### Lesson 19: Lifetimes (Part 2)

* **Reading:** “The Rust Programming Language” Chapter 10.3
* **Assignments:** PEX 2 Due after Lesson 20
* **Preflight:** Review Lesson 18 material (It may be useful to have students write an example of valid lifetime use and invalid lifetime use as a preflight activity).
* **Lesson Goals:**
  + Apply lifetimes to exercise memory-safe programming.
  + Analyze code and determine if it passes the Borrow Checker
* **Motivation:** Lifetimes, being strictly unique to Rust, are conceptually difficult initially. It is imperative that students receive ample practice with thinking about lifetimes, manipulating timelines, and learning the “Rust-isms” surrounding the lifetime concept.
* **Lecture:**
  + Review Lesson 18 concepts on lifetimes
  + Introduce lifetime annotations in struct definitions
  + Review thinking in terms of lifetimes
  + Briefly discuss Lifetime Elision
  + Summarize generics, traits, and lifetimes used together
* **Lab:** Use generics, traits, structs, methods, and lifetimes (annotated wherever suitable) in a simple program that provides output dependent upon user input.