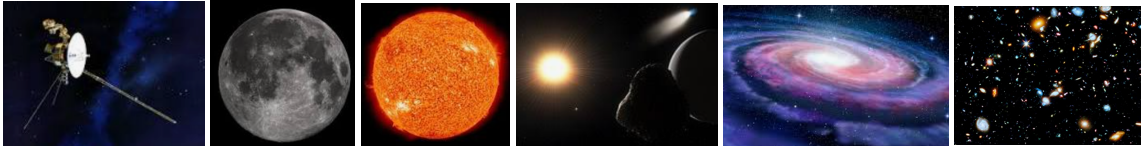


The challenge of spaceflight

DS2001: Practicum for DS2000 (Prof. Rachlin)



Overview:

The Universe is big. *Really* big! One light-year is the *distance* travelled by a beam of light in one year. Light travels 186,000 miles per *second*. The nearest star (other than the Sun of course) is Proxima Centauri at 4.25 light-years distant. Our Milky Way galaxy, with its 100-400 billion stars, is over 100,000 light years across. The *observable* Universe has billions of galaxies and is about 90 billion light-years across. It may in fact be infinite, or perhaps it is only one of countless universes in the multiverse.

In this exercise, we will write a program that takes a distance in light years, and a spacecraft speed in **miles per hour**. Determine how long it would take your spacecraft to reach its destination in **years**. Try these examples:

- The Parker Solar Probe is currently orbiting the Sun at 437,000 miles per hour. It is the fastest probe ever constructed by humanity. Proxima Centauri is the closest star (other than the sun!) at 4.25 light years away. How many years would the *fastest spacecraft ever built* take to reach Proxima Centuri, the closest star, if it was heading in that direction?
- Voyager 2, launched in 1977, is heading towards a star in the constellation Andromeda called Ross 248 which is 10.3 light-years distant. It is travelling at a speed of 34,391 miles per hour. When will Voyager 2 encounter Ross 248?

What to do to complete this lab:

Step 1. Prompt the user for a spacecraft speed [mph] and distance [light-years]

Step 2. Calculate the spaceflight travel time in years, rounded to the nearest year. To do this, it will be handy to compute the number of miles in one light-year. Assume **365.25** days per year.

Step 3. Report your result writing the following message to the screen:

Your spacecraft will reach its destination in <number-of-years> years.

Step 4. Embed your outputs (one for each file) as comments in the header of your program

Step 5. Submit your program to gradescope.