- Business Data Analysis
  - Business+visualization+analysis
    - **Business:** How to analyze business problems
      - Question | Data Table
        - The structure of the problem
          - Sample | Analysis Scope
            - Filtering = logical calculation (Boolean judgment)
              - Quick filter
                - Equality judgment.
                - Scope judgment.
                - Filtering by conditions (including aggregation)
              - Interactive Filtering
                - Filter
                - Highlighted
                - Action
                  - Parameters Action
                  - Set Action
              - Variable-based filtering
                - Parameters Filter(single variable)
                - Set Filter(multiple values)
          - Dimension | Problem Description
            - LOD=Level of Details
            - Granularity: Aggregation Level
          - Measure | Answer
            - Aggregation
              - sum
              - Variance
              - Percentile Function
        - The Dynamic Process of FixingProblems
          - Analysis is Aggregation
            - From the level of data rows to the problem, there is a process of decreasing variability.
    - Visualization: How to Build Graphics
      - Field Classification
        - Continuous
        - Discrete
      - The Idea from Problem to Graphics
        - Data Presentation: Three Graphs and One Table
          - Time Series
            - Line Chart
            - Area Chart
          - Sort by Discrete Data
            - Bar Chart
            - Column Chart
          - Proportion of Parts and Wholes
            - Pie Chart
          - Cross Table
        - Feature and Exploration: Distribution and Correlation
        - Business Insight: Structured Analysis
      - Graphics Visualization Enhancement
        - Row-Column Space
        - Marks
          - 1.Color, Size, and Label
          - 2.Annotation
          - 3.Tooltip
        - Axis
          - Dual Axis
          - Measurement Value: Common Axis
          - Advanced Cases
            - Absolute Date Converted into Relative Date
              - Customer Repurchase
            - Absolute Measurement Converted into Relative Measurement
              - Pareto Chart
        - Reference Line
          - All reference lines are table calculations
    - Analysis: Calculation, answering questions
      - Row-level calculation = Data preparation
        - String Functions
        - Date Functions
        - Field type conversion functions
      - Aggregation calculation = analysis
        - Sum/Countd/Avg
        - Aggregation calculation: profit margin
        - Two-level aggregation: proportion analysis, running totall
        - Preliminary aggregation: LOD
        - Sumif: Aggregation based on row level
  - ETL & Data Model
    - Data Cleaning
      - Row-Level Functions
    - Data Connection
      - Physical Layer: Row-level Data Combine
        - Union
          - Business structures are completely identical.
        - Join
          - Business structures are different, but there are related fields that belong to the same business scenario.
      - Logical Layer: Matching after Aggregation
        - Blend
          - Two data tables are aggregated to the same level and then merged in the view stage.
        - Relationship
    - Data structure adjustment
      - Pivot
      - AGG