Miami Dade College

Course Description

CTS2440 | Business Intelligence: Analysis Services and Data Mining | 4.00 credits

This is one of two sources in business intelligence designed to provide students with the skills necessary for advanced web-based applications. This course provides an introduction to various data mining and business intelligence techniques. Students will learn Analysis Services and Data Mining, including database and problem-solving skills. The course focuses on how these techniques are applied in the corporate environment to better manage business processes and how data analysis is utilized to achieve business success. Prerequisite: CTS1437 or CTS2433 or CTS2451.

Course Competencies:

Competency 1: The student will demonstrate the ability to design cube architecture by:

1. Creating and populating a cube
2. Creating KPIs, actions, calculating members, drill through
3. Designing SSAS aggregation
4. Creating and manipulating dimensions (Ragged hierarchy, Flexible, Rigid, Semi- additive, Periodicity, Fact Relationships)
5. Selecting a processing mode

Competency 2: The student will demonstrate how to design for international implementation by:

1. Using currency conversion to satisfy business needs
2. Using translation to present localized cube metadata
3. Explaining the use and application of localization

Competency 3: The student will demonstrate the ability to design a data source view by:

1. Using named queries to retrieve data
2. Using denormalization strategy to speed up data access
3. Using Code-Behind to develop application

Competency 4: The student will demonstrate the ability to design perspectives by:

1. Enhancing usability using perspectives on the following objects:
    a. Dimensions (hierarchies and attributes)
    b. Measures groups (measures) KPIs
    c. Calculated members Actions
2. Implementing perspectives to create simplified views of a particular cube

Competency 5: The student will demonstrate the ability to design and create business-driven Multidimensional Expressions (MDX) calculations.

1. Creating Calculated Members
2. Creating a named set in MDX

Competency 6: The student will demonstrate how to analyze cube performance by:

1. Optimizing SSAS aggregation
2. Using query cube design to analyze performance data
3. Defining key performance indicators for cube
4. Discovering and Querying KPIs

Competency 7: The student will demonstrate how to design a mining model and structure by:

1. Assigning a data source

2. Specifying filter properties
3. Reconciling heterogeneous data sources
4. Selecting a refresh strategy (partial or full)

Competency 8: The student will demonstrate how to design strategies for staging data for mining by:

1. Selecting a method for cleaning data (closed-loop process)
2. Specifying partitioning of data into testing and training sets

Competency 9: The student will demonstrate how to select a strategy for visualizing data mining results by:

1. Implementing DMX queries (drill-through queries, structured and unstructured columns, column aliasing)
2. Applying the data mining Microsoft Office Excel add-in to analyze spreadsheet data
3. Designing a report by using reporting services

Competency 10: The student will demonstrate how to select data mining algorithms by:

1. Using sequence, time series, neural net, association, and decision tree functions
2. Creating data mining structures in BIDS
3. Using classification to predict the values of one more fixed variable based on multiple input variables
4. Using the clustering algorithm enables end users to understand the relations between attributes in a large volume of data

Competency 11: The student will demonstrate how to refine testing models by:

1. Applying predictions
2. Analyzing results
3. Performing cross-validation

Learning Outcomes:

- Use quantitative analytical skills to evaluate and process numerical data
- Solve problems using critical and creative thinking and scientific reasoning
- Use computer and emerging technologies effectively