Concurrency in Go
Week 1 Assignment

- **Define Moore’s law**

  Answer:

  Moore's Law states that the number of transistors on a microchip doubles every two years. The law claims that we can expect the speed and capability of our computers to increase every two years because of this, yet we will pay less for them. Another tenet of Moore's Law asserts that this growth is exponential. The law is attributed to Gordon Moore, the co-founder and former CEO of Intel.

  Moore's law is the observation that the number of transistors in a dense integrated circuit (IC) doubles about every two years. Moore's law is an observation and projection of a historical trend. Rather than a law of physics, it is an empirical relationship linked to gains from experience in production.

  Moore’s law is an observation and projection of a historical trend and not a physical or natural law. For example, the 2010 update to the International Technology Roadmap for Semiconductors predicted that growth would slow around 2012, and in 2015 Gorden Moore foresaw that the rate of progress would reach saturation. Although the rate held steady from 1975 until 2012, the rate was faster during the first decade. In general, it is not logically sound to extrapolate from the historical growth rate into the indefinite future.

  Moore's Law refers to Moore's perception that the number of transistors on a microchip doubles every two years, though the cost of computers is halved. Moore's Law states that we can expect the speed and capability of our computers to increase every couple of years, and we will pay less for them. Another tenet of Moore's Law asserts that this growth is exponential.

  The following factors can be considered as physical limitations that have prevented Moore’s law from continuing to be true:

  - Voltage scaling does not prevent power leakage.
  - Transistors need a minimum voltage to switch, and voltage reduction has lower limits due to noise.
  - As transistors increase, power demand increases, which is directly proportional to heat (which increases heat).
  - Dynamic power consumption is reduced by voltage scaling.
  - The exponential growth in density would lead to an exponential increase in speed.
  - Smaller transistors switch faster.