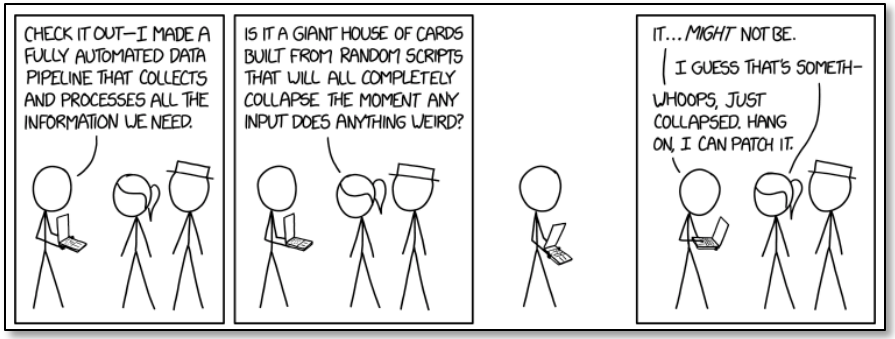
Use XKCD API To Build A Searchable Database of XKCD Comics

Practical Exam

Goal

XKCD provides regularly comics:

- https://xkcd.com/
- JSON API: https://xkcd.com/2054/info.0.json



https://xkcd.com/2054/


```
{
        "month": "10",
        "num": 2054,
        "link": "",
        "year": "2018",
        "news": "",
        "safe_title": "Data Pipeline",
        "transcript": "",
        "alt": "\"Is the pipeline literally running from your laptop?\" \"Don't be silly, my laptop disconnects far too often to host a service we rely on. It's running on my phone.\"", "img": "https://imgs.xkcd.com/comics/data_pipeline.png",
        "title": "Data Pipeline",
        "day": "3"
}
```

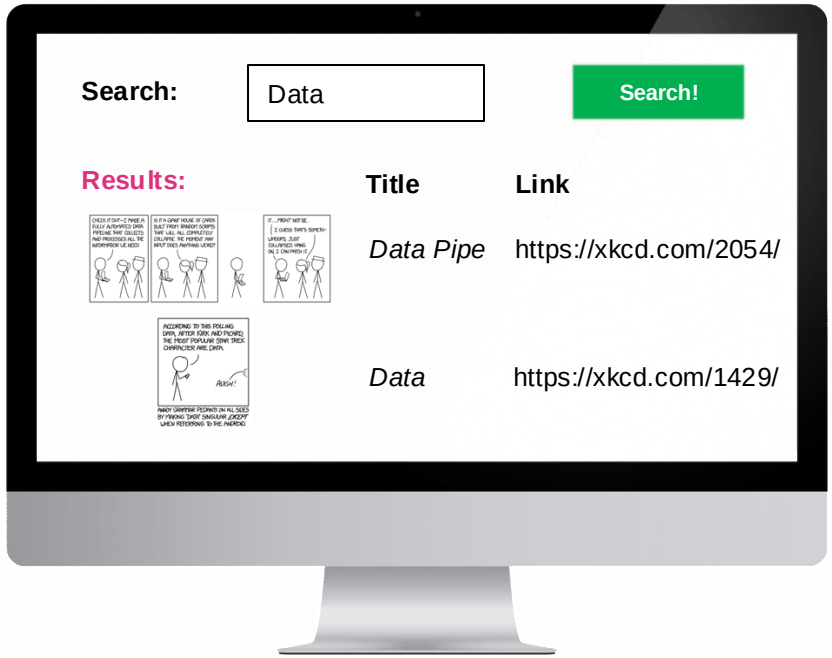

2054.json

Goal

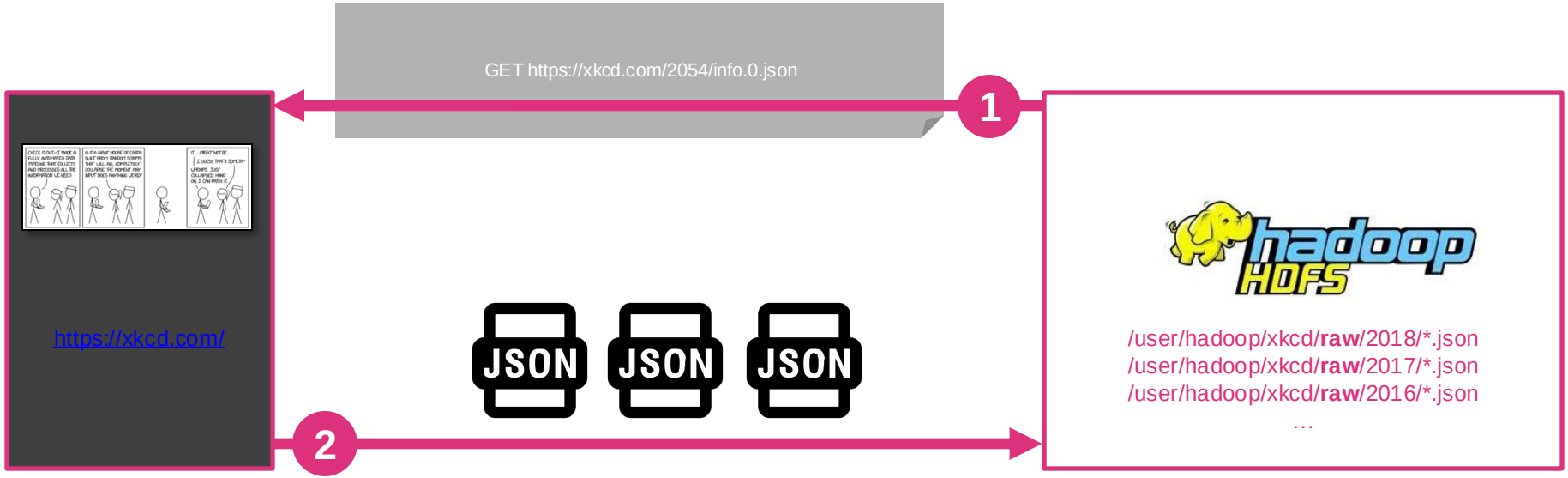
We want to make use of this data to build a searchable database for XKCD comics.

Workflow:

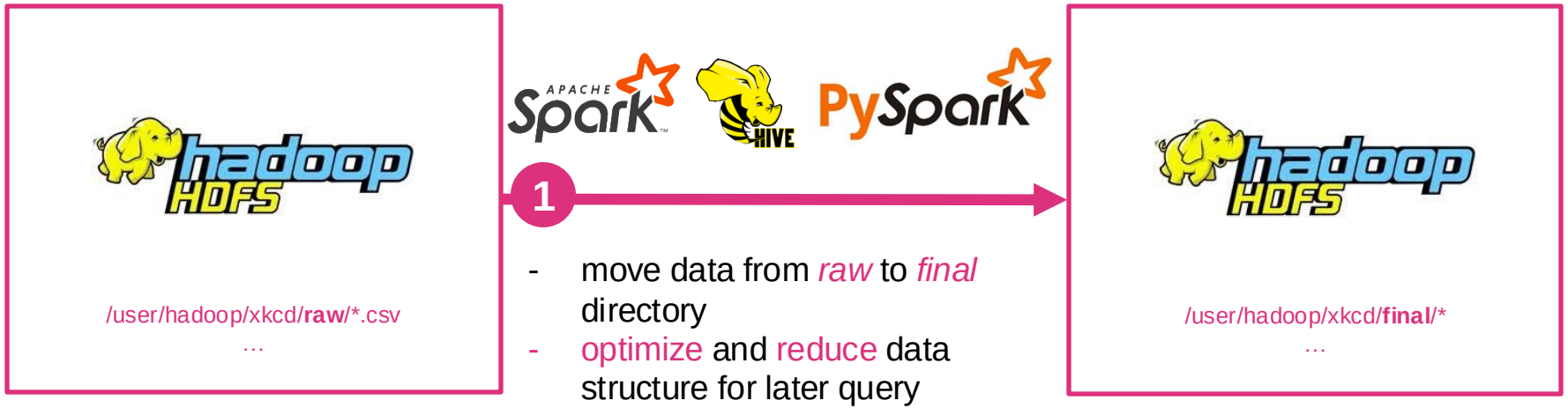
- **Gather data** from xkcd.com
- **Save raw data** (*JSON files*) to HDFS (partitioned by year, e.g. *2018*, *2017*, *2016*…)
- **Optimize**, **reduce** and **clean raw data** and save it to **final** directory on HDFS
- **Export** xkcd data **to end-user database** (e.g. MySQL, MongoDB…)
- Provide a simple **HTML Frontend** which is able to:
  - read from end-user database
  - process user input (search phrase…)
  - checks against xkcd data in end-user database
  - Display result (comics containing search phrase)
- The whole data workflow **must be implemented** within an ETL **workflow tool** (e.g. Pentaho Data Integration or Airflow) and **run automatically**



Dataflow: 1. Get XKCD Data



Dataflow: 2. Raw To Final Transfer



Dataflow: **3. Enhance Data And Save Results**

- enhance data (e.g. for later querying)
- use *Hive*, *Spark* or *PySpark*
- save everything to a end-user database (e.g. *MySQL*, *MongoDB*)

Dataflow: 4. Provide Simple Web Interface

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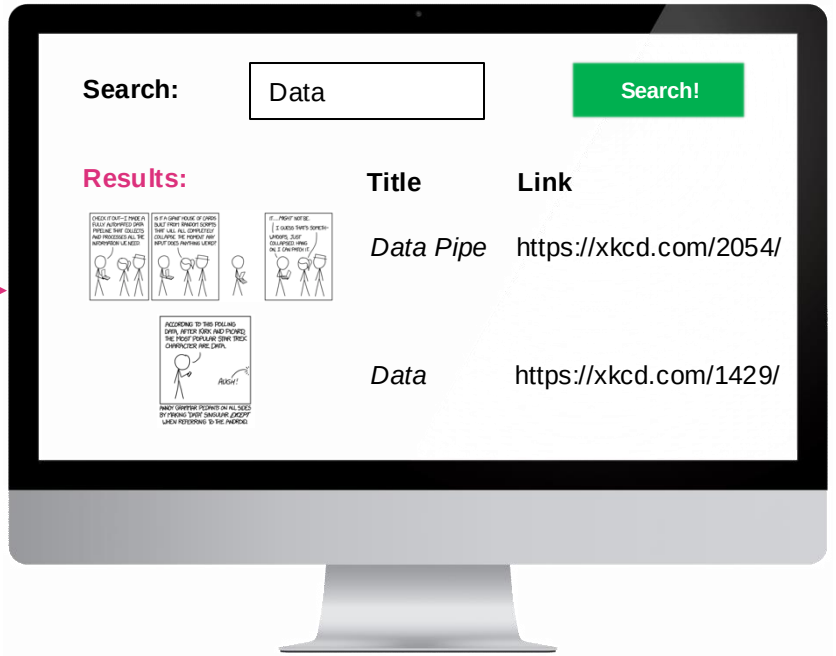

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