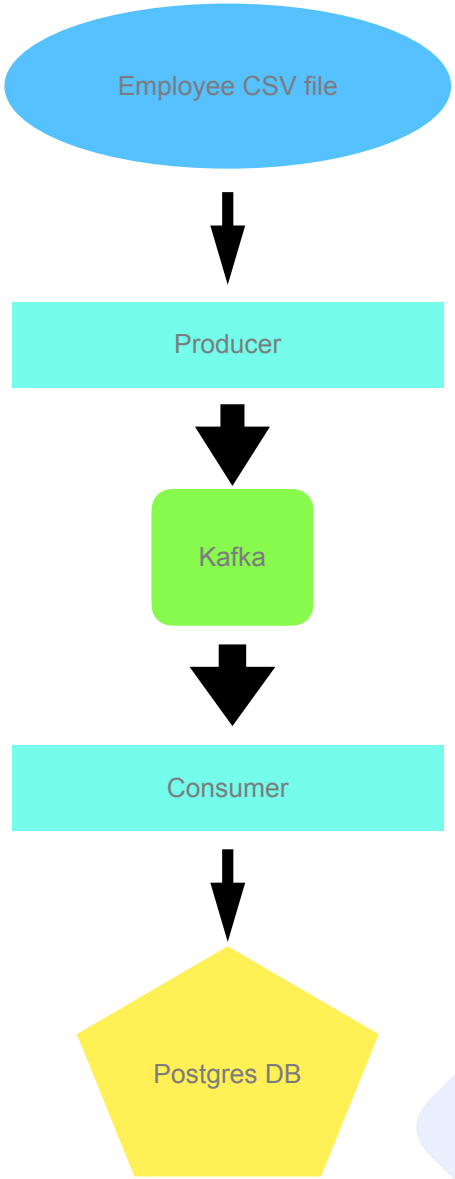
Data Engineering 0602

Kafka Project 1

Kafka Project 1: ETL pipeline

- This project will emphasize on creating a data pipeline in which CSV files are being generated on a regular basis, and then data is being cleaned, transformed and then later persisted into some storage for data analytics.

- To calculate the total salary of the departments.



Producer will ingest the CSV file, and send data to Kafka

Consumer will persist the data to our Postgres DB

Data Producer

DataProducer Responsibilities - (Extract + Transform)

- Ingest Employee_Salaries.csv file (will be in resources folder)
- Perform these transformations -
  - Ingest only these Departments -
    - ECC
    - CIT
    - EMS
  - Round off the Salary to lower number
  - Employees hired after 2010
- Send this data to Kafka

Data Consumer

DataConsumer Responsibilities - (Load)

- Ingest the data into the **Department_Employee** Table which will have this schema -
  - department_division: varchar
  - position_title: varchar
  - hire_date: Date
  - salary: int32
- With every message, also update the total salary given by each department. Schema for the department table -
  - department: varchar
  - total_salary: int64

Table Schema

```
CREATE TABLE department_employee(
department VARCHAR(200),
department_division   VARCHAR(200),
position_title VARCHAR(200),
hire_date DATE,
salary decimal
);
```

```
CREATE TABLE
public.department_employee_salary (
department varchar(200) NOT NULL,
total_salary int4 NULL,
CONSTRAINT department_employee_salary_pk PRIMARY KEY (department)
);
```

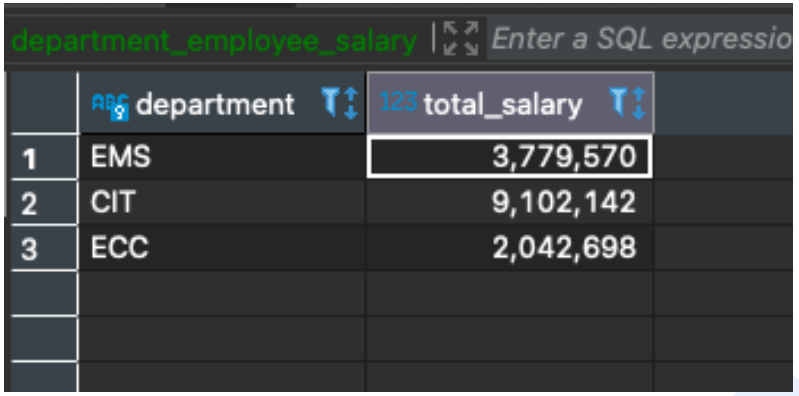
helper code

```
# update statement to update the table

cur.execute(
    "insert into  department_employee_salary  (department,total_salary)
  values (%s,%s) on conflict(department) do update set total_salary =
  department_employee_salary.total_salary + %s    ",
   (e.department, int(float(e.salary)), int(float(e.salary))))
```

Success Criteria

You should get the same results.



	department	total_salary
1	EMS	3,779,570
2	CIT	9,102,142
3	ECC	2,042,698