# Database Modeling

Introduction

1) Requirement analysis

2) Create ER-diagram

3) Organizing data into tables

4) Normalizing

1

Gather information

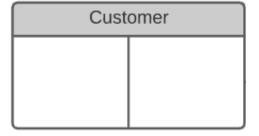List the types of data

② 

Visual

Entities

Primary keys

Cardinality

③

ER-diagram => tables

Assign datatypes

④

# One big => many small

# Relations

# Relations

# Relations

| Book |  |
|---|---|
|  |  |

| Lender |  |
|---|---|
|  |  |

# Relations

# Relations

# Relations

# Relations

| Shop | |
|---|---|
| | |

| Icecream | |
|---|---|
| | |

# Relations

# Relations

| Country |  |
|---------|--|
|         |  |

| UN Representative |  |
|-------------------|--|
|                   |  |

# Relations

# Relations

| Candidate | |
|---|---|
| | |

| PoliticalParty | |
|---|---|
| | |

| Order | |
|---|---|
| | |

| OrderRow | |
|---|---|
| | |

| Person | |
|---|---|
| | |

| Color | |
|---|---|
| | |

| Student | |
|---|---|
| | |

| Course | |
|---|---|
| | |

| Car | |
|---|---|
| | |

| ParkingSpot | |
|---|---|
| | |

| Book | |
|---|---|
| | |

| Author | |
|---|---|
| | |

| ExtraInfo | |
|---|---|
| | |

| Product | |
|---|---|
| | |

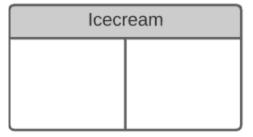| PassportDetails | |
|---|---|
| | |

| Person | |
|---|---|
| | |

# Relations

First normal form

Second normal form

Third normal form

# First normal form

| Name | FavoriteColors |
|------|----------------|
| Bart | Red, Green, Blue |
| Lisa | Green, Purple |

| Name | Color1 | Color2 | Color3 |
|------|--------|--------|--------|
| Bart | Red | Green | Blue |
| Lisa | Green | Purple | |

# Second normal form

| OrderNumber | ProductId | ProductName |
|---|---|---|
| 1 | 3000 | Monitor 26" |
| 2 | 4000 | Freezer |
| 3 | 3000 | Monitor 26" |

# Third normal form

| ProductId | Name | Price | VAT | TotalPrice |
|---|---|---|---|---|
| 1 | Bowl | 200 | 50 | 250 |
| 2 | Spoon | 32 | 8 | 40 |