Use *kaggle.com* Hubway Data To Calculate Bike Sharing Usage KPIs

Practical Exam

Goal

kaggle.com provides monthly exports of Hubway bike sharing trip records:

- https://www.bluebikes.com/
- Latest Full Dumps: https://www.kaggle.com/acmeyer/hubway-data

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"tripduration","starttime","stoptime","start station id","start station name","start station latitude","start station longitude","end station id","end station name","end station latitude","end station longitude","bikeid","usertype","birth year","gender"
"133","2015-12-01 00:01:52","2015-12-01 00:04:06","9","Agganis Arena - 925 Comm Ave.","42.351246","-71.115639","41","Packard's Corner - Comm. Ave. at Brighton Ave.","42.352261","-71.123831","199","Customer","1995","1"
"1522","2015-12-01 00:05:30","2015-12-01 00:30:53","41","Packard's Corner - Comm. Ave. at Brighton Ave.","42.352261","-71.123831","54","Tremont St / West St","42.354979","-71.063348","876","Customer","1983","1"
"153","2015-12-01 00:07:46","2015-12-01 00:10:20","75","Lafayette Square at Mass Ave / Main St / Columbia St","42.36346469304347","-71.10057324171066","67","MIT at Mass Ave / Amherst St","42.3581","-71.093198","757","Subscriber","1995","1"
"435","2015-12-01 00:07:48","2015-12-01 00:15:04","68","Central Square at Mass Ave / Essex St","42.36507","-71.1031","29","Innovation Lab - 125 Western Ave. at Batten Way","42.363732","-71.124565","853","Subscriber","1988","1"
"1208","2015-12-01 00:12:15","2015-12-01 00:32:23","36","Boston Public Library - 700 Boylston St.","42.349673","-71.077303","110","Harvard University Gund Hall at Quincy St / Kirkland S","42.376369","-71.114025","437","Customer","1982","1"
"1117","2015-12-01 00:16:31","2015-12-01 00:35:09","31","Seaport Hotel","42.348833","-71.041747","67","MIT at Mass Ave / Amherst St","42.3581","-71.093198","1161","Subscriber","1988","1"
"1287","2015-12-01 00:16:50","2015-12-01 00:38:18","10","B.U. Central - 725 Comm. Ave.","42.350406","-71.108279","23","Mayor Martin J Walsh - 28 State St","42.35892","-71.057629","565","Subscriber","1966","1"
```

Goal

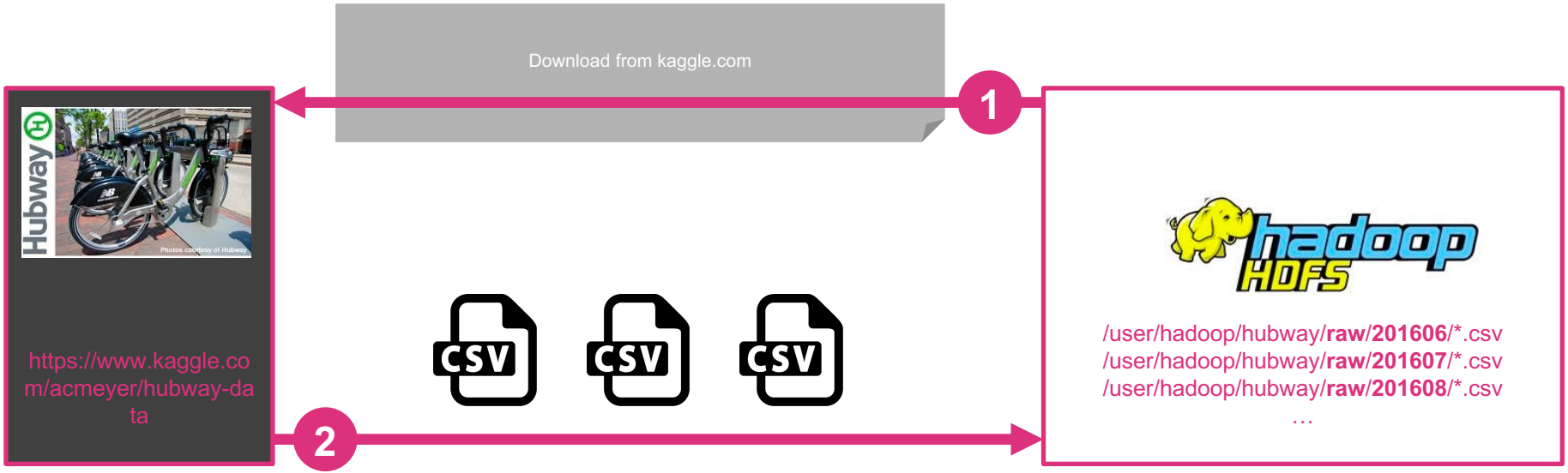
We want to make use of this data to calculate some Usage KPIs.

Workflow:

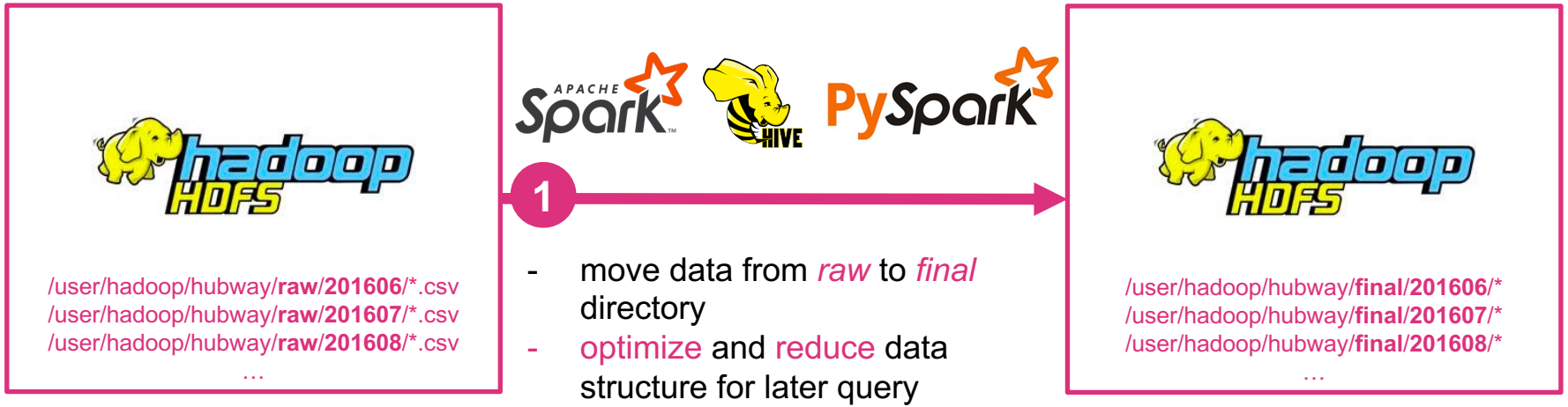
- **Gather data** from https://www.kaggle.com/acmeyer/hubway-data
- **Save raw data** (*CSV files*) to HDFS (partitioned by *YYYYMM*)
- **Optimize**, **reduce** and **clean raw data** and save it to **final** directory on HDFS
- **Calculate KPIs** and **Export** them to an **Excel File**

- The whole data workflow **must be implemented** within an ETL **workflow tool** (e.g. Pentaho Data Integration or Airflow) and **run automatically**

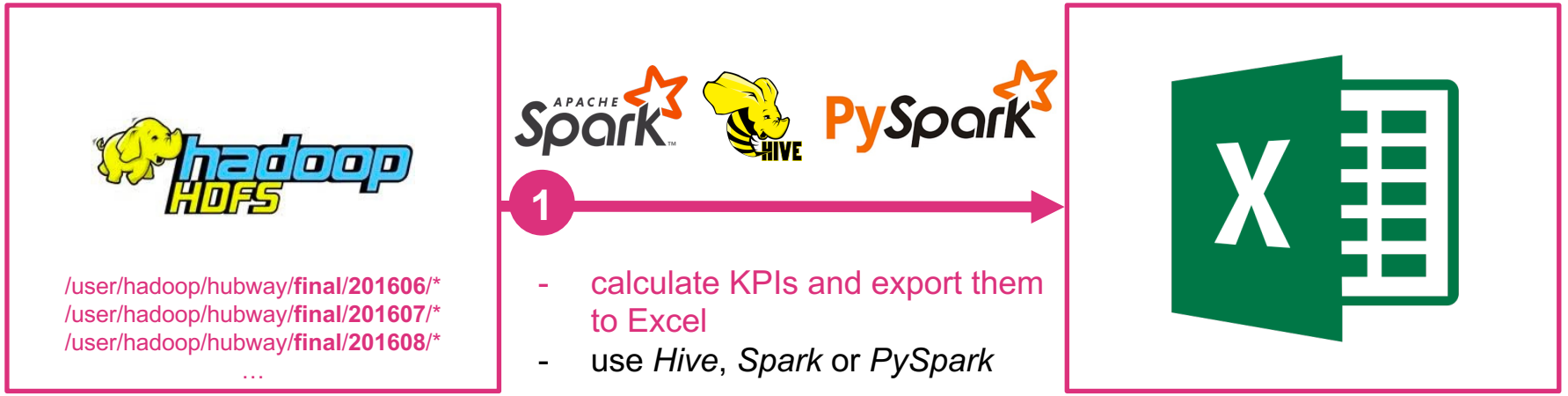
Dataflow: 1. Get Hubway Bike Sharing Data



Dataflow: 2. Raw To Final Transfer



Dataflow: 3. Calculate And Export KPIs



Dataflow: 4. KPIs To Calculate

Calculate per Month:

- Average Trip Duration (in minutes)
- Average Trip Distance (in km)
- Usage Share by gender (in percent)
- Usage Share by age (in percent)
- Top 10 most used bikes
- Top 10 most start stations
- Top 10 most end stations
- Usage share per timeslot (in percent):
  - 00:00-06:00
  - 06:00-12:00
  - 12:00-18:00
  - 18:00-24:00