



ESTADISTICA AVANZADA

PROF. JUAN IVAN NIETO HIPOLITO

REPORTE DE PRACTICA
INTERVALO DE CONFIANZA PARA DOS POBLACIONES

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GRUPO 932

EJERCICIO:

```
1 import numpy as np
2 from scipy import stats
3 import matplotlib.pyplot as plt
4
5 male_heights = np.array([175, 180, 170, 185, 178, 172, 188, 182, 177, 169])
6 female_heights = np.array([162, 165, 160, 168, 158, 163, 166, 164, 159, 161])
7
8 mean_male = np.mean(male_heights)
9 std_deviation_male = np.std(male_heights, ddof=1)
10 mean_female = np.mean(female_heights)
11 std_deviation_female = np.std(female_heights, ddof=1)
12
13 n_male = len(male_heights)
14 n_female = len(female_heights)
15
16 confidence = 0.95
17 Convert a string or number to a floating point number, if possible.
18 Click anywhere in this tooltip for additional help
19
20 (std_deviation_female**2 / n_female))
21 margin_error = stats.t.ppf((1 + confidence) / 2, df=(n_male + n_female - 2)) * standard_error
22 confidence_interval = (mean_difference - margin_error, mean_difference + margin_error)
23
24 plt.figure(figsize=(12, 6))
25 plt.subplot(1, 2, 1)
26 plt.hist(male_heights, bins=10, alpha=0.5, color='blue', label='Hombres')
27 plt.hist(female_heights, bins=10, alpha=0.5, color='red', label='Mujeres')
28 plt.title('Histograma de Alturas')
29 plt.xlabel('Altura (cm)')
30 plt.ylabel('Frecuencia')
31 plt.legend()
32 plt.subplot(1, 2, 2)
33 plt.bar(['Diferencia de Medias'], [mean_difference],
34         yerr=margin_error, color='green', alpha=0.7)
35 plt.title('Diferencia de Medias con Intervalo de Confianza')
36 plt.xlabel('Diferencia de Medias')
37 plt.ylabel('Intervalo de Confianza')
38 plt.tight_layout()
39 plt.show()
40
41 print("Diferencia de medias:", mean_difference)
42 print("Intervalo de confianza al {}%:".format(int(confidence * 100)), confidence_interval)
43
```

```
In [19]: runfile('C:/Users/kevin/Desktop/UABC/TercerSemestre/Estadistica Avanzada/
Practica 5/Practica5.py', wdir='C:/Users/kevin/Desktop/UABC/TercerSemestre/
Estadistica Avanzada/Practica 5')
Diferencia de medias: 15.0
Intervalo de confianza al 95%: (10.298021530648633, 19.701978469351367)
```