Out[287]= HypothesisTestData
                                      p-Value: 2.1 × 10<sup>-34</sup>
                                      Test: N/A
                                      Test statistic: 155.
                                      Data: Univariate
                                      Conclusion: The null hypothesis that the datasets have the same
                                                distribution is rejected at the 5 percent level based on
                                                the
                                                Pearson \chi test.
      X9, X1
                                      Type: PearsonChiSquareTest
Out[289]= HypothesisTestData
                                      p-Value: 1.81 × 10<sup>-62</sup>
                                      Test: N/A
                                      Test statistic: 284.
                                      Data: Univariate
                                      Conclusion: The null hypothesis that the datasets have the same
                                                distribution is rejected at the 5 percent level based on
                                                the
                                                Pearson \chi test.
      X9, X2
In[291]:= PearsonChiSquareTest[X9, X3, "HypothesisTestData"]
      Print["X9, X3"]
      PearsonChiSquareTest[X9, X4, "HypothesisTestData"]
      Print["X9, X4"]
      PearsonChiSquareTest[X9, X5, "HypothesisTestData"]
      Print["X9, X5"]
      PearsonChiSquareTest[X9, X6, "HypothesisTestData"]
      Print["X9, X6"]
      PearsonChiSquareTest[X9, X7, "HypothesisTestData"]
```

Out[291]= HypothesisTestData

Type: PearsonChiSquareTest

p-Value: 1.57 × 10⁻²²¹

Test: N/A

Test statistic: 1020. Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

> the Pearson χ test.

X9, X3

Out[293]= HypothesisTestData



Type: PearsonChiSquareTest

p-Value: 1.83 × 10⁻⁶²

Test: N/A

Test statistic: 284. Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

> the Pearson χ test.

X9, X4

Out[295]= HypothesisTestData



Type: PearsonChiSquareTest

p-Value: 2.17 × 10⁻¹⁵⁴

Test: N/A

Test statistic: 708.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the

Pearson χ test.

X9, X5

Out[297]= HypothesisTestData



Type: PearsonChiSquareTest

p-Value: 2.72 × 10⁻¹¹⁸

Test: N/A

Test statistic: 541.

Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the

Pearson χ test.

X9, X6



Type: PearsonChiSquareTest

p-Value: 5.04 × 10⁻³⁶

Test: N/A

Test statistic: 163. Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the 2

Pearson χ test.

X9, X7

Out[301]= HypothesisTestData



Type: Pears on Chi Square Test

p-Value: 1.53 × 10⁻¹⁰⁴

Test: N/A

Test statistic: 478. Data: Univariate

Conclusion: The null hypothesis that the datasets have the same distribution is rejected at the 5 percent level based on

the 2