Libraries

Exercises

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Level - Easy

Exercise 1-1

Write a script that uses the **datetime** library to calculate the number of days from today until the end of the current year.

Exercise 1-2

Write a script using the **os** library to list all files in the current directory and print their file names and sizes.

Exercise 1-3

Use the **collections** library, specifically the **Counter** class, to count the occurrences of each character in a given string. Print the 3 most common characters along with their counts.

Exercise 1-4

Write a script that reads the **mycsvfile.csv** file using the **csv** library. The file contains rows of names and ages. Calculate and print the average age from the data.

Exercise 1-5

Write a script using the **random** library to generate and print a list of 5 random numbers between 1 and 100.

Level - Moderate

Exercise 2-1

Write a script that generates a list of 100 random dates within the current year using the **datetime** and **random** libraries. Then, use the **collections** library to count how many dates fall in each month and print the results.

Exercise 2-2

Generate two lists of 50 random integers each using the **random** library. Then, use the **statistics** library to calculate and print the mean, median, and standard deviation for each list.

Exercise 2-3

Read a CSV file into a DataFrame using the **pandas** library. The file contains columns for 'Date', 'Product', and 'Sales'. Use pandas to calculate the total sales for each product, then use the **matplotlib** library to plot a bar chart showing the sales per product.

Exercise 2-4

Generate a 5x5 matrix with random integers ranging from 1 to 100 using the **numpy** library and then:

1. Normalize the matrix so that all values are scaled to be between 0 and 1.
2. Calculate the sum of each row and each column in the matrix.
3. Compute and print the determinant of the matrix.
4. Calculate the inverse of the matrix if it is invertible.