**Problem 1**

With Object Oriented Programming in mind, create the following simulation environment in python:

* A 100x100 grid world with 10 randomly placed pieces of food. Note that food cannot share the same coordinate.
* An ant class that randomly moves up, down, left, or right at each time step. If an ant tries to step beyond the bounds of the box, it does nothing. Note that food is consumed if an ant shares the same coordinate as the food. Ants can share the same coordinate. Ants starting locations should be random.

Run 1000 simulations with 100 ants, each for 100-time steps. Report the mean and standard deviation of the total food eaten. Feel free to use any Python packages as needed.

**Problem 2**

Using Python and the [pandas](https://pandas.pydata.org/) package write a [Jupyter](https://jupyter.org/) notebook to process the following cereal data, and, based on the US Governments Dietary Guidelines’ Executive Summary, recommend 5 cereals that meet those guidelines.

Plot at least 3 data visualizations to help communicate your recommendations. Feel free to use common Python packages such as numpy as needed.

Briefly explain your thought process for processing the data and determining the recommended cereals in the comments.

* Cereal Data: <https://www.kaggle.com/crawford/80-cereals>
* Dietary Guidelines: <https://www.dietaryguidelines.gov/resources/2020-2025-dietary-guidelines-online-materials/top-10-things-you-need-know-about-dietary>