## Data cleaning, analysis Step 0 .csv .xls .db Step 1 Normalization Correction O USP zip code in specific form – characters in their normal form Post addresses have a lot of forms 9553 NE 96 Blvd., #102 1210 W Daton St, but 1210 E Dayton St doesn't exist We put all the data for consistency, so the "E" will be ignored, basically change the small changes to correct it Step 3 Scaling o Eg. Currency International data Comparing EU and US dollar Step 4 Entity matching o Spelling in different address, it is referring the same place Last name – Groefe

- o Dr. .....
- o Mr. .... Göetz
- o ..... Gräfe
  - All the string referring the same person but in difference spelling
  - Eg. Different county names will be Americanized ...etc
  - Eg. John Smith or John Smyth or J. Smith → match the same person

# Modernized business

### Step 5

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- random and anonymous
- age of people in classroom
  - distribution
  - correlations
    - not lose info and also randomize

## implement in separate products

eg. ETL extract transform load