Overview (Cont.)

- Common steps in data analytics

  - Gather data from multiple sources into one location

    - Data warehouses also integrated data into common schema

    - Data often needs to be **extracted** from source formats, **transformed** to common schema, and **loaded** into the data warehouse

      - Can be done as **ETL (extract-transform-load)**, or **ELT (extract-load-transform)**

  - Generate aggregates and reports summarizing data

    - Dashboards showing graphical charts/reports

    - **Online analytical processing (OLAP) systems** allow interactive querying

    - Statistical analysis using tools such as R/SAS/SPSS

      - Including extensions for parallel processing of big data

  - Build **predictive models** and use the models for decision making