Project idea:

The idea is to present weekly expenses divided into three categories over a 2-month period (8 weeks). I decided to name the individual categories of expenses as follows: Clothes, Bills, Food and to see and check how much a person can spend in each category for a period of 2 months. The period can be extended, and/or new categories can be added, if needed.

Needed:

1. a text file with a record of weekly expenses divided into 3 categories
2. libraries: numpy, matplotlib.pyplot

Description:

The first step is to import the numpy library and assign the alias "np" to it. Then, the data from a text file named “NewProject.txt” can be loaded with a delimiter of “;” along with skipping the first row. The loaded data is stored in a variable called "data". The next three lines of code print the value at the position (0,3) and (1,3) of the "data" array, as well as the sum of these two values to see how it works.

In the next part of code initializes a variable called "sum" to 0. It then uses i for loop to iterate over the range from 0 to 3 and print the value at the position (i,3) of the "data" array. It also adds each of these values to the "sum" variable.

The numpy library is also used Ito create a new array "data" with 8 rows and 4 columns, filled with the provided values. It then extracts the columns from the array and calculates the total for each column: 'Week', 'Clothes', 'Bills', and 'Food'. The totals are stored in separate variables and then printed out.

To see how it might be presented graphically, the matplotlib.pyplot library need to be imported as "plt". It then extracts the 'Week' and 'Amount' columns from the data array and plots them using a line plot. It sets the y-axis label to "Amount" and the x-axis label to "Week". Finally, it displays the diagram.

Verification:

I noticed several errors when importing and using both libraries (i.e.: *ModuleNotFoundError: No module named 'numpy').* That required the “pip” command (i.e. *pip install numpy*) to successfully installed both libraries. A few syntax errors appeared (i.e. *SyntaxError: Missing parentheses in call to 'print')* due to missing elements. To check the correctness of the numerical calculations

- I used hand calculator (first test)
- I entered all values into an Excel spreadsheet and used the built-in functions i.e. the sum function (second test)

And received the same results as in python - output:

Total week: 36
Total clothes: 313.85
Total bills: 621.6
Total food: 1289.86