Zero-Copy and Benchmark

Haixuan Xavier Tao

tao.xavier@outlook.com

Table of content

Zero-Copy: What is the cost of a copy?

- Comparing `.to_vec()`
- Comparing copying from preallocated vector
- Comparing zero-copy

See: https://github.com/dora-rs/dora-benchmark

Zero-Copy: Order of Magnitude of Speed

Malloc (memory allocation) average speed at 10MB is about 2Go/s

Memcpy (memory copy) average speed about 10Go/s

Benchmark

- Hyperfine https://github.com/sharkdp/hyperfine
- Flamegraph https://github.com/flamegraph-rs/flamegraph
- Cargo bench
- Criterion https://github.com/bheisler/criterion.rs

Benchmarking is an incredible powerful learning tool

Pandas and Rust

See: https://able.bio/haixuanTao/data-manipulation-pandas-vs-rust--1d70e7fc

https://github.com/haixuanTao/Data-Manipulation-Rust-Pandas

Polars, Pandas and Rust

See: https://able.bio/haixuanTao/data-manipulation-polars-vs-rust--3def44c8

https://github.com/haixuanTao/dataframe-python-rust

You can read as many books as you want, at the end of the day, there's only one way to find out how to go faster.

Distributed benchmark

See: https://github.com/dora-rs/dora-benchmark

Rust Performance Book

https://nnethercote.github.io/perf-book/title-page.html

Q&A