What is Business Intelligence?
- Body of methods and tools to analyze business data for decision-making purposes with the aim of improving key processes and identify key market and competition trends
- In recent times, it refers specifically to methods using the following technology:
  - OLAP/DW and reporting tools
  - Data Mining & Machine Learning
  - Statistical Data Analysis
  - Data visualization

Steps of a BI Process
1. Problem analysis: Investigate the application domain, make business case for BI project
2. Data selection: create a target data set
3. Data cleaning and preprocessing
4. Data analysis and reduction
   - Find useful features, dimensionality/variable reduction
5. Choose data mining techniques
   - Classification, regression, clustering, etc.
6. Apply techniques and analyze (visualize) output
7. Use acquired information

The BI Process

BI Applications
- Sales & Marketing
- Customer Service
- Production & Logistics
- Financials
  - Revenue Mngt.
  - Risk Analysis
- Direct Marketing
- Web Usage Mngt.
- Channel Mngt.
- Salesforce Mngt.

Data Mining
- OLAP/DW and reporting tools
- Data Mining & Machine Learning
- Statistical Data Analysis
- Data visualization
BI Application Areas

- Direct marketing
  - Market campaign planning
  - Target and channel selection
- Relationship Marketing
  - Cross-selling and up-selling
  - Customer retention (avoiding churn)
- Salesforce management
  - Sales territory design
  - Response functions

BI Application Areas (cont.)

- E-Commerce Website optimization
  - Clickstream analysis, user profiling
  - Internet ads placement
  - Recommendation (cf. cross-selling)
- Logistics and Supply Chain Management:
  - Demand forecasting
  - Production scheduling
  - Inventory management
  - Transportation optimization

BI Application Areas (cont.)

- Revenue management
  - Market analysis (segmentation, trends, …)
  - Customer segmentation
  - Data envelopment analysis
- Risk analysis
  - Fraud prevention and detection
  - Customer profiling (e.g., credit risk analysis)

Case Studies & Value Propositions

- Customer acquisition and retention
  - http://www.i-jaffa.net/downloads/norkom/case-studies.ppt
- E-Commerce Recommender Systems (Netflix)
  - http://digitalenterprise.org/cases/netflix.html

Classwork (in groups of 4)

- Skype wishes to launch a campaign for SkypeOut customer acquisition. The campaign will offer free SkypeOut minutes to users who don't use SkypeOut or have zero SkypeOut credit
- Discuss the following questions in groups:
  - What data can help Skype target this campaign?
  - What mining techniques could they use?
  - How would you structure an ROI calculation for investing into a BI solution for this campaign?
- Same question for customer churn avoidance
- Skype statistics:
  - http://ckipe.com/borderless
  - http://skypenumerology.blogspot.com/