PYU33C01 (2024): Computational Methods (Mitchison), Assignment 1

This assignment will use the same data set that we explored in the first lab: `planets_2024.csv`.

- Write Python code to complete the exercises below.
- Submit your code (as an **executable Python file with a .py or .ipynb extension**) electronically **via Blackboard**. When executed, your code should import exoplanet data from the .csv file and generate output to solve each of the exercises below. **The file name should include your full name.**

Submission deadline: Friday 1st November @ 23:59 pm
Late submissions will be docked 5% per day. Submissions more than five days late will be assigned a mark of 0.

Assignment 1:

(a) **How many planets were discovered each year?**
Plot the number of planets discovered per year versus time (i.e. year on x axis, number of planets discovered on y axis).

(b) **How does a planet's mass correlate with the mass of its star?**
Make a scatter plot on a log-log scale (i.e. logarithmic on both axes), showing each planet's mass versus the mass of its star. Write a *brief* comment on the meaning of the plot and print it to the screen (i.e. using a `print()` statement).

(c) **How many planets have been discovered at each facility? Which facilities have discovered the most planets so far, and over how long a time period?**
For each facility, find the total number of planets discovered and the year in which the first planet was discovered. Print a list of the top ten facilities (in terms of how many planets were discovered there). The list should display the facility name, the total number of planets discovered, and the year of first discovery. Order this list chronologically, i.e. by the year of first discovery. Print the name of the facility that has found the most planets overall.