

# CS157B Spring 2015: Team Project

**Instructor: Dr. Kim**

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- Soft Copy Due: Wednesday May 13 11:59pm through the course web site.
  - Hard Copy Due: At the beginning of your demo session on Thursday May 14.
  - Demo Sessions: Thursday May 14; A sign up sheet will be available soon. Not all members need to be present.
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In this project, you will design and implement a simple BI (Business Intelligence) tool to perform OLAP operations.

Use [IBM Cognos Business Intelligence 10.2 Server on IBM Academic Cloud](#) for inspiration.

For this project, I am providing you with sample databases [here](#) (The databases are given by Dr. Kimball.) Go over these databases and choose the data set you want to work on. Each database contains one or more fact tables and many dimension tables. The individual tables should be clearly labeled and the foreign key to primary key joins should be obvious. You don't need to use any \_GP tables. This project consists of three parts.

## Part 1

Based on the data set of your choice, conduct dimensional design process. Since sample dimensions and fact tables are given, in this stage, you may decide how to use the data set for your purpose. In other words, decide if you are going to use the given data set as it is so that your dimensional model will have the same set of dimension and fact tables given in the sample or if you want to scale down or change it in a way that you have different or reduced number of dimension and fact tables and use sample data to populate tables of your choice. Once a dimension table is chosen, the dimension is supposed to have the same number of columns and amount rows as in the original data set.

## Part 2

Implement a star schema representing your dimensional model in MySQL and populate it using the database of your choice.

## Part 3

Design and implement a GUI application (Java or Web based) including the following functions:

1. To display all dimensions and attributes reflecting their concept hierarchy for user to choose
2. To provide users with interactive interface to perform roll up, drill down, slice and dice. User should be able to add/remove dimensions from the current base cube and also be able to climb up/down through the concept hierarchy. (You don't have to follow the look and the way of IBM Cognos to satisfy this requirement.)
3. To display the resulting report in a user friendly way.

## Deliverables

- Softcopy: project.zip/team including all files (java, sql scrips, and data files) to run your application.
- Hardcopy: Write a report that includes
  1. A brief description of what your dimensional model represents
  2. An ER diagram of your star schema
  3. Screen shots of
    1. Initial screen that shows dimensions and attributes
    2. Report representing a base cube
    3. Report after performing a roll-up operation on the base cube. Write one sentence to tell me which concept hierarchy is climbed up or which dimension is reduced to implement this roll-up operation.
    4. Report after performing a drill-down operation on the base cube. Write one sentence to tell me which concept hierarchy is climbed down or which dimension is added to implement this drill-down operation.
    5. Report after performing a slice operation on the base cube. Write one sentence to tell me which dimension is used in the slice operation.
    6. Report after performing a dice operation on the base cube. Write one sentence to tell me which dimensions are used in the dice operation.