State Reporting with Blackboard Analytics Data Warehouse

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Agenda

- Introduction
- Versioning
- Selection
- Custom Fields
- Data Cleaning
- Output
- Questions

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University of Maryland - Baltimore County

- Located a few miles south of Baltimore, MD
- 9 Pan-Am chess championships
- #1 Up & Coming university (last 3 years)
- #4 in Undergrad Teaching

- PeopleSoft SA, Finance and HR
- Blackboard Analytics for data warehouse
- SQL Server 2008 R2

"Official" Reporting

- Who
  - Federal (IPEDS)
  - Maryland Higher Education Commission (MHEC)
  - University System of Maryland (USM)
  - Campus

- What
  - Applications
  - Enrollments
  - Credit Hours / FTE
  - Degrees
  - Employees

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Versioning

- Blackboard Analytics (BbA) methodology
- DimVersion
- "10th Day" Freeze
- Summer/Winter Admits
- Change Freeze Key
- Special Version
- Degrees
- Employees

BbA Methodology

- Copy of "Current Snapshot"
- Administrative page
  - Select different Version
  - Future scheduling

DimVersion

Versionkey	Description
-1	Unknown
1	**Current Snapshot**
3	End of Term Census
4	Begin Term Census
7	Day -5
8	Day 1
9	Day 5
10	Day 25
11	POTENTIAL Begin Term Census
13	End of Year Degree Census
14	Begin Special Term Census
15	Advanced Registration

"10ᵗʰ Day" Freeze

- "Begin Term Census"
  - Delivered
  - Official Freeze at end of schedule adjustment
  - Fall and Spring only

- "Potential Begin Term Census"
  - New VersionKey
  - Update to "Begin Term Census"
  - Avoids version availability until valid

Summer / Winter Admits

- Summer Admits
  - Treated as Fall admits
  - Frozen in Summer and Fall
  - Need to know both
  - Winter treated as Spring

- New field: Reporting Admit Term

Key	Admit Term	Key	Rptg Admit Term
100	Summer 2011	101	Fall 2011
101	Fall 2011	101	Fall 2011

Change Freeze Key

RptgAdmitTermKey vs TermKey

- HEA.SnapshotFinal procedure
  - Modified INSERT and DELETE statements
  - Fields based on Term being processed
  - FactApplications only

Special Version

- Freeze at end of Summer schedule adjustment
  - VersionKey 4, AdmitTerm Summer 2011
- Fall freeze includes Summer
  - VersionKey 4, AdmitTerm Summer 2011

- "Begin Special Term Census"
  - New VersionKey
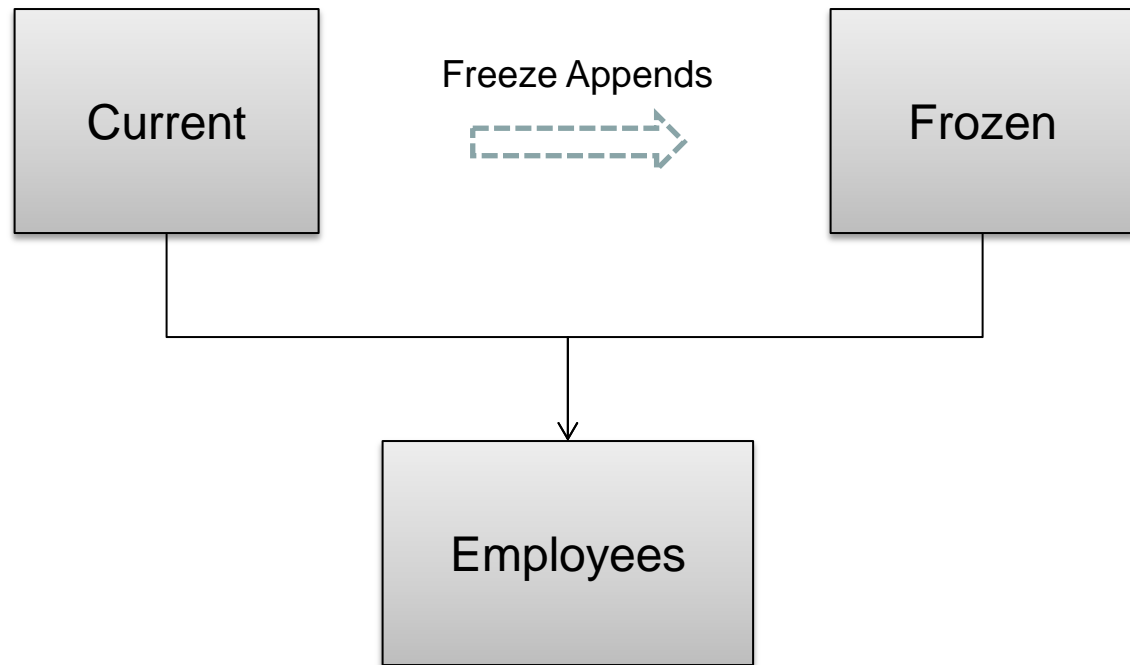 - Avoids duplicate TermKey in Version

Degrees

"End of Year Degree Census"

- Freeze degrees in August 2012
  - Summer 2011, Fall 2011, Spring 2012
- Manual freeze
  - copy Version 1 to 13 (New VersionKey)
  - DimTerm.Academic Year = '2012'
- FactDegreeAwards
  - One record per degree
- FactDegreePlans (New table)
  - One record per major per degree

Employees

Refreshed
Every Night

Current

Freeze Appends

Frozen

Employees

Not part of BbA

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Selection of Official Records

New Dimensions

- Official Application
- Official Enrolled
- Official Subject
- Official Degree Plan

Official Application

- Exclude
  - Readmit/Reinstate
  - Continuing Education
  - Previously Enrolled at "Student Level"
  - Intercampus
- One Record Per Student
  - Enrolled with application
  - Program Status (admit over applied)
  - Education Level (PhD over Masters)

Official Enrolled

- Include
  - Enrolled
  - Official Plan
  - Primary StudentTerm (UG & Grad)
- Exclude
  - Continuing Education
  - Taking only Audit courses
  - Taking only "Place holder" courses

Official Subject

- Reporting Credit Hours and FTE
- Custom table of Subject attributes

- Excludes
  - "Place holder" courses
    - Study Abroad
    - Grad Assistant
    - Practicum
  - Intercampus
  - Remedial Subjects

Official Degree Plan

- New table : FactDegreePlans
- Include
  - Awarded
  - Valid HEGIS/CIP Code
  - Major/Certificate only
- Exclude
  - Previously Awarded
  - Secondary Plan for Graduate students
  - Duplicates
  - Mixed degree level

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Custom Fields

- GenderIPEDS
- Ethnicity / Multiple Ethnicities
- FTE
- App Enrolled Official
- App Student Level
- Degree Sought MHEC
- Other Custom Fields

GenderIPEDS

- Handling "Unknown" Gender
- Based on Student ID
- Even = "Male – Assigned" ……

SourceKey	Description	AltDescription
1	Male	Male
2	Female	Female
3	Male	Male - Assigned
4	Female	Female - Assigned

Ethnicity

- DimEthnicity
  - DimStudent.CurrentEthnicity

- DimIPEDSEthnicity
  - DimStudent.CurrentEthnicity
  - DimStudent.CurrentCitizenship
  - Added EthnicityCodeIPEDS
  - Added EthnicURMCount

Multiple Ethnicities

Single Answer

- Helper table created
  - Single ethnicity per person
  - Source for CurrentEthnicity
- Any Hispanic = Hispanic
- More than one non-Hispanic = "Two or More"
- "MULTI" ethnicity created in load

Multiple Ethnicities

Multiple Answers

- DimEthnicities
  - New static dimension (128 combos)
  - Allows for multiple ethnicities
  - Indicator for each ethnicity

- SourceKey
  AMIND-ASIAN-BLACK-HISPA-NSPEC-PACIF-WHITE
  -ASIAN-BLACK-HISPA---
  ------WHITE

FTE

- Delivered
  - FactStudentTerm
  - 'FTE Divisor - Undergraduate' (12)
  - 'FTE Divisor - Non-Undergraduate'   (9)

- Customization
  - FactRegistration
  - Course Level (ug 15)
  - Thesis course (9)
  - Masters/Doctoral student (12/10)

App Enrolled Official

Is student officially enrolled in Fall/Spring with this Application?

- Trying to sync Applicant file indicating enrolled with the Enrollment file indicating new
- Case: UG applies for Grad, stays UG
- New field in FactApplications, but set in PreLoad FactStudentTerm
- Must be Officially Enrolled in Rptg Admit Term
- Admissions Application Number must match

App Student Level

- Student Level
  - Undergrad
  - Masters
  - Doctorate
- Student Level New
  - Previous Enrollment at Student Level
- Student Level Status
  - Report to State combination of two variables

Degree Sought MHEC

- State codes for degree objective
- Attribute associated with each Plan
- Dimension attributes
  - Current MHEC code
  - Code for Enrollment file Prior to 2009
  - Code for Degree file Prior to 2009

- Separate code for "Bachelors 2nd Major"

Other Custom Fields

- New Status Official
  - New/Continuing, Freshmen/Transfer
- First Time Status MHEC
- Geographic Origin Official
  - Time of application
  - County, State, International
- DimResidency.Residency MHEC
- Instruction Mode
- Room Scheduled By

Campus Reporting

Plan = "BIOL BS"

- Plan Objective
  - Bachelors
- Reporting Plan
  - "BIOL"
  - UG/Grad Indicators
- Plan Reporting Org
  - BIOL and MOCB to "Biological Sciences"
- Plan Reporting College

Plan Attributes

- Custom setup table
- Reporting Organization rollup
- Degree Sought MHEC
- Online Plan indicator
- Second Campus indicator
- Continuing Ed indicator
- STEM indicator

Slowly Changing Dimension

Plan Attributes History

- Reporting Org rollup changes over time
- Setup table has Begin and End Term
- DimPlanAttributes
  - Latest record for each Plan
  - Lookup by SourceKey
- DimPlanAttributesHistory
  - All records
  - Lookup by SourceKey AND Term between Begin and End Term

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Data Cleaning

- Clean it in the transaction system
  - Daily reports for Data Quality
- "Unknown" values (key = -1)
- Create fake records
  - Bad majors
  - "Two or More" Ethnicity
- New fields
  - GenderIPEDS
  - App Enrolled Official

Output

- Extract files to State
  - SAS
  - Selection using proper Version
  - Selection using "Official" fields
- Campus reports
  - Any reporting tool
  - Same selection criteria
  - Same fields

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Recap

- Versioning
  - New Versions
  - Change selection key
  - Manual freezes
- Selection
  - "Official" indicators
- Custom Fields
  - PeopleSoft shortcomings
  - "State" requirements
- Current and Frozen data together

Wrap Up

Any Questions?

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Source code is available upon request