CSE 341 AB: Section 6

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Office Hours: Tuesdays 3:00pm - 4:00pm

Agenda

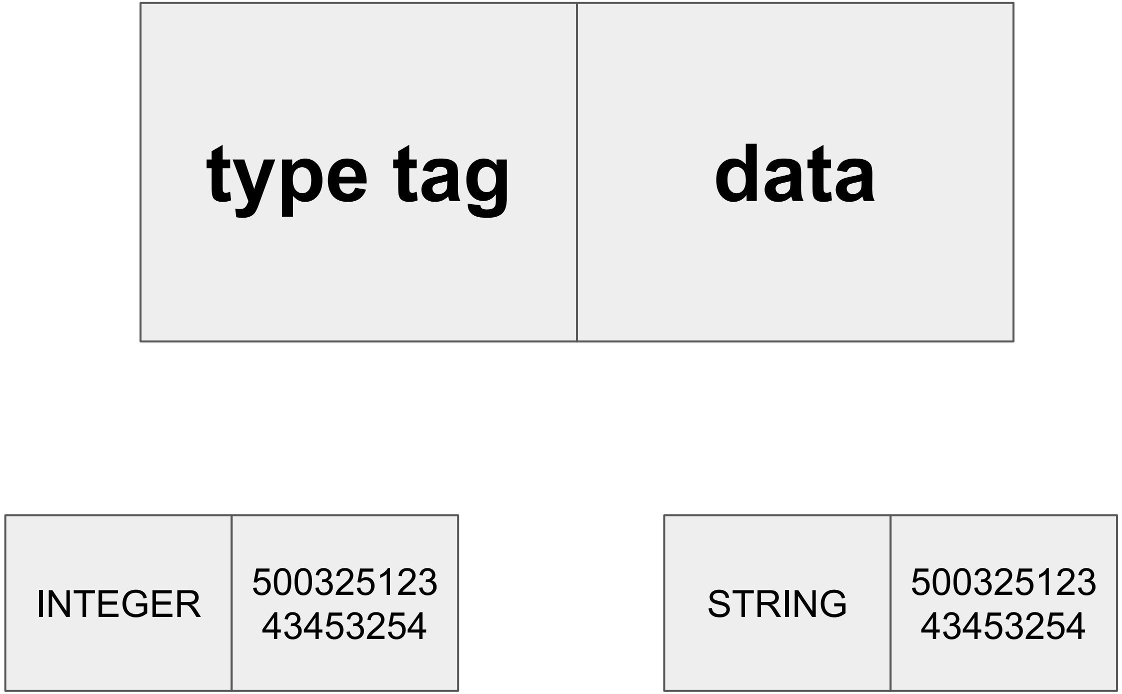
1. Dynamic typing under the hood.
2. Memoization
   a. A review of promises
   b. Lexical scope and mutation
   c. Mutable pairs and lists
   d. Association lists
   e. Putting it all together
3. Streams with (immutable) state

How Are Dynamically-Typed Languages Implemented?

Data is in **binary** at runtime.

In a statically typed language, we have guarantees that our functions will get the right type of data.

In a dynamically typed language, we have no such guarantees. We need to keep type information around at runtime. If the types are wrong, we throw a contract violation.



type tag	**data**

INTEGER	500325123 43453254

STRING	500325123 43453254

To the code!

Sophisticated Streams

A good way to think about a stream is a *computation* that produces some output and a new *computation*.

Sometimes it’s convenient for this computation to remember some state.

We can use immutability to simulate state by passing immutable values around.

Example: Stream of natural numbers.

- We need to keep some state in the computation so it knows what number to output.
- Let’s keep track of the number we want to output!