

Construct a Dimensional Model

Friday, September 09, 2016 12:03 PM



Construct a
Dimensio...

An alternative audio recording of these instructions is attached.

Due Date: See My Grades for the due date for this assignment

Assignment goal: *Create a dimensional model diagram* based on the following **case problem statement** business rules and requirements.

NOTE: This assignment, while VERY similar to the tutorial you completed, will have a VERY different outcome. The data file is completely different and attached to the assignment. You must use the data file for this assignment and NOT the one associated with the tutorial.

Work Product:

- You will produce and submit a single PowerPoint document that contains:
 - Hand drawings of the initial requirements study - [Sample](#)
 - Hand drawings of the comparison between the [initial study](#) and [databases entities](#)
 - Hand drawings of **EACH PHASE** of [constructing](#) the dimensional model including the [final model](#)

Case problem statement: The university computer lab's director keeps track of lab usage, as measured by the number of students using the lab. This function is important for budgeting purposes. The computer lab director assigns you the task of developing a data warehouse to keep track of the lab usage statistics.

The main requirements for this database are to:

- Show the total number of users by different time periods.
- Show the total time (in minutes, or hours if above 60 minutes) spent in the lab working on the activity
- Show usage numbers by time period, by major, by student classification, by project name (if it applies)
- Compare usage for different majors different semesters, and projects

Remember, in this assignment you only have to *produce* a **diagram similar** to the one described in the slide set [Building a Star Schema Dimensional Model](#). But you **also** MUST show me how you got there using the [process snapshot](#) steps defined in that lesson...

Here are the **deliverable requirements** (see the rubric on the assignment for the assessment weight I will apply to each deliverable)

READ each line before starting!! *Do NOT reproduce* what you see in the examples. They are just examples.

1. *Hand-write* the business rules and requirements on a piece of paper
2. *Circle (or highlight)* **key words, phrases** in the requirements that may lead to a fact or dimension
3. *Write out* in the margin the **potential facts and dimensions** that will be used in the model

4. Draw **arrows** from the facts/dimensions to the related text you circled
5. Take a picture or scan [hand-drawn result](#) and paste in a **PowerPoint** document, called "**dim-model-survey.pptx**"
6. Open the **database** you downloaded from the assignment
7. Take a screen capture of the **Design View** of the database tables and paste them into the **same PowerPoint** document indicated earlier
8. Size and position the **images** so all are clearly seen next to one another (placement does not matter). Leave **enough space** to *annotate in the margins*.
9. Print the **slide**
10. Compare the **facts/dimensions** you derived from the **business rules and requirements assessment** with the **fields and descriptions** in the **design of the tables**
11. Draw **arrows** from the [database fields/descriptions to corresponding facts and dimensions](#) you already discovered in the earlier assessment
12. Add any **new facts and dimensions** in the margins and draw the **necessary circles and arrows that relate**.
13. Formalize a **final list of facts and dimensions**
14. Hand draw your **fact table** using the [phases](#) defined in the slide set *Building a Star Schema Dimensional Model*
15. Hand draw your **dimension tables** again using the **phases** defined in the slide set *Building a Star Schema Dimensional Model*
16. Formalize a **hand-drawn final dimensional model** with its **relationship connectors and cardinality**
17. Hand-write your **first and last name and date/time** you finished the model directly underneath the final model
18. Scan or take a picture of **ANY hand-drawn** work and place in **separate slides** in the **same PowerPoint** file. Make sure **all** of the **notes, lines** etc... can be clearly distinguishable.
19. Upload a single complete PowerPoint file to the assignment on Blackboard

Here is a checklist of what you should produce and how to submit

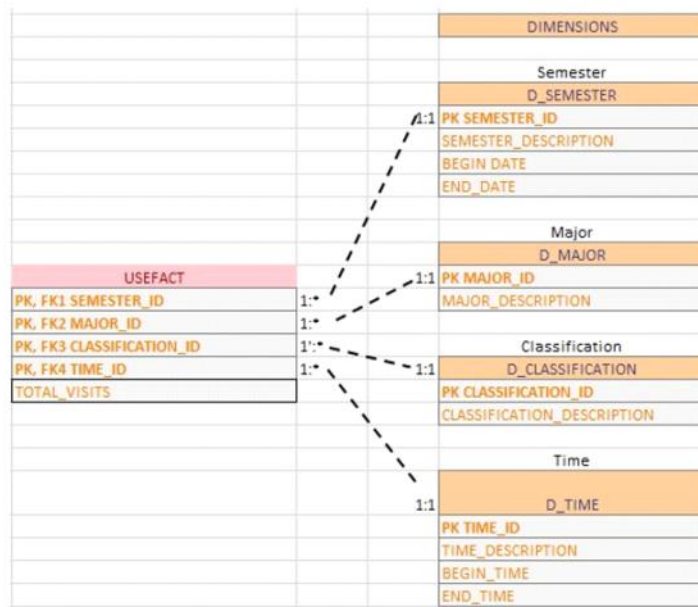
- ☐ 1. Produce a single PowerPoint document that contains:
 - ☐ a. Hand drawings of the initial requirements study
 - ☐ b. Hand drawings of the comparison between the initial study and databases entities
 - ☐ c. Hand drawings of **EACH PHASE** of **constructing** the dimensional model including the final model
- ☐ 2. Upload the **PowerPoint** file to Blackboard

I WILL NOT ACCEPT any work that is **digitally prepared** in Excel, VISIO or some other graphical tool. All drawings (except for those that are screen captures of the database entities) MUST *be* in *hand-written* form. There are no exceptions.

Example Finished Model (from the tutorial exercise)

Tuesday, January 31, 2017 11:29 AM

Complete model diagram



Process Snapshot Review

Tuesday, January 31, 2017 11:32 AM

Process Snapshot

save this!

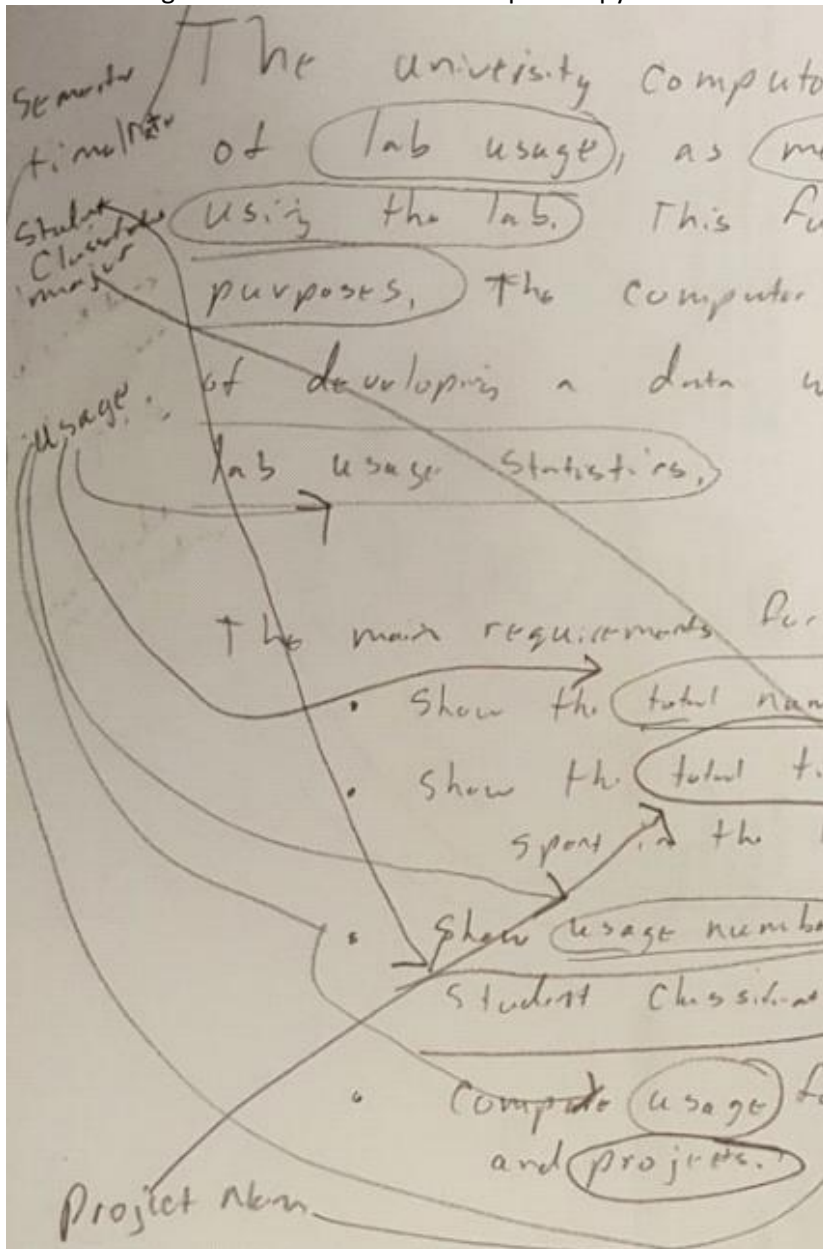


1. Determine **the facts** to be collected by *analyzing* the **business requirements and source tables**
2. Determine the **dimensions** that surround the facts by *analyzing* the **business requirements and source tables**
3. Define the **fact table** by *listing* the **facts to be collected-- grouped by dimension**
4. Name and define the **PK(s)** in the **fact table** based on DBMS constraints
5. Break down **candidate keys** to be used as **PK(s)** for **each dimension**
6. Create if necessary and describe the **attributes of each dimension**
7. Determine and define the names and **PK(s)** for **each dimension** based on DBMS constraints
8. Formalize the **relationships** between the **dimension tables** and the **fact table**

Business Rules Example

Tuesday, January 31, 2017 11:38 AM

The following is a sample hand-written analysis of the business rules. It is not complete and for a different assignment. Please do not attempt to copy it.



Database Analysis Example

Tuesday, January 31, 2017 11:43 AM

This is an example of reviewing the operational database schemas. Again. Not complete. But will give you an idea about what I will expect to see in your PowerPoint file.

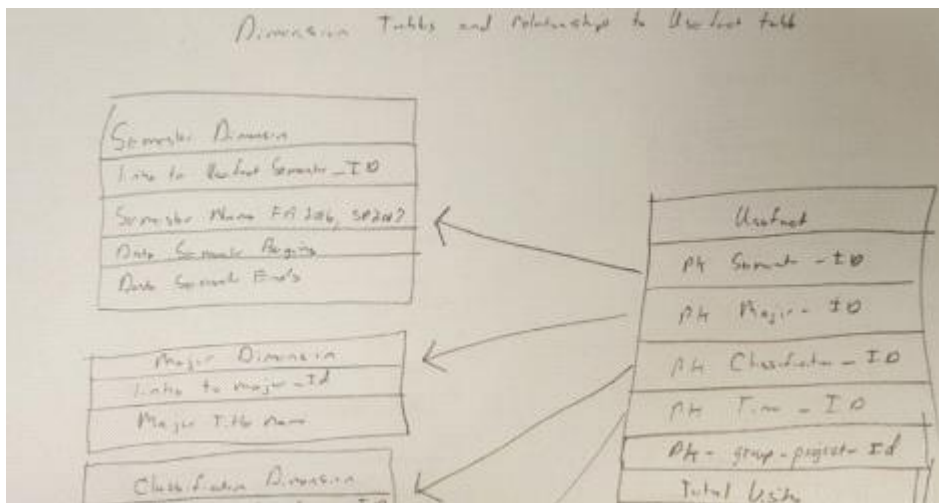
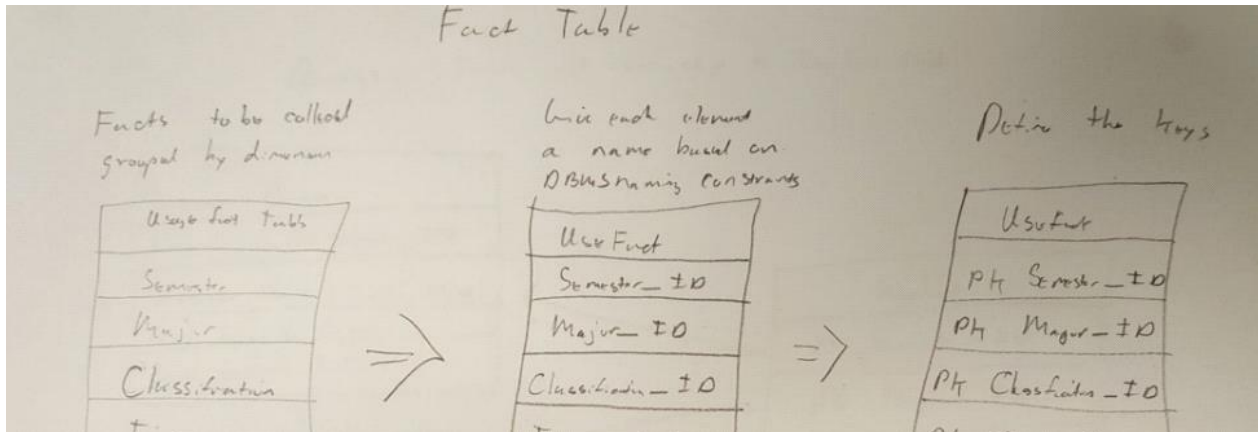
The image shows a printed database schema table with handwritten annotations. On the left, the word "Major" is written with an arrow pointing to the "CLASS_ID" field. On the right, "Project W" and "Activity 1" are written with arrows pointing to the "Group_Project_ID" and "Duration" fields respectively. The table has columns for Field Name, Data Type, and Description.

Field Name	Data Type	Description
STUDENT_ID	Short Text	Students' unique ID
SEX	Short Text	Male or Female
FULLPART	Short Text	Student enrolled Full or Part time
TYPE	Short Text	Student is Undergraduate or Graduate
CLASS_ID	Short Text	Foreign key from CLASS table
Group_Project_ID	Short Text	Foreign key from MAJOR table
Duration	Number	
TIME	Date/Time	

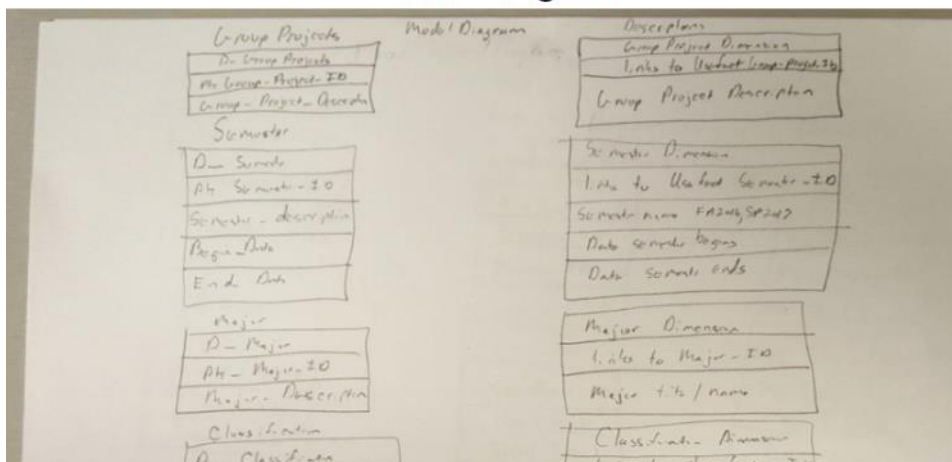
Example Model Creation

Tuesday, January 31, 2017 11:49 AM

Make sure to show your work. Here are examples (incomplete from a different assignment) of the type of analysis I will expect in your file. **DO NOT COPY** this information as it may be incomplete or incorrect. It is offered only as an example of how you might structure your drawings.



Model Diagram



PH - ID	Major title / name
Major - Description	Classification - Number
Classification	Link to Classification - ID
D - Classification	Freshman, Sophomore, etc.
PH Classification - ID	
Classification - Description	

