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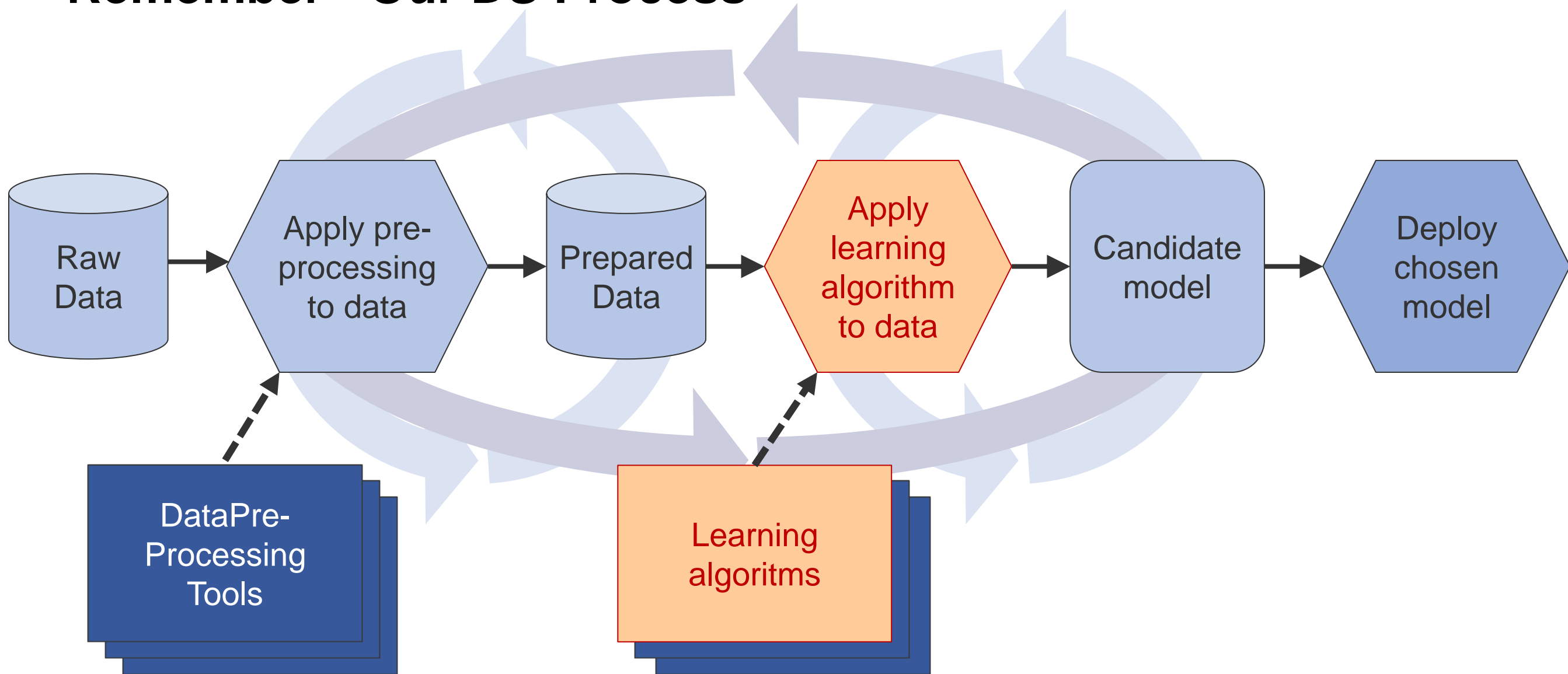swissuniversities

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# Regression - Laboratory

Charuta Pande

# Remember - Our DS Process

# Dataset – Auto (ISLR library)

A data frame with 392 observations on the following 9 variables.

- mpg: miles per gallon

- cylinders: Number of cylinders between 4 and 8

- displacement: Engine displacement (cu. inches)

- horsepower: Engine horsepower weight Vehicle

- weight (lbs.)

- acceleration: Time to accelerate from 0 to 60 mph (sec.)

- year: Model year (modulo 100)

- origin: Origin of car (1. American, 2. European, 3. Japanese)

- name: Vehicle name

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# Task

Apply regression on the Auto dataset to train a model that will predict mpg.

| mpg | cylinders | displacement | horsepower | weight | acceleration | year | origin | name |
|---|---|---|---|---|---|---|---|---|
| 18 | 8 | 307 | 130 | 3504 | 12.0 | 70 | 1 | chevrolet chevelle malibu |
| 15 | 8 | 350 | 165 | 3693 | 11.5 | 70 | 1 | buick skylark 320 |
| 18 | 8 | 318 | 150 | 3436 | 11.0 | 70 | 1 | plymouth satellite |
| 16 | 8 | 304 | 150 | 3433 | 12.0 | 70 | 1 | amc rebel sst |
| 17 | 8 | 302 | 140 | 3449 | 10.5 | 70 | 1 | ford torino |
| 15 | 8 | 429 | 198 | 4341 | 10.0 | 70 | 1 | ford galaxie 500 |

$$mpg = \beta_0 + \beta_1 cylinders + \beta_2 displacement \; \dots$$