Racket-Spark-Light

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What does it do?

- What:
  - Transform and analyze large datasets
  - Evaluate and optimize operations used on the datasets
- How:
  - Separate operations into Transformations and Actions
  - Queue up Transformations
  - Combine them to traverse the data as few times as possible

Transformations & Actions

Transformation:

- DataShell -> DataShell
- Evaluated lazily
- Optimized, merged, computed when Action is applied
- E.g:
  - ds-map(func)
  - ds-filter(pred)
  - ds-flatmap(func)

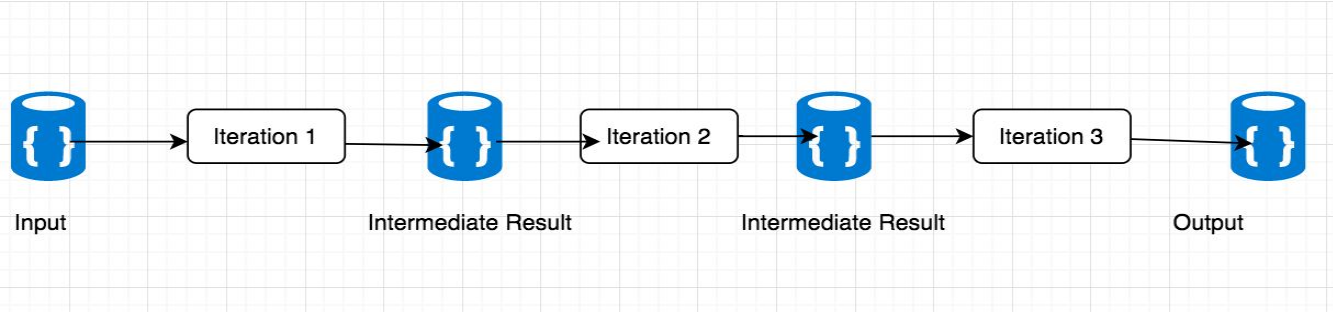
Action:

- DataShell -> Any
- Evaluated eagerly
- Triggers chained transformations and return a result immediately
- E.g:
  - ds-reduce(func)
  - ds-collect()
  - ds-count()

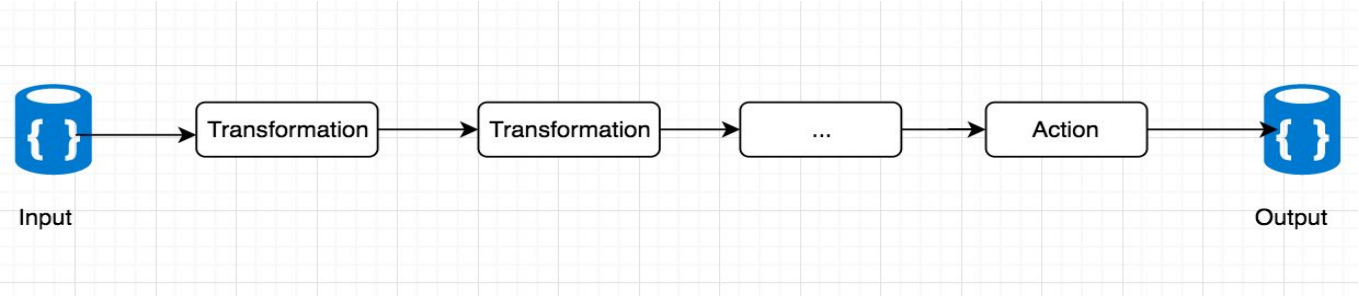
Why should I use it?

- Reduce iterations

Regular MapReduce



RSL



- Stop when sufficient (i.e: filter(containsErrorStr) -> take(10))

Reusable Computations

- Stores DataShells and Transformations
- Reuse previous results
- Fault-tolerant resiliency

```
(save-ds ds (mk-datashell (list 1 2 3 4)))
(save-ds a (ds-map func ds)))
(save-ds b (ds-filter func a)))
;; get a result
(define result (ds-reduce func b))
(save-ds c (ds-map func (ds-flatmap func b))
(save-ds d (ds-flatmap func (ds-filter func b))
```