

- Lenses

- compassable pair of **pure** getter and setters.
- Focus on particular field inside the object
- Obey a set of axioms known as **lens laws**
- Think Object as the whole, field as the part
- The getter takes the a whole and returns the part of the object the lens is focused on
 - $view = whole \Rightarrow part$
- The setter takes a whole, and a value to set the part to, and returns a new whole with the part updated. Unlike a function which simply sets a value into an object's member field, Lens setters are pure functions:
 - $set = whole \Rightarrow part \Rightarrow whole$
- Lens decouples state shape dependency from the rest of the system.
 - You need not know at what hierarchical depth the part of the object is present.
 - Lenses allow you to abstract state shape behind getters and setters. Instead of littering your codebase with code that dives deep into the shape of a particular object, import a lens.
 - If you later need to change the state shape, you can do so in the lens, and none of the code that depends on the lens will need to change.
- **Lens Laws**
 - $view(lens, set(lens, value, store)) = value$ — If you set a value into the store, and immediately view the value through the lens, you get the value that was set.
 - $set(lens, b, set(lens, a, store)) = set(lens, b, store)$ — If you set a lens value to a and then immediately set the lens value to b, it's the same as if you'd just set the value to b.
 - $set(lens, view(lens, store), store) = store$ — If you get the lens value from the store, and then immediately set that value back into the store, the value is unchanged.