

**UNIVERSIDAD AUTÓNOMA DE BAJA
CALIFORNIA**
Facultad de Ingeniería, Arquitectura y Diseño

Ingeniero en Software y Tecnologías Emergentes



Nombre Alumno:
Eliel Alfonso Ontiveros Ojeda

Grupo:
932

Practica #5

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Procedimiento

```
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
18 mean_difference = mean_male - mean_female
19 standard_error = np.sqrt((std_deviation_male**2 / n_male) +
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='gray', label='Hombres')
27 plt.hist(female_heights, bins=10, alpha=0.5, color='brown', label='Mujeres')
28 plt.title('Histograma - Alturas')
29 plt.xlabel('Altura (cm)')
30 plt.ylabel('Frecuencia')
31
32 print("Diferencia de medias:", mean_difference)
33 print("Intervalo de confianza al {:.%}".format(int(confidence * 100)), confidence_interval)
```

```
In [7]: runfile('C:/Users/Elieel/OneDrive/Documentos/Universidad/
Estadística Avanzada/Unidad 1/Practica_5.py', wdir='C:/Users/
Elieel/OneDrive/Documentos/Universidad/Estadística Avanzada/Unidad
1')
Diferencia de medias: 15.0
Intervalo de confianza al 95%: (10.298021530648633,
19.701978469351367)
```

