Assignment # 2

***Async Rust***

What does ***async*** mean?

In Rust, when we talk about async, we’re talking about running code concurrently, or having multiple overlapping (in time) computations run on a single thread. Multithreading is a related, but distinct concept. Multithreading is ideal for when you’ve got computationally intensive tasks (so-called *CPU-bound* tasks) that can be spread across multiple, separated cores. Concurrent programming is better suited for when the task spends a lot of time waiting, such as for a response from a server. These tasks are called *IO-bound*.

So asynchronous programming lets us run multiple of these IO-bound computations at the same time on a single thread. They can run at the same time because when they’re waiting for a response, they’re just idle, so we can let the computer keep working on something that isn’t waiting. When we reach a point where we need the result of an asynchronous computation, we must .await it. In Rust, values that are ‘awaitable’ are known as ‘futures’.