Final Assignment: Examples of **bad** practice

- Usage of **hard-coded numerical values** instead of variables.

- Presence of **runtime** errors.

- Usage of **redundant**, **un-necessary** comments.

- **Inability to demonstrate understanding** of your own code.

- Evidence of **plagiarism** in your final discussion.

Final Assignment:
Emergence of the Boltzmann probability distribution

- The task is to code a minimal simulation producing a **key** result of **statistical mechanics** and **thermodynamics**: the **Boltzmann distribution**.

- The distribution governs the probability to observe a state of a given energy. For a system at temperature T, the probability density function is

$$p(E) \propto e^{-E/k_B T}$$

  where k_B is the Boltzmann constant.

- The distribution is therefore **exponential** in E: its log plot (log y axis vs linear x-axis) is a **straight line**.

- You probe this distribution by **sampling** many **configurations** of a simple system.