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Using open source tools for data warehousing and reporting

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Emory University School of Law

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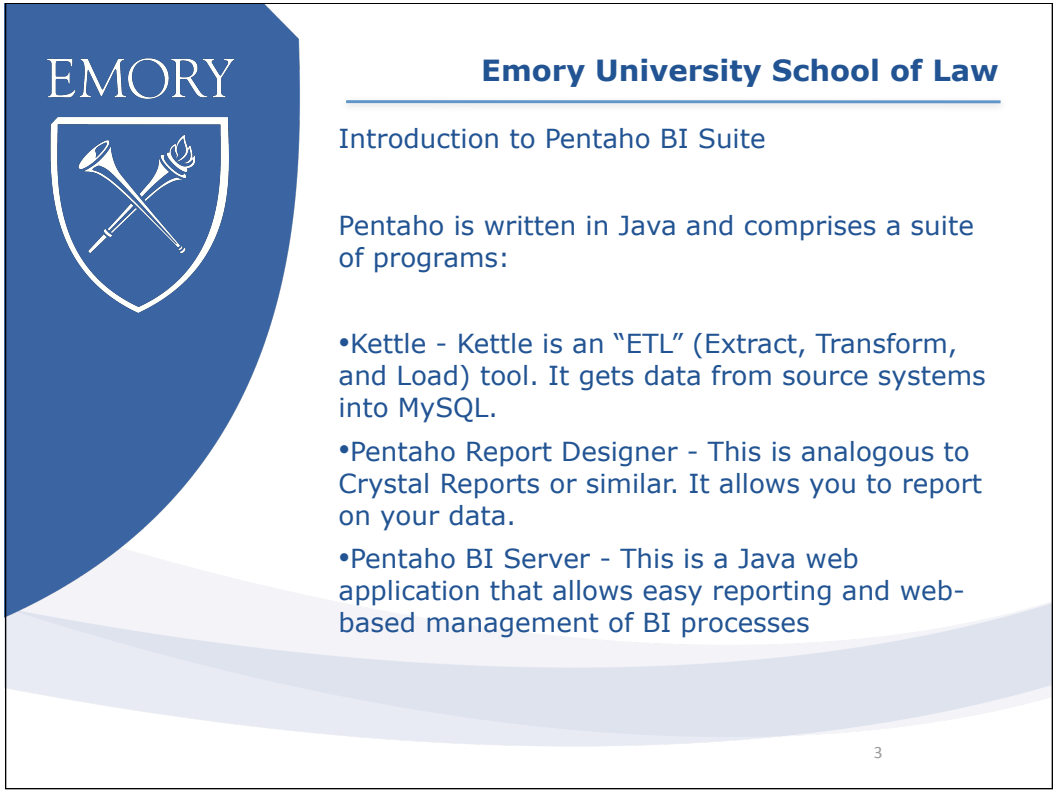
Introduction

Data comes to us from a variety of source systems. We are looking for a way to store, retrieve, and report on this data. This process needs to be *scalable* and *repeatable*.

Most of what we're doing is based on this excellent book:

R. Bouman, J van Dongen "Pentaho Solutions, Business Intelligence and Data Warehousing with Pentaho and MySQL" (Wiley, 2009) ISBN: 978-0-470-48432-6

This book changed my life.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Introduction to Pentaho BI Suite
Pentaho is written in Java and comprises a suite of programs:
•Kettle - Kettle is an "ETL" (Extract, Transform, and Load) tool. It gets data from source systems into MySQL.
•Pentaho Report Designer - This is analogous to Crystal Reports or similar. It allows you to report on your data.
•Pentaho BI Server - This is a Java web application that allows easy reporting and web-based management of BI processes
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A brief non-technical digression before we dive in - I think it's important that we identify areas where law school IT can make unique contributions to the school.

What are some of these areas?

- Creating unique applications
- Doing unique analysis and adding understanding to local data
- Providing law-school specific instructional support

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Current data processes - data goals

- Excel spreadsheets
- Powerpoint graphs and charts
- Goals:
  - Change this process to provide auditable processes with regard to data sources
  - Change the data to being **read-only** and to being **authoritative**
  - Creating processes that do not depend on one or two people only

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Data Sources

- Peoplesoft
  - Grades (output measures)
  - Unofficial Transcripts
- LSAC ACES2
  - Demographic data
  - **LSAT/UGPA** (input measures)
- Symplicity
  - Engagement
  - Participation
  - 1L/2L/Permanent employment
- Manually generated data
  - Soft skills/SBA roles/Leadership, etc

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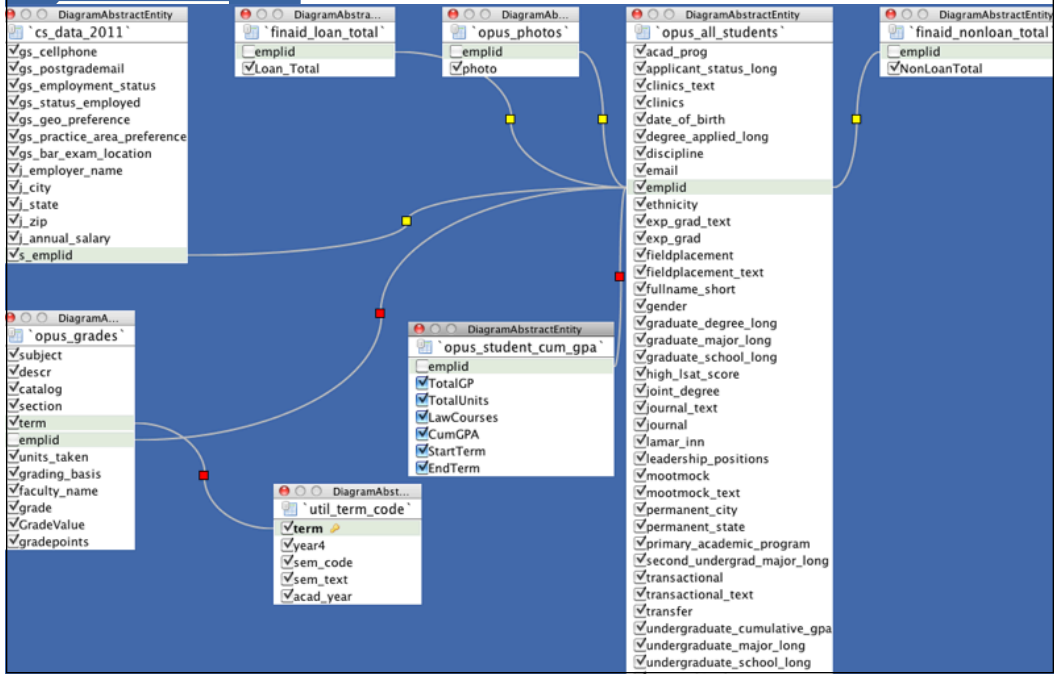

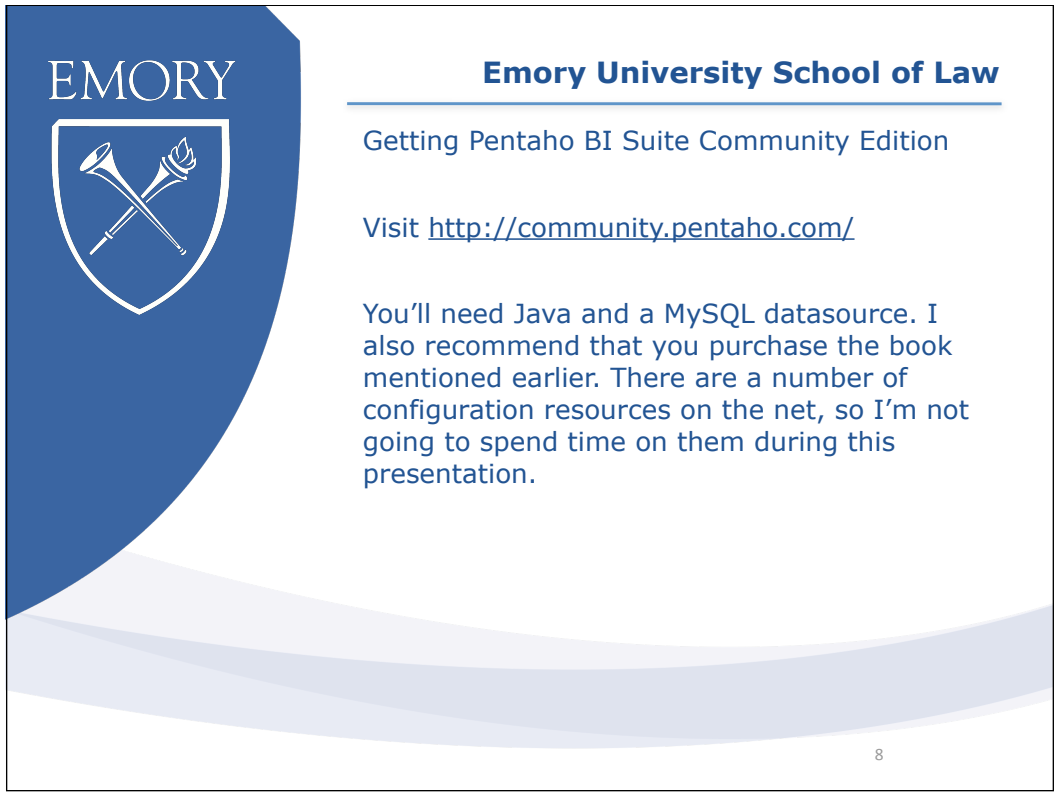
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Getting Pentaho BI Suite Community Edition
Visit http://community.pentaho.com/
You'll need Java and a MySQL datasource. I also recommend that you purchase the book mentioned earlier. There are a number of configuration resources on the net, so I'm not going to spend time on them during this presentation.
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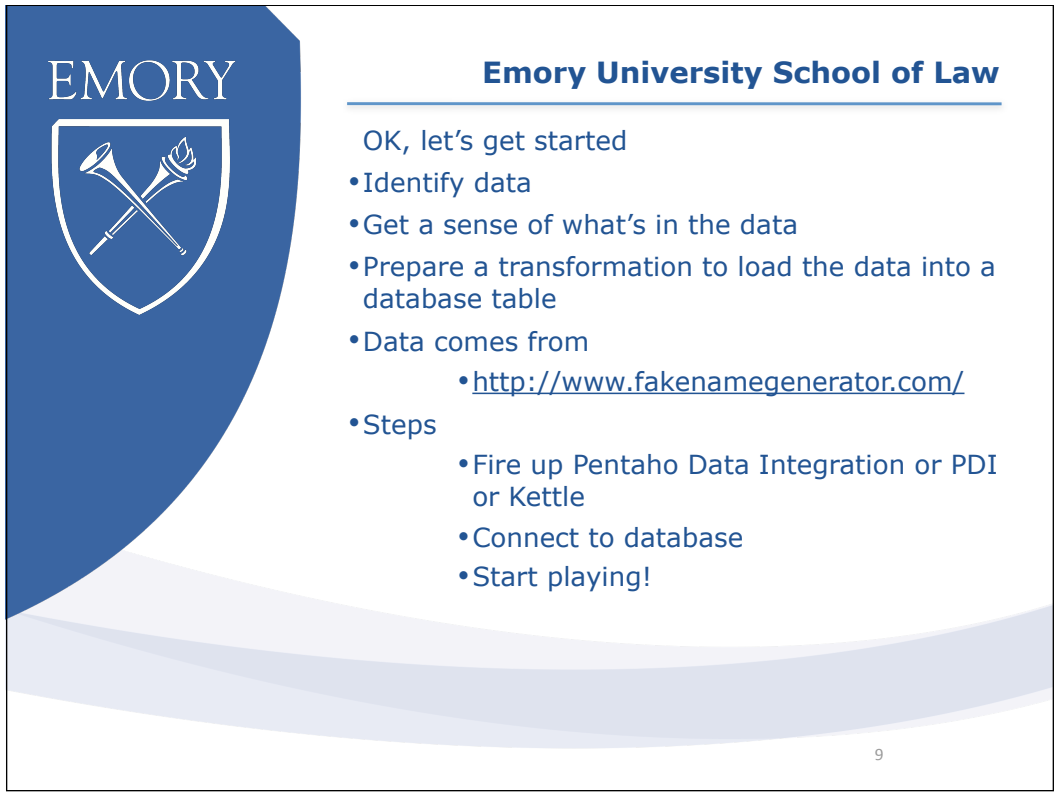
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OK, let's get started
•Identify data
•Get a sense of what's in the data
•Prepare a transformation to load the data into a database table
•Data comes from
•http://www.fakenamegenerator.com/
•Steps
•Fire up Pentaho Data Integration or PDI or Kettle
•Connect to database
•Start playing!
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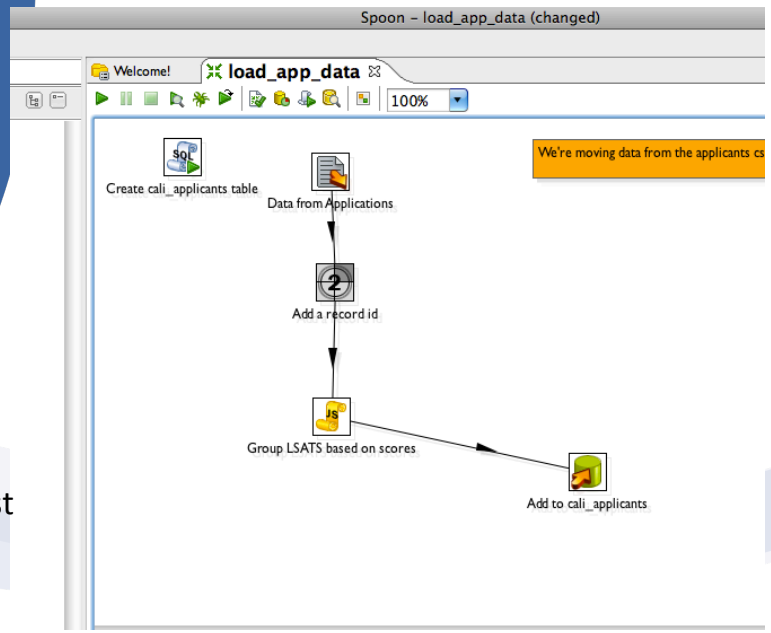

Our goal: create a test import

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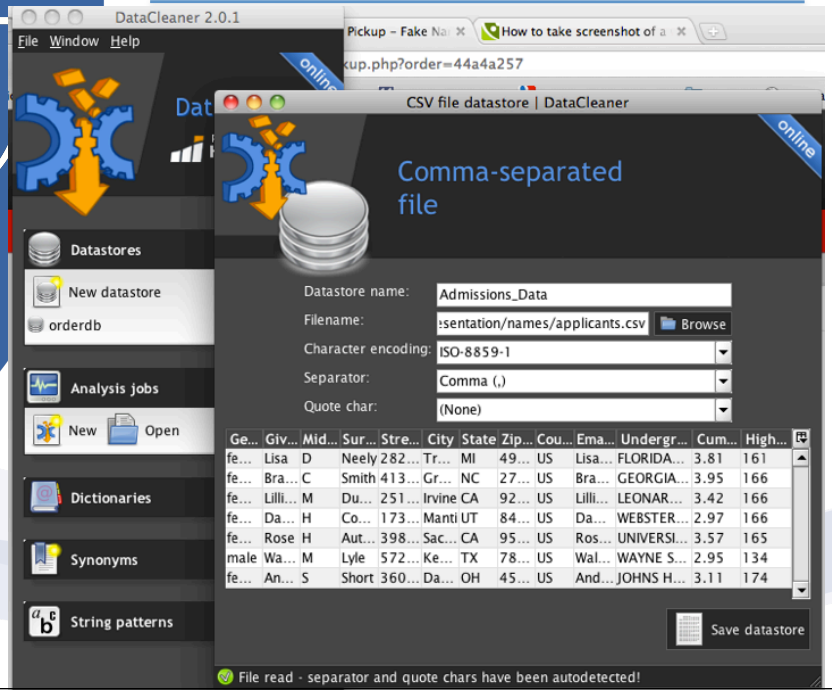
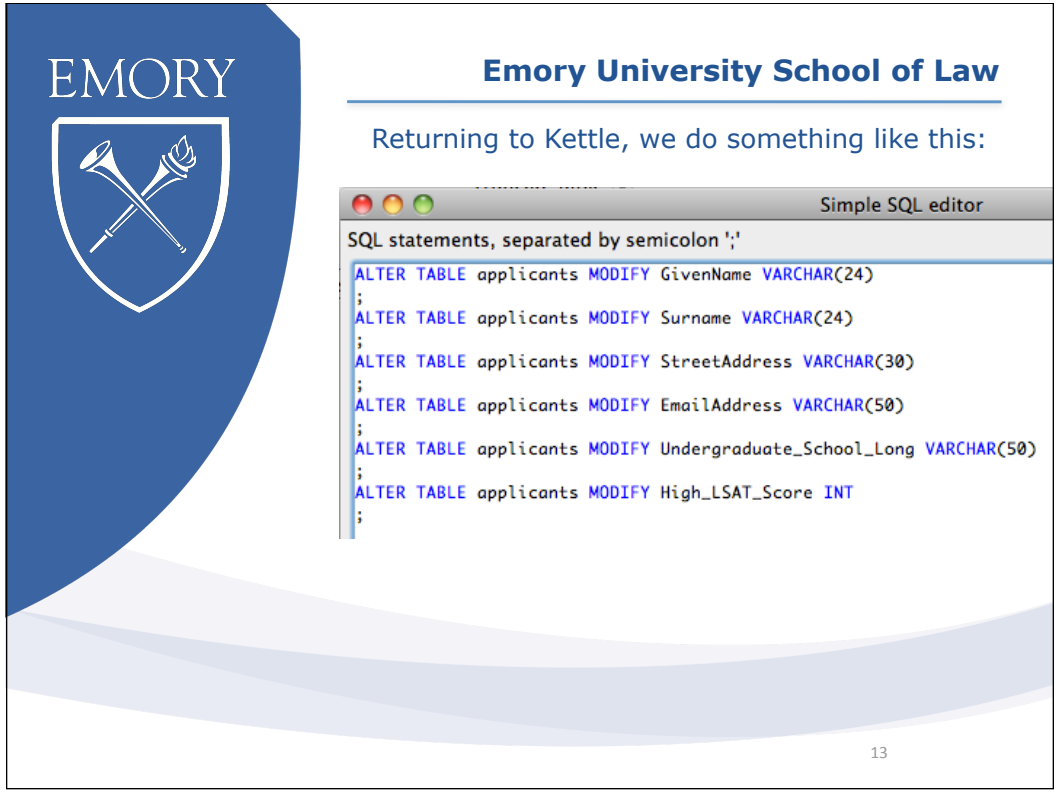


Analysis job run in Data Cleaner tells us a good bit about the data:

	A	B	C	D	E
1		Gender	GivenName	MiddleInitial	Surname
2	Row count	4000	4000	4000	4000
3	Null count	0	0	0	0
4	Entirely uppercase count	0	0	4000	1
5	Entirely lowercase count	4000	0	0	0
6	Total char count	19888	23075	4000	24881
7	Max chars	6	11	1	13
8	Min chars	4	2	1	2
9	Avg chars	4.972	5.769	1	6.22

This helps us tweak and change the data table design.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Returning to Kettle, we do something like this:
Simple SQL editor
SQL statements, separated by semicolon ';'
ALTER TABLE applicants MODIFY GivenName VARCHAR(24)
;
ALTER TABLE applicants MODIFY Surname VARCHAR(24)
;
ALTER TABLE applicants MODIFY StreetAddress VARCHAR(30)
;
ALTER TABLE applicants MODIFY EmailAddress VARCHAR(50)
;
ALTER TABLE applicants MODIFY Undergraduate_School_Long VARCHAR(50)
;
ALTER TABLE applicants MODIFY High_LSAT_Score INT
;
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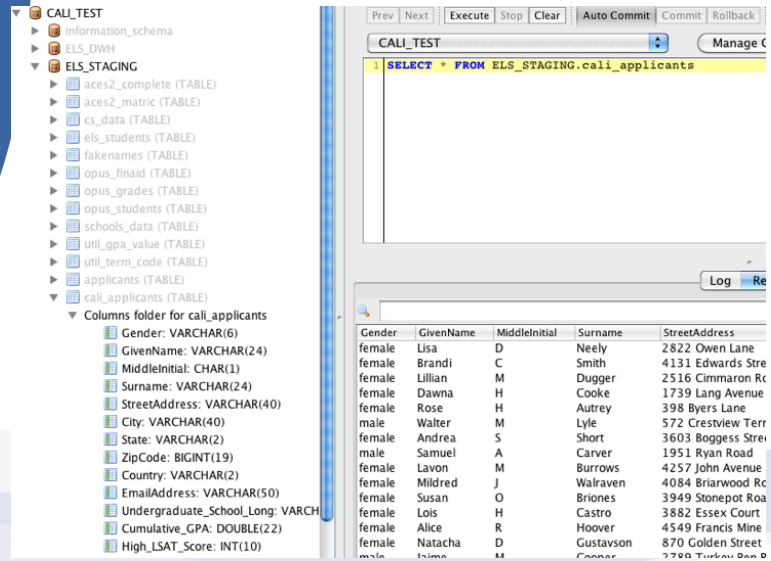
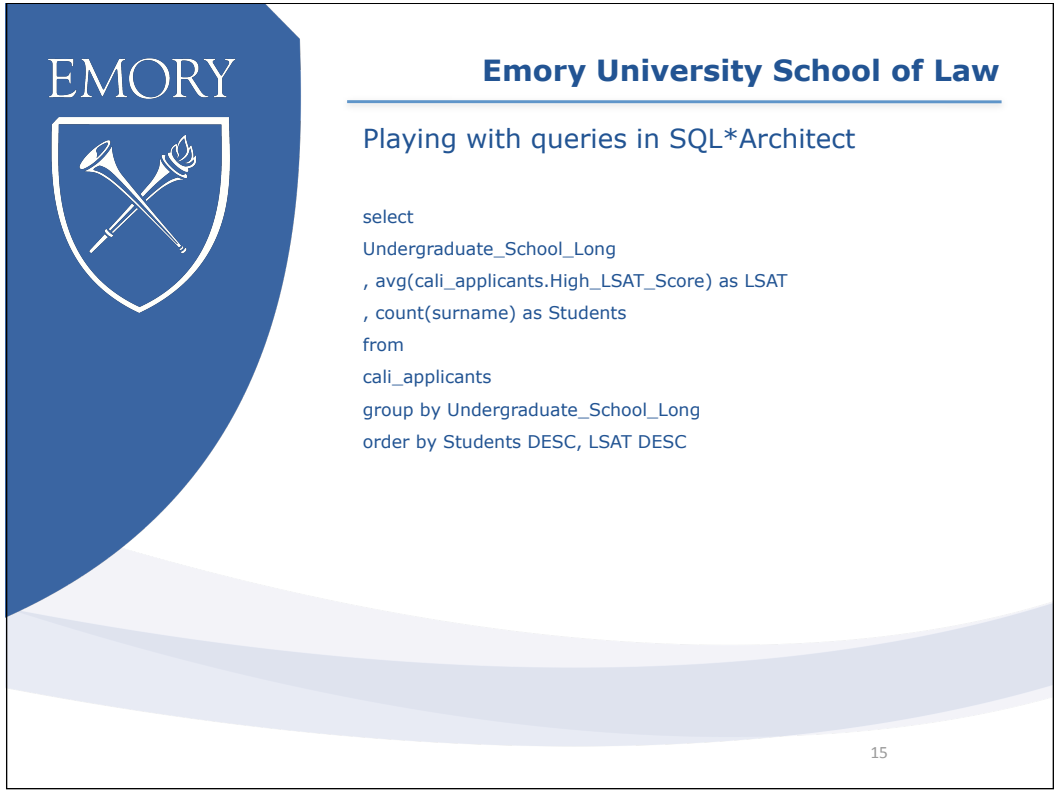
SQL Power*Architect

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Playing with queries in SQL*Architect
select
Undergraduate_School_Long
, avg(cali_applicants.High_LSAT_Score) as LSAT
, count(surname) as Students
from
cali_applicants
group by Undergraduate_School_Long
order by Students DESC, LSAT DESC
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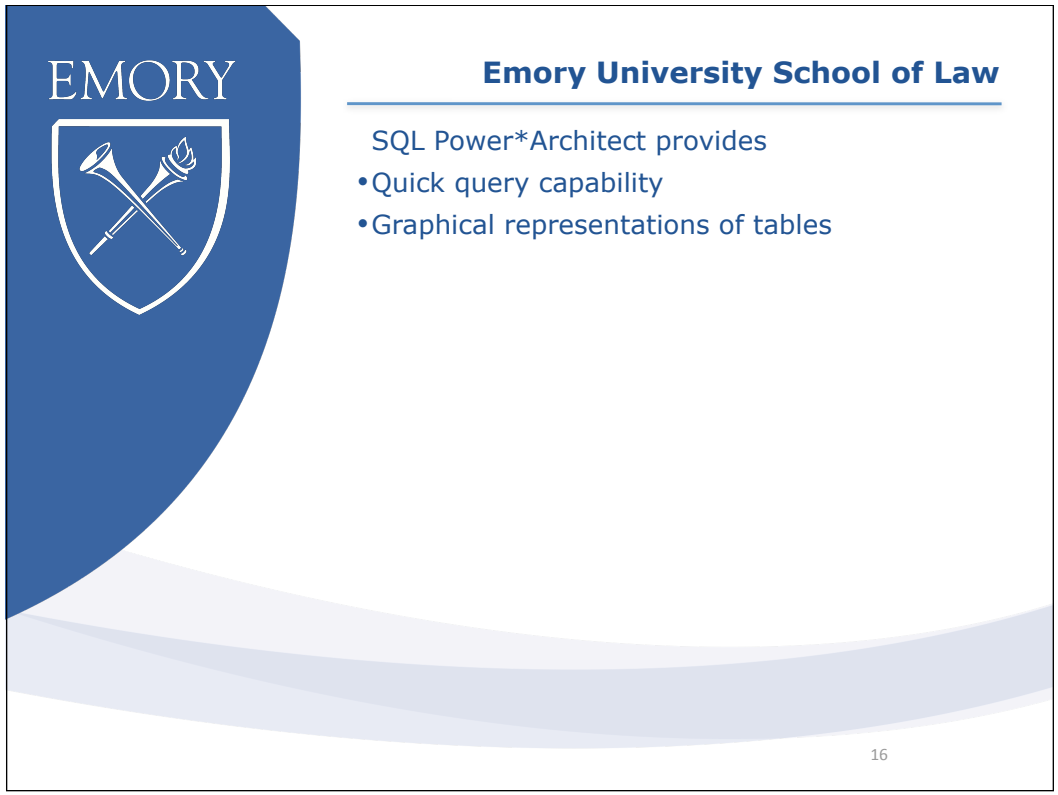
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SQL Power*Architect provides
•Quick query capability
•Graphical representations of tables
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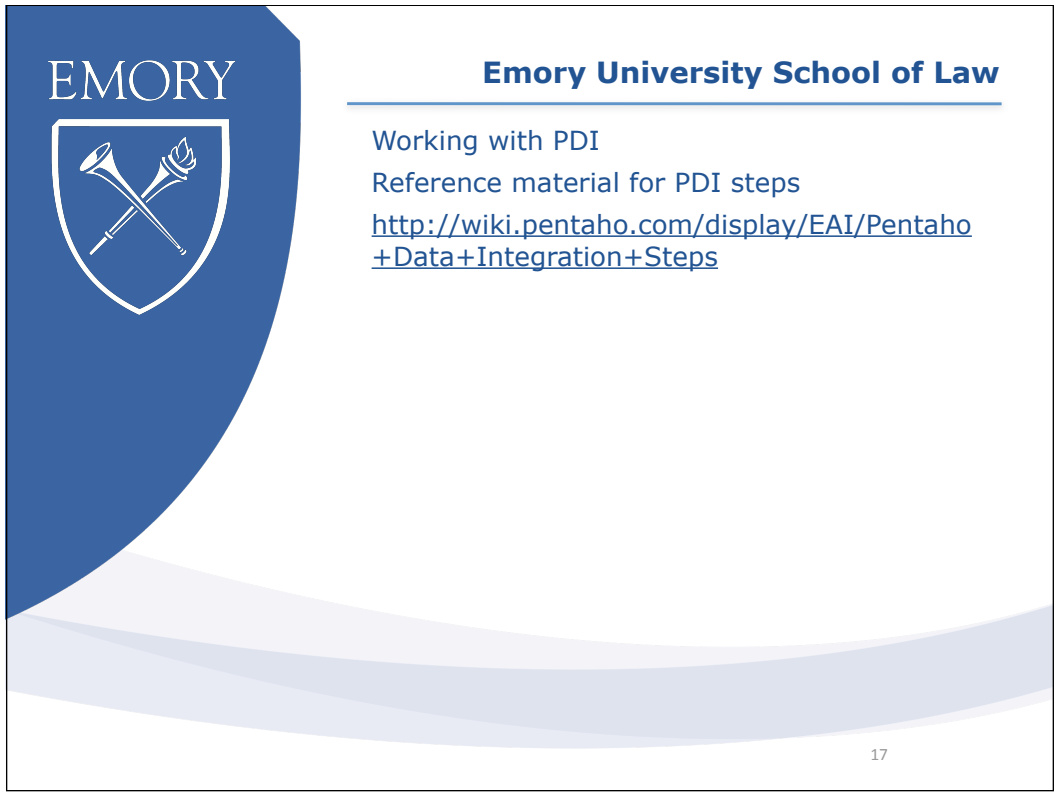
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Working with PDI
Reference material for PDI steps
http://wiki.pentaho.com/display/EAI/Pentaho+Data+Integration+Steps
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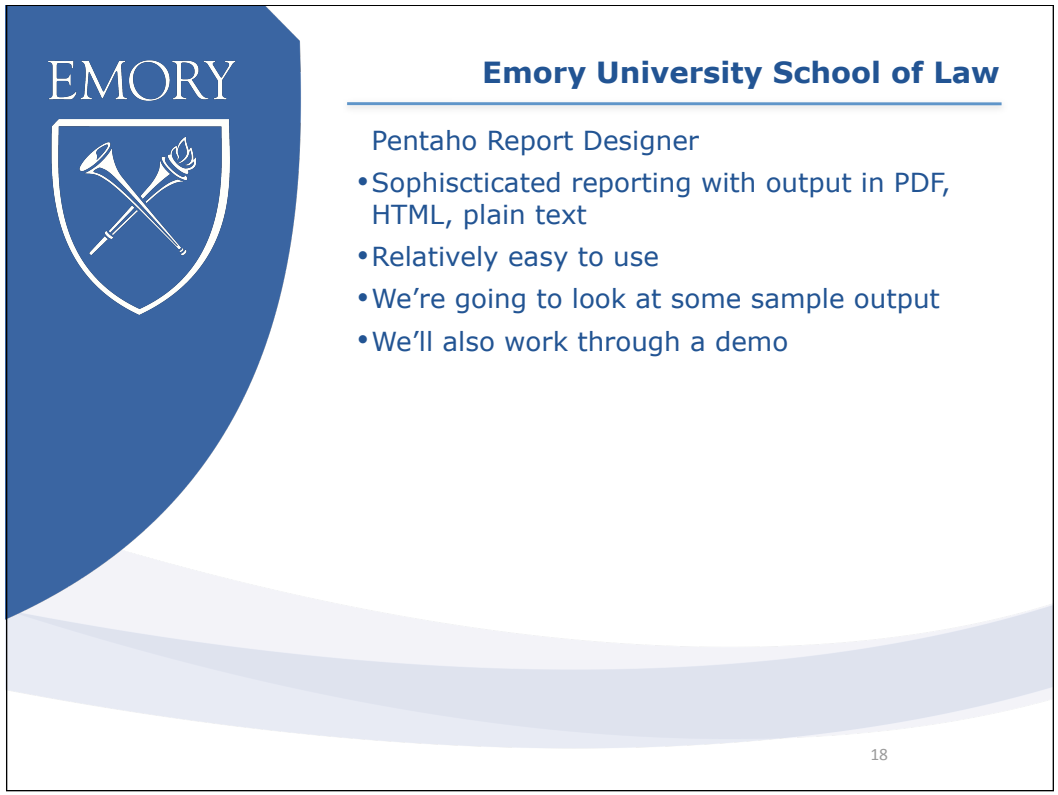
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Pentaho Report Designer
•Sophiscticated reporting with output in PDF, HTML, plain text
•Relatively easy to use
•We're going to look at some sample output
•We'll also work through a demo
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Ethnicity: Hispanic/Latino
DOB: [redacted]
Perm City: [redacted]
Perm State: NJ
Birth City: [redacted]
Birth State: NJ
Birth Country: N/A
EMPLID: [redacted]

Law School Engagement

Journals: N/A
Moot/Mock: N/A
Clinics: N/A
Field Placement: CI Plcmt:Federal Defender,CI Plcmt:US Attorney,CI Plcmt:US Attorney

OCS Relationship

Relationship: **B**
Engagement:

Financial

Scholarships: [redacted]
Loans: [redacted]

Certificate Prog:

Leadership: No
Research Asst: No
Teaching Fellow: No

Employment Preferences

Geographical Preference: N/A
Practice Area Preference: N/A
Bar Exam Location: NY and NJ

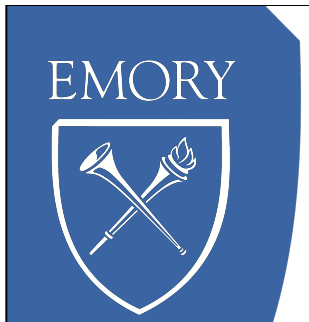
Lamar Inn:
Bar Assn:

Pro Bono: Yes
Advisor: Virginia C[redacted]
[redacted], LLP

Employment

1L Summer: Jud Clerk
2L Summer: Govt
Perm employment status: Employed Full-time
US [redacted]
Salary: [redacted]

Transfer: No



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Course name	Faculty member
Civil Procedure I	Freer,Richard Dale
Contracts	Abrams,Howard Evan
Legl Writ, Rsrch, & Advoc Prog	Kirk,Aaron
Torts	Smith,Gary R
Legal Methods	Buzbee,William W
Professionalism Program	Pratt,Janette B
Civil Procedure II	Freer,Richard Dale
Criminal Law	Nourse,Victoria F
Constitutional Law I	Schapiro,Robert A
Legal Writ.,Rsrch & Advoc Prog	Kirk,Aaron
Property	Jackson,Sara S
Professionalism Program	Pratt,Janette B
Business Associations	Carney,William J
Alternative Dispute Resolution	Armstrong,Phillip M.
Criminal Proc: Investigation	Levine,Kay Leslie
Fundamentals of IncomeTaxation	Abrams,Howard Evan
Survey/ Employee Benefits Law	Hinson,H. Douglas

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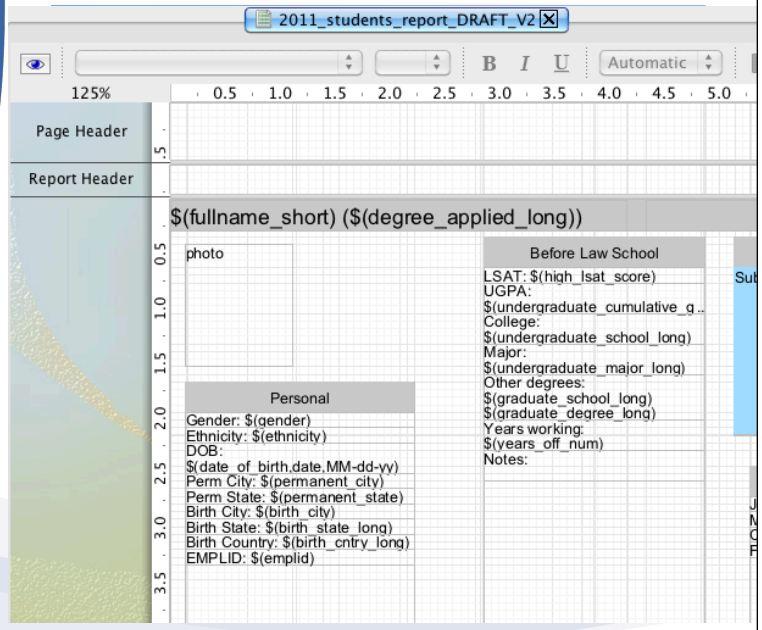

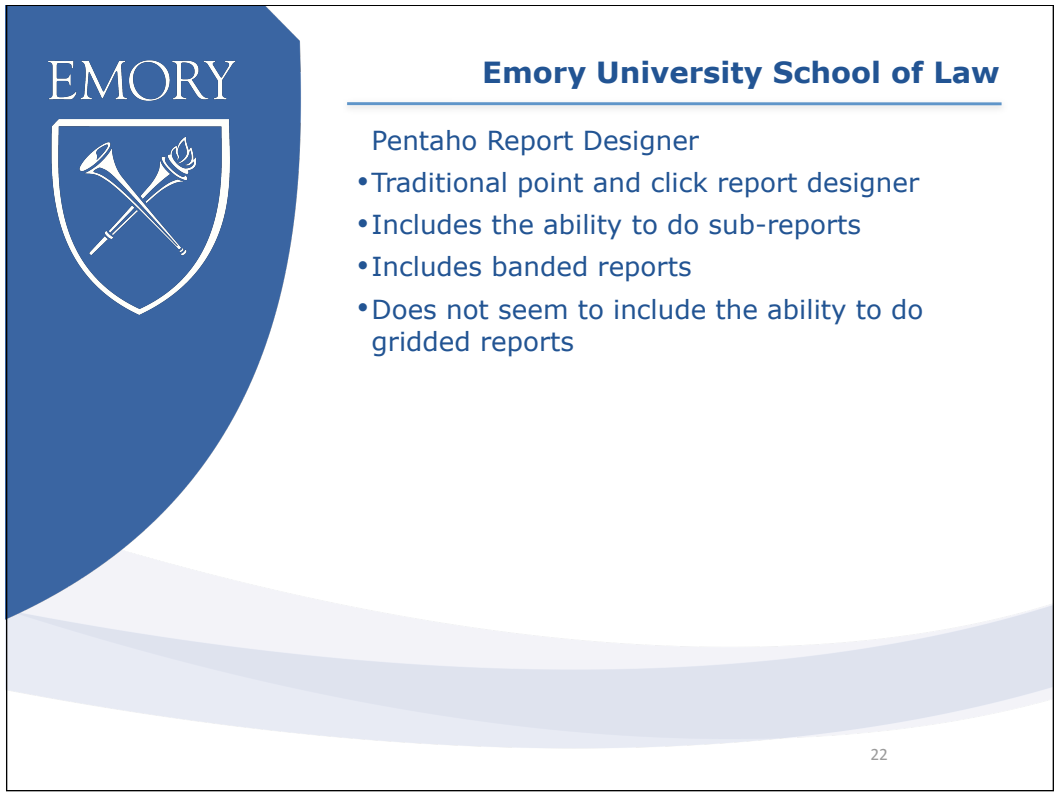
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Pentaho Report Designer
•Traditional point and click report designer
•Includes the ability to do sub-reports
•Includes banded reports
•Does not seem to include the ability to do gridded reports
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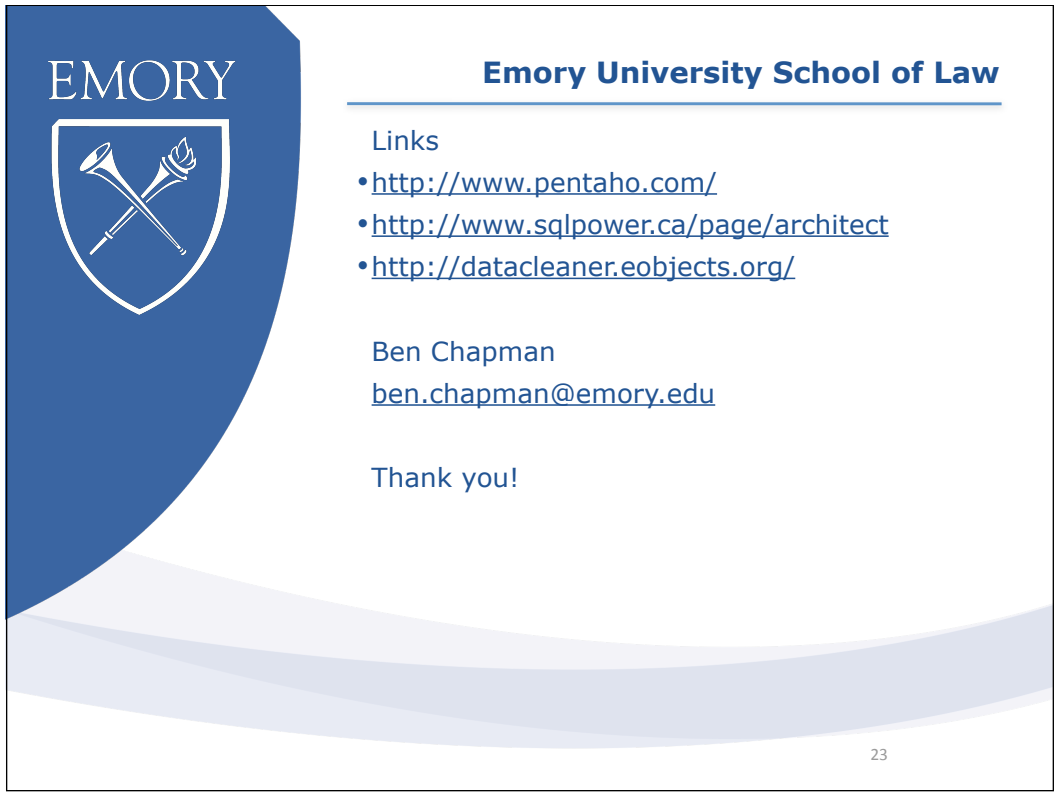
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Links
• http://www.pentaho.com/
• http://www.sqlpower.ca/page/architect
• http://datacleaner.eobjects.org/
Ben Chapman
ben.chapman@emory.edu
Thank you!
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