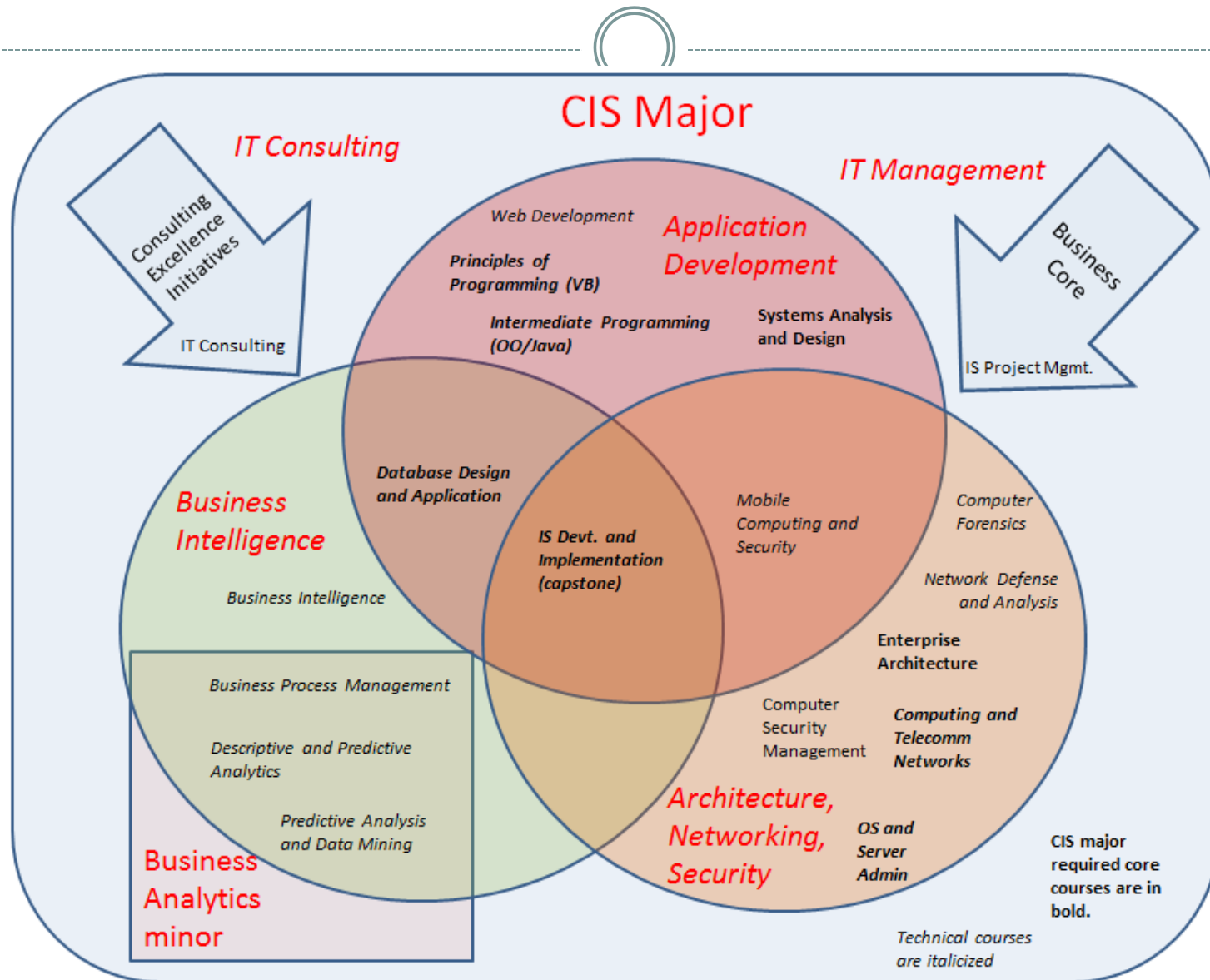




Business Intelligence at JMU CIS&BSAN Programs

CIS&BSAN Curriculum

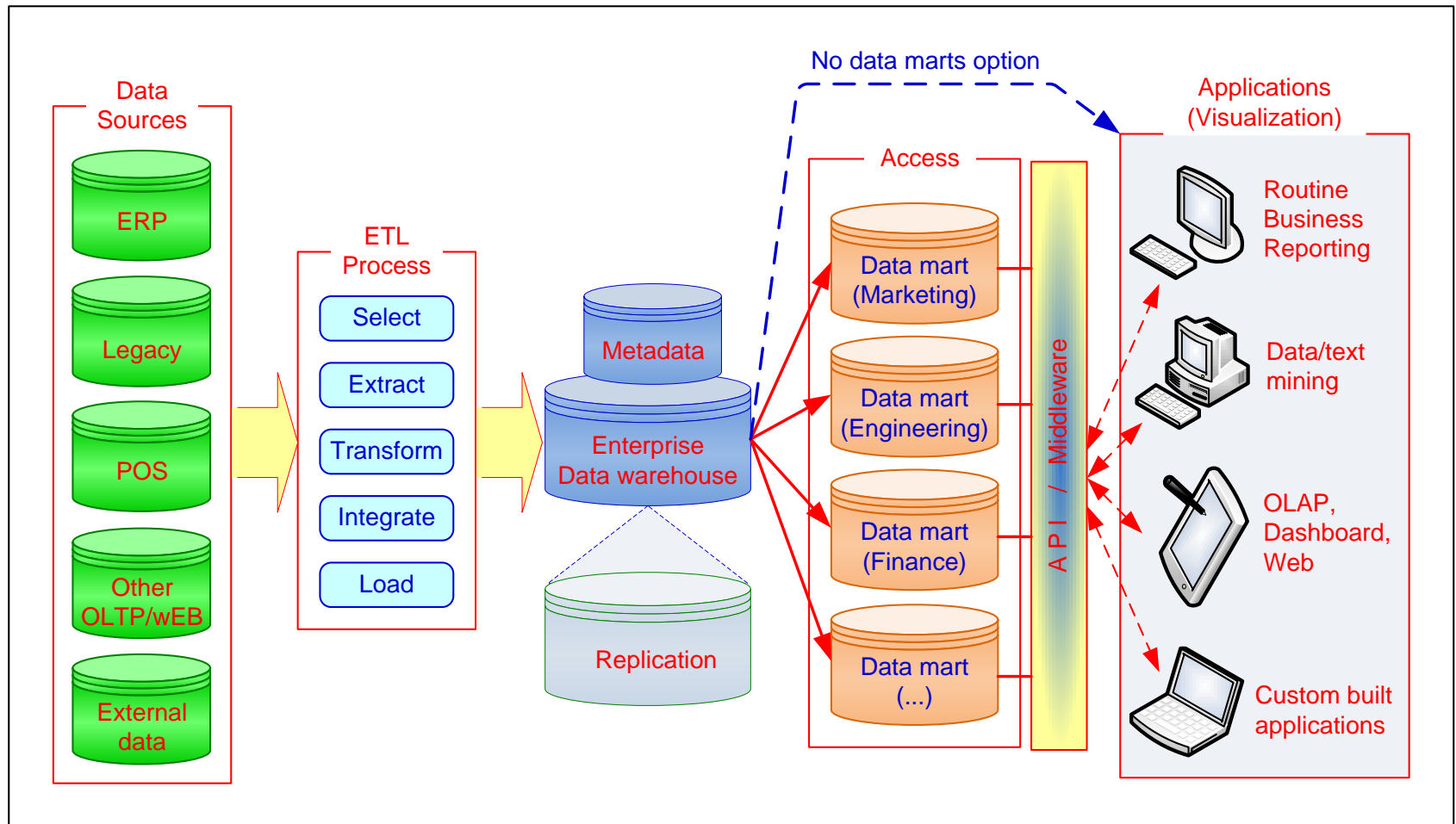


$$BI = BII + BSI + BMI$$

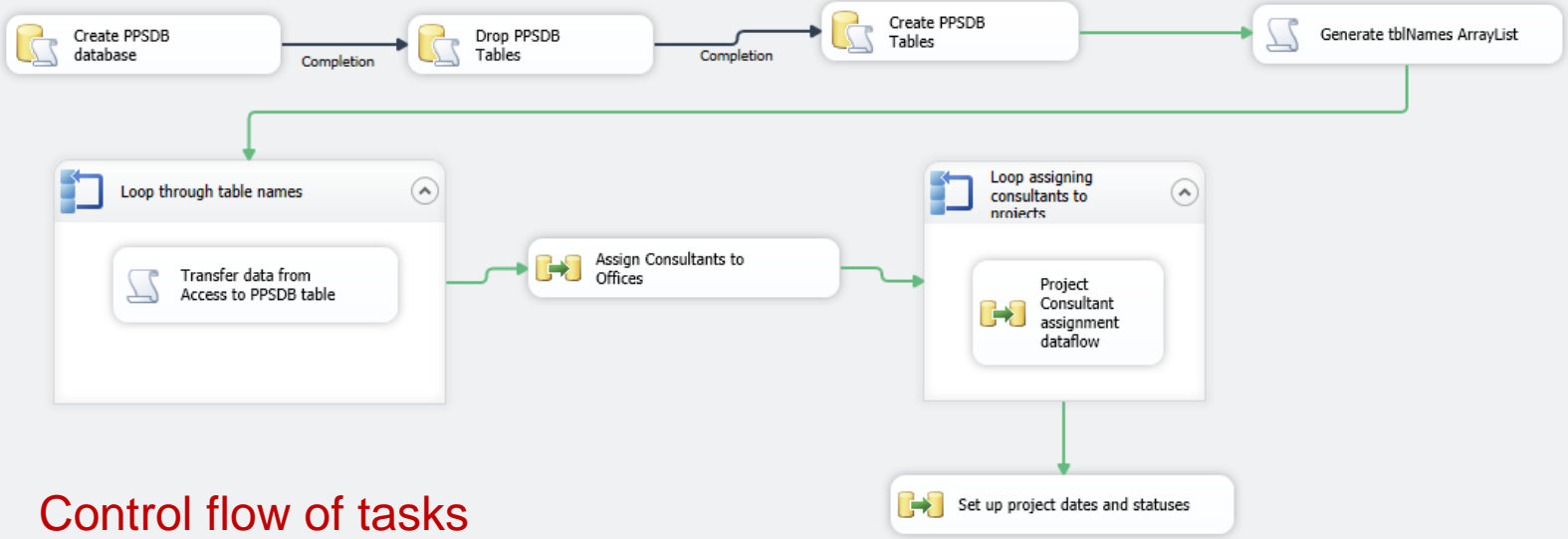


- A convergence of disciplines:
 - BII = Business Information Intelligence (information systems and computer science, databases, reporting and OLAP)
 - BSI = Business Statistical Intelligence (quantitative methods, data mining, descriptive and predictive analytics)
 - BMI = Business Modeling Intelligence (operations research, optimization and simulation, prescriptive analytics)

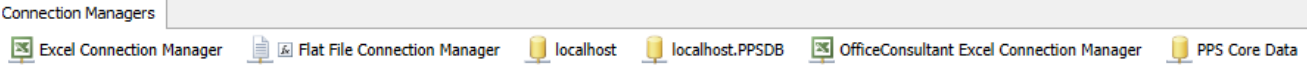
Data Integration and Warehousing



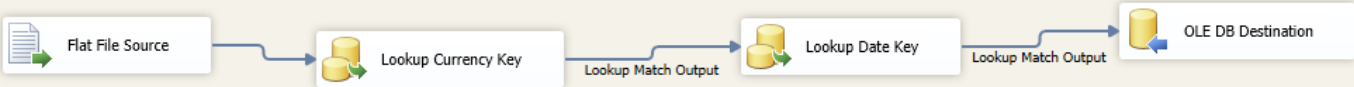
Data Integration with Microsoft SSIS



Control flow of tasks



Connections to data sources



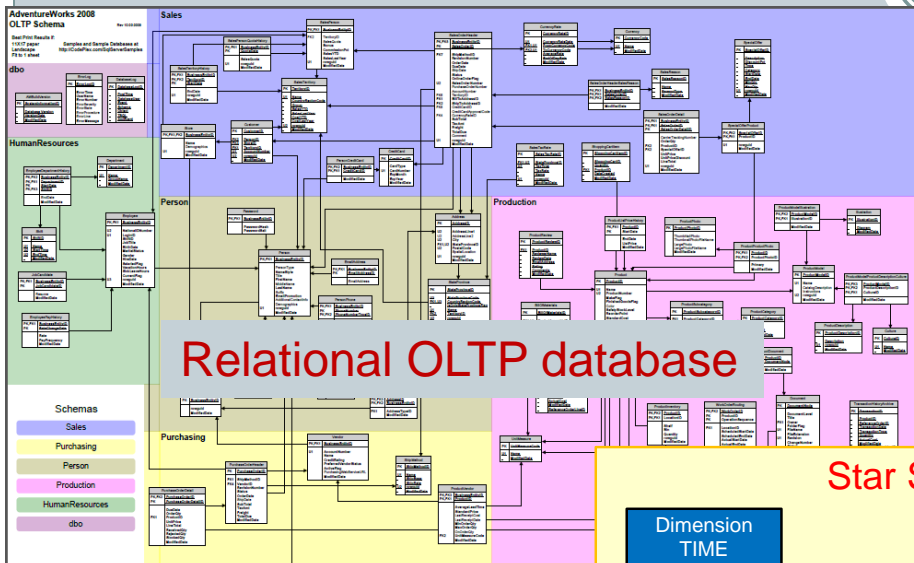
Data flows (with transformations)

Emerging Trends in Data Integration



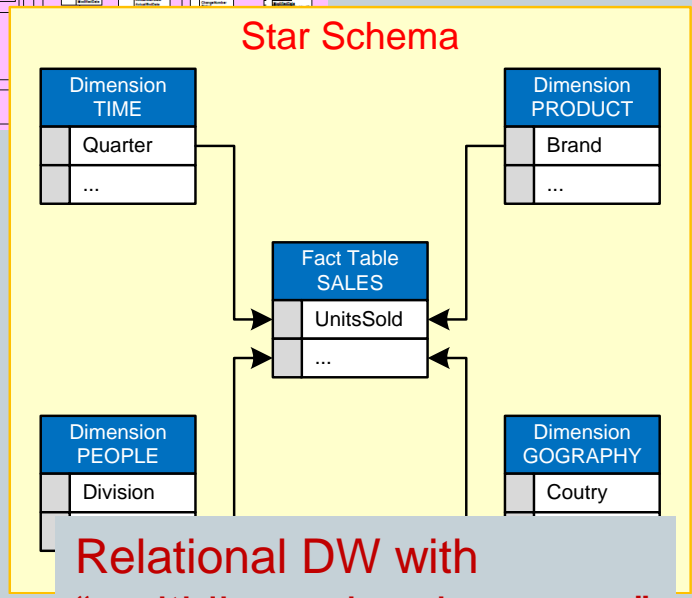
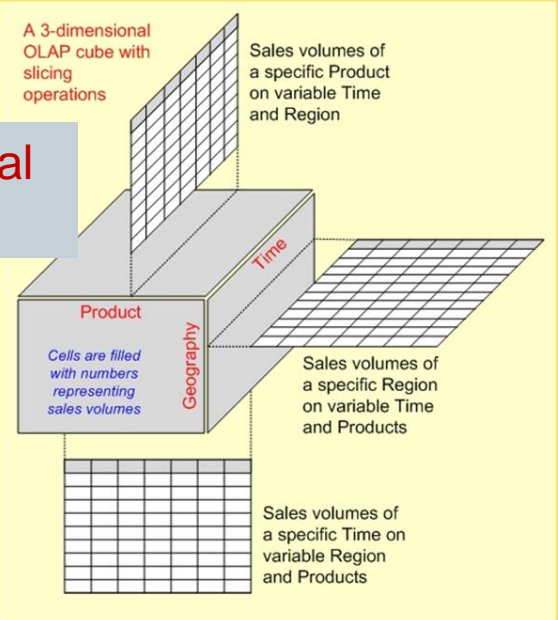
- Traditionally, DW data is not current (snapshot)
- Closer to real-time data access
 - Federated – the “virtual” warehouse (no physical database, rather a view)
 - ✦ Enterprise information integration
 - Active Data Warehouse concept – more frequent ETL
- Increased use of text/web analytics for unstructured data (“big data”)

From Relational to Multidimensional

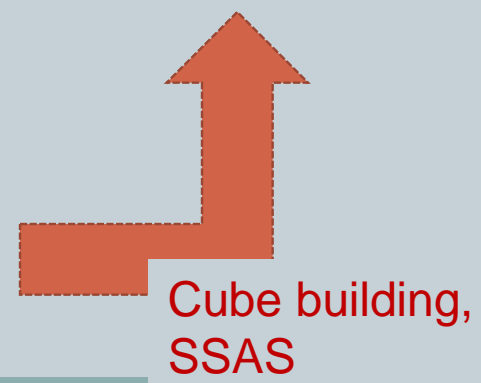


Relational OLTP database

Multidimensional OLAP Cube



Relational DW with "multidimensional purpose"



Data Mining

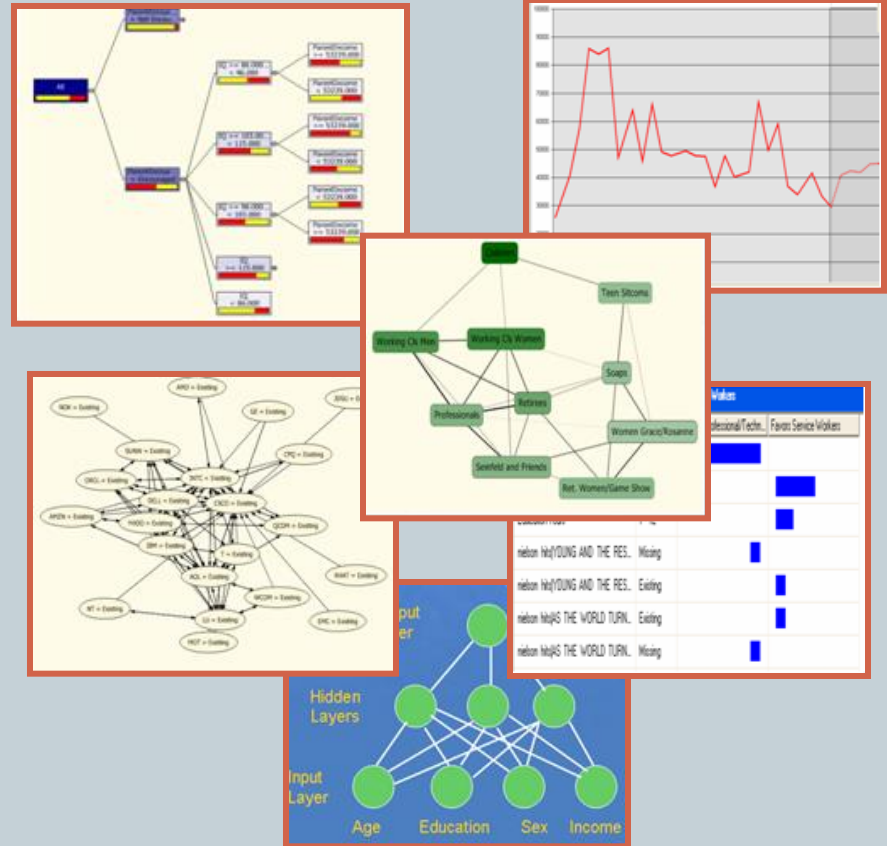


- Knowledge discovery in databases
- Using statistical, mathematical, AI, and machine learning techniques to extract useful information and subsequent knowledge from large databases
- Key point: identifying patterns in large data sets
- This is **INDUCTIVE** reasoning

Common Data Mining Algorithms

- Decision Trees
- Naïve Bayesian
- Clustering
- Association Rules
- Neural Network
- Time Series

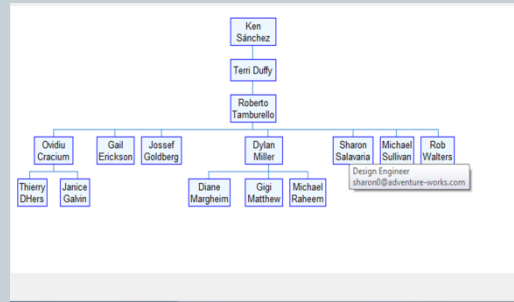
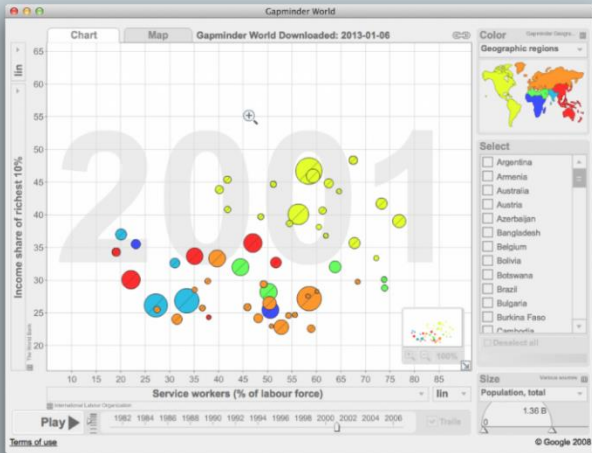
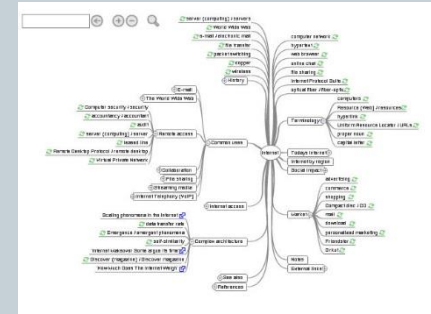
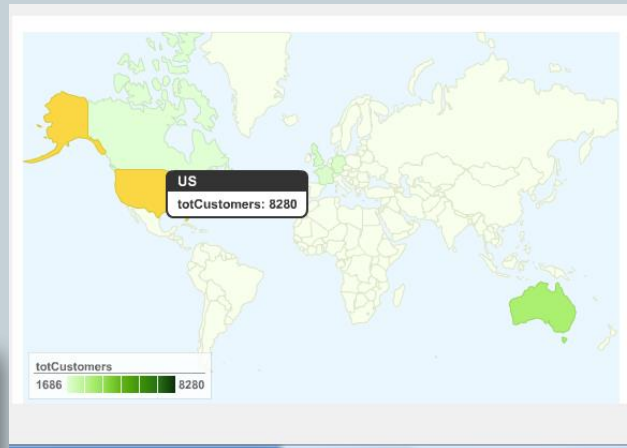
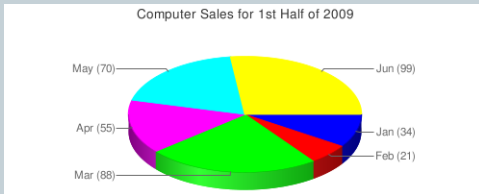
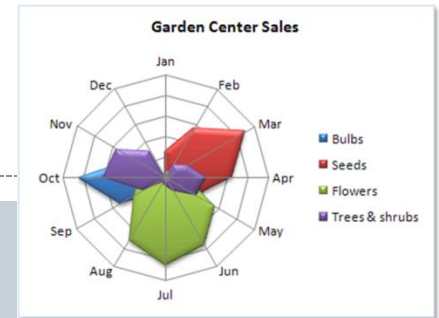
Microsoft SSAS includes several data mining engines



Data Visualization



A picture tells a thousand words



UN chief flies into Sri Lanka as Tamils' tales of terror emerge

Tigers begged me to broker surrender

Obama acknowledges Guantanamo 'one of our biggest'

Indian foreign minister takes finance portfolio

Former South Korea president leaps to death in ravine

Taliban in street battle for control of key city in Swat Valley

Pakistanis to battle for control of key city in Swat Valley

Billups is Back in Den and Has Fans Dreaming of an NBA Title

Night at the Museum* attracts \$15.3 mil at the box office on Friday

In the battle between enchanted museums and explosive machines, museums attracted a larger crowd on Friday according to box-office estimates.

Castronoves is Back Home, Behind the Wheel

How to get Pezzy's truck: Fiat's for the Fiat's

Much to ponder at Expo-Cuba 2009

Night at the Museum* attracts \$15.3 mil at the box office on Friday

Memoria Day commemorations

Man Who Survived Without Chemo: 'I'd Still Fight'

Colleen, Daniel Hauser still on the run

Man Who Survived Without Chemo: 'I'd Still Fight'

Shuttle's landing delayed again

FBI 'lured dimwits' into terror plot

Over Side Project: Oregon AG Seeking in 'Black Hole'

newsmap

Sat May 23, 2008 20:59:26

Applied BI Incubator



- JMU CIS&BSAN initiative
- Like an R&D lab
- Use the talents of faculty and students
- Prototypes, proofs of concept, BI applications
- Explore new BI-related technologies
- Apply technologies to practical business problem-solving tasks
- Projects focused on needs of the business community (JMU engagement)
- On-campus internship
- Faculty project sponsors

Interested? Contact Mike Mitri at
mitrimx@jmu.edu
568-3019