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# Project Proposal

## Team Members

David Aquino

Tim Bibo

Rohan Dangi

## Proposed Client

In the year 1988, Dan Gordon and Dean Biersch co-founded Gordon Biersch (GB) Company with the goal of creating most authentic German-style larger. With the experience of 25 years, GB has doubled its annual production and increased its capacity to 4 million gallon of beer which made them the largest craft brewery in San Francisco Bay Area (Pulse, 2014). According to Brewers Association, GB ranks in top 49th Breweries in 2013 (Association, n.d.). Currently, there are 34 GB locations around the States that brews 40 different beers (Advocate, n.d). GB uses Ctuit software (also used by its parent company-Craftwork) that combines the restaurant POS data with inventory, accounting, and other tools to form consistent system throughout its brewery (Biersch, n.d.).

## Project Description

Our group would like to apply an existing concept to a new industry. Our idea resembles a stock exchange; however, instead of buying stock in a company, customers would be purchasing products to be consumed. In this particular case, customers would be purchasing alcoholic drinks such as beer or cocktails as they normally do in a bar or restaurant. The twist in this scenario is that the prices of these drinks (and possibly food in the future) will fluctuate according to demand and inventory levels. For example, if a group of people were to order 6 Miller Lites, the result after this purchase would be an increase (~ +5%) in the price of Miller Lites and a decrease in another drink/beer such as Bud Light (~ -5%).

We would be introducing a new POS system which would handle sales and relay them to our system. The system would be smart enough to make decisions such as price changes for the drinks. The business need we are addressing is alcohol sales. We predict that with our system, we can help track sales and introduce methods to increase sales. We intend to build a system which will be incorporated with inventory and track sales. In (almost) real-time we would like to adjust the prices of alcohol based on demand. The system will be smart enough to acknowledge trends as they occur and attempt to capitalize on these trends. It will be able to produce on the fly analysis regarding daily highs/lows compared to original price and current price (based on demand). There will also be periodic (daily/weekly/monthly/yearly) snapshots which can be used to analyze sales trends and affect purchasing decisions.

## Project Justification

Throughout the planning, design, and implementation of the project, the group members will demonstrate many of the skills that they acquired in their completed coursework, and they will acquire new skills that they will attain through independent methods.

The overall design and implementation of the project will follow the SDLC, a theory of design that has been reinforced in every course of the AIT-MS program at Towson University. Beginning with the project proposal and culminating in the operational maintenance of the project, the group members will adhere to the SDLC’s pillars of planning, designing, building, testing, and delivering a database system that meets the needs of a hypothetical customer. In addition to following the SDLC, the project will incorporate a number of skills learned in AIT-632 and AIT-732, the two prerequisite courses for AIT -735.

AIT-632 and AIT- 732 introduced the group members to a number of database design elements which the group members will incorporate into the project. For example, data modifications will be driven by stored procedures, while considering transaction controls and methods of reinforcing business rules. Also, data will be validated, and all code will be commented in such a way that the instructor (and hypothetically future developers) will be able to quickly and thoroughly understand it. In addition to the aforementioned topics, the group members will broaden their skill-set by learning and developing other database management techniques.

While the project is nascent, the group members have identified a number of skills that they wish to develop as part of this project. At the most basic level, group members will create a new database on an existing Microsoft SQL Server. (There has also been discussion of learning to install and configure SQL Server as a piece of this project). Also, the group members will learn about and implement sufficiently robust user access and permissions. Additionally, the group members will learn about different methods for backing up and restoring SQL Server databases. The group intends to implement a backup strategy for the project.

## Project Plan / Schedule

Our group has broken down the project into following tasks:

1. Project Planning: During this phase, our team will provide a system proposal to the client.
2. Requirement Gathering: This section will analyze and determine the needs and expectation of end users of newly developed system. We have decided to utilize the functions available in the existing system within the industry for our initial requirement gathering phase.
3. Design for System: This phase will define the architectural component of the system to satisfy the requirements gathered in the previous stage. Our team will create ER Diagram, Physical Table Layout, and Data Dictionary during this phase.
4. Implementation: This phase includes writing SQL queries, procedure, and triggers.
5. Data Conversion and Loading: Our team will upload a sample data in the system.
6. Testing: During this phase, our team will test if the queries, procedure, and triggers are working as intended or not.
7. Operational Maintenance: During this phase, our team will examine the available solutions for Backup/recovery option during the system failure.

The following table highlights the above mentioned phase with its estimated timeline.

|  |  |  |
| --- | --- | --- |
| TASKS | Estimated Timeline | TOTAL HOURS |
| Task 1. Project Planning | August 29, 2014 – September 01, 2014 |  |
| David Aquino | 3 |
| Tim Bibo | 3 |
| Rohan Dangi | 3 |
| Task 2. Requirement gathering | September 08, 2014– September 16, 2014 |  |
| David Aquino | 20 |
| Tim Bibo | 20 |
| Rohan Dangi | 20 |
| Task 3. Design for system | September 18, 2014– October 20, 2014 |  |
| David Aquino | 85 |
| Tim Bibo | 85 |
| Rohan Dangi | 85 |
| Task 4. Implementation | October 22, 2014– October 27, 2014 |  |
| David Aquino | 15 |
| Tim Bibo | 15 |
| Rohan Dangi | 15 |
| Task 5. Data Conversion & Loading | October 29, 2014– October 31, 2014 |  |
| David Aquino | 4 |
| Tim Bibo | 4 |
| Rohan Dangi | 4 |
| Task 6. Testing | November 03, 2014– November 14, 2014 |  |
| David Aquino | 10 |
| Tim Bibo | 10 |
| Rohan Dangi | 10 |
| Task 7. Operational Maintenance | November 17, 2014– November 19, 2014 |  |
| David Aquino | 3 |
| Tim Bibo | 3 |
| Rohan Dangi | 3 |
| **TOTAL HOURS TO COMPLETE PROJECT** | | **420 Hours** |
| **TOTAL HOURS TO COMPLETE PROJECT PER PARTICIPANT** | | **140 Hours** |

## Work Cited

* Advocate. (n.d.). Gordon Biersch Brewery Restaurant | United States | Beers.BeerAdvocate. Retrieved September 1, 2014, from <http://www.beeradvocate.com/beer/profile/1551/>.
* Association. (n.d.). Brewers Association Lists Top 50 Breweries of 2013.brewersassociation.org. Retrieved August 31, 2014, from <http://www.brewersassociation.org/attachments/0001/4525/CBP13\_Top\_50.pdf/>
* Biersch. (n.d.). Careers. Growth. Retrieved August 31, 2014, from http://www.gordonbiersch.com/careers/growth
* Pulse. (2014, May 20). Gordon Biersch Dunkles release marks brewery's 25th anniversary. BeerPulse. Retrieved August 31, 2014, from <http://beerpulse.com/2014/05/gordon-biersch-dunkles-release-marks-brewerys-25th-anniversary-3108/>.

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# Executive Summary

Text

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# System Definition

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# System Requirements Specifications

Text

# Entity-Relationship Diagram



# Physical Layout

| **TABLE** | **VARIABLE** | **DATA\_TYPE** | **NOT\_NULL** | **PK** | **FK** | **IDENTITY** | **CHECK** | **UNIQUE** | **DESCRIPTION** | **SAMPLE** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **T\_VENDOR** | VEN\_ID | INT | Y | Y |  | Y |  | Y | UNIQUE ID FOR EACH VENDOR | 1 |
| VEN\_NAME | VARCHAR(30) | Y |  |  |  |  | Y | VENDOR NAME | WM BREWERY |
| VEN\_STREET1 | VARCHAR(30) | Y |  |  |  |  |  | VENDOR ADDRESS ONE | 123 FAKE STREET |
| VEN\_STREET2 | VARCHAR(30) |  |  |  |  |  |  | VENDOR ADDRESS TWO | UNIT X |
| VEN\_CITY | VARCHAR(30) | Y |  |  |  |  |  | CITY | WHITE MARSH |
| VEN\_STATE | CHAR(2) | Y |  |  |  |  |  | STATE | MD |
| VEN\_ZIP | NUMERIC(5,0) | Y |  |  |  | >=01000<=99999 |  | U.S. ZIP CODE | 21245 |
| VEN\_PHONE | VARCHAR(12) | Y |  |  |  |  |  | PHONE NUMBER OF VENDOR | 410-111-1111 |
| VEN\_EMAIL | VARCHAR(50) | Y |  |  |  |  |  | EMAIL OF CONTACT AT VENDOR | [JJ@WMBREW.COM](mailto:JJ@WMBREW.COM) |
| VEN\_CONTACT | VARCHAR(50) | Y |  |  |  |  |  | NAME OF CONTACT AT VENDOR | JANET JONES |
|  |  |  |  |  |  |  |  |  |  |  |
| **T\_PRODUCT** | PRO\_ID | INT | Y | Y |  | Y |  | Y | UNIQUE ID FOR EACH PRODUCT | 1 |
| PRO\_NAME | VARCHAR(30) | Y |  |  |  |  | Y | DESCRIPTIVE NAME OF PRODUCT | SPICY SUMMER ALE |
| TY\_ID | INT | Y |  | Y |  |  |  | REFERENCE TYPE (TY\_ID) | 5 |
| PRO\_BASE | NUMERIC(5,2) | Y |  |  |  | >0 |  | BASE PRICE OF THE PRODUCT | $5.00 |
| PRO\_INSTOCK | INT | Y |  |  |  | >=0 |  | NUMBER OF PRODUCT IN STOCK |  |
| VEN\_ID | INT | Y |  | Y |  |  |  | REFERENCE VENDOR (VEN\_ID) | 546 |
|  |  |  |  |  |  |  |  |  |  |  |
| **T\_TYPE** | TY\_ID | INT | Y | Y |  | Y |  | Y | UNIQUE ID FOR EACH PRODUCT CATEGORY | 1 |
| TY\_DESCRIPTION | VARCHAR(50) | Y |  |  |  |  | Y | TYPE OF PRODUCT | 16 OZ BEER BOTTLE |
| TY\_AGERESTRICTED | INT | Y |  |  |  | IN(1,2) |  | MUST CUSTOMER BE 21 TO PURCHASE? | 1=YES / 2=NO |
|  |  |  |  |  |  |  |  |  |  |  |
| **T\_PURCHASE** | PUR\_ID | INT | Y | Y |  | Y |  | Y | UNIQUE ID FOR EACH PURCHASE | 1 |
| PRO\_ID | INT | Y |  | Y |  |  |  | REFERENCE PRODUCT (PRO\_ID) | 33 |
| VEN\_ID | INT | Y |  | Y |  |  |  | REFERENCE VENDOR (VEN\_ID) | 12 |
| PUR\_QTY | INT | Y |  |  |  | >0 |  | QUANTITY PURCHASED | 480 |
| PUR\_UNT\_PRICE | NUMERIC(5,2) | Y |  |  |  | >0 |  | PRICE PAID PER UNIT | $1.25 |
| PUR\_DATE | DATETIME | Y |  |  |  |  |  | DATE AND TIME OF PURCHASE | 8/15/2015:15:32:42 |
|  |  |  |  |  |  |  |  |  |  |  |
| **T\_ACCT\_SALES** | ACCT\_ID | INT | Y | Y |  | Y |  | Y | UNIQUE ID FOR EACH ITEM IN THE CART | 1 |
| ACCT\_DATETIME | DATETIME | Y |  |  |  |  |  | DATE AND TIME OF PURCHASE | 8/15/2015:15:32:42 |
| ACCT\_PRICE | NUMERIC(5,2) | Y |  |  |  | >0 |  | PRICE AT WHICH PRODUCT WAS SOLD | $1.87 |
| CUS\_ID | INT | Y |  | Y |  | >0 |  | REFERENCE CUSTOMER (CUS\_ID) | 133 |
| ACCT\_QTY | INT | Y |  |  |  | >0 |  | QTY SOLD |  |
| PRO\_ID | INT | Y |  | Y |  |  |  | REFERENCE PRODUCT (CUS\_ID) | 2 |
|  |  |  |  |  |  |  |  |  |  |  |
| **T\_PRICE** | PRI\_ID | INT | Y | Y |  | Y |  | Y | UNIQUE ID FOR EACH PRICE CHANGE | 4876 |
| PRO\_ID | INT | Y |  |  |  |  |  | REFERENCE PRODUCT (PRO\_ID) | 33 |
| PRO\_PRI | NUMERIC(5,2) | Y |  |  |  | >0 |  | CURRENT SELLING PRICE OF PRODUCT | $1.87 |
|  |  |  |  |  |  |  |  |  |  |  |
| **T\_CUSTOMER** | CUS\_ID | INT | Y | Y |  | Y |  |  | UNIQUE ID FOR EACH CUSTOMER | 21 |
| CUS\_DOB | DATE | Y |  |  |  |  |  | CUSTOMER DOB | 9/12/1990 |
| CUS\_STREET1 | VARCHAR(30) |  |  |  |  |  |  | CUSTOMER ADDRESS ONE | 123 FAKE STREET |
| CUS\_STREET2 | VARCHAR(30) |  |  |  |  |  |  | CUSTOMER ADDRESS TWO | UNIT X |
| CUS\_CITY | VARCHAR(30) |  |  |  |  |  |  | CITY | WHITE MARSH |
| CUS\_STATE | CHAR(2) |  |  |  |  |  |  | STATE | MD |
| CUS\_ZIP | NUMERIC(5,0) |  |  |  |  | >=01000<=99999 |  | U.S. ZIP CODE | 21245 |
| CUS\_EMAIL | VARCHAR(50) |  |  |  |  |  |  | CUSTOMER EMAIL ADDRESS | [JAKE@OLDMAN.COM](mailto:JAKE@OLDMAN.COM) |
| CUS\_FNAME | VARCHAR(25) |  |  |  |  |  |  | CUSTOMER FIRST NAME | JAKE |
| CUS\_LNAME | VARCHAR(30) |  |  |  |  |  |  | CUSTOMER LAST NAME | OLDMAN |
| CUS\_MI | VARCHAR(1) |  |  |  |  |  |  | CUSTOMER MIDDLE INITIAL | R |
| CUS\_SUFFIX | VARCHAR(5) |  |  |  |  |  |  | CUSTOMER NAME SUFFIX | III |
|  |  |  |  |  |  |  |  |  |  |  |
| **T\_SALES\_INFO** | SI\_ID | INT | Y | Y |  | Y |  | Y | UNIQUE ID USED FOR SETTING PRICES | 3 |
| PRO\_ID | INT | Y |  | Y |  |  |  | REFERENCES PRO\_ID IN PRODUCT TABLE | 9 |
| QTY\_SOLD | INT | Y |  |  |  |  |  | QTY SOLD | 12 |
|  |  |  |  |  |  |  |  |  |  |  |
| **T\_SALES\_PERC** | SP\_ID | INT | Y | Y |  | Y |  | Y | UNIQUE ID FOR EACH SALES PERCENTAGE | 34 |
| PRO\_ID | INT | Y |  | Y |  |  |  | REFERENCES PRO\_ID IN PRODUCT TABLE | 9 |
| PERC\_SALES | INT | Y |  | Y |  |  |  | PERCENT \* 100 | 44 |
|  |  |  |  |  |  |  |  |  |  |  |
| **T\_POS\_SALES** | POS\_ID | INT | Y | Y |  | Y |  | Y | UNIQUE ID FOR EACH ITEM IN THE CART | 1 |
| POS\_DATETIME | DATETIME | Y |  |  |  |  |  | DATE AND TIME OF PURCHASE | 8/15/2015:15:32:42 |
| PRO\_PRICE | NUMERIC(5,2) | Y |  |  |  | >0 |  | PRICE AT WHICH PRODUCT WAS SOLD | $1.87 |
| CUS\_ID | INT | Y |  | Y |  | >0 |  | REFERENCE CUSTOMER (CUS\_ID) | 133 |
| POS\_QTY | INT | Y |  |  |  | >0 |  | QTY SOLD |  |
| PRO\_ID | INT | Y |  | Y |  |  |  | REFERENCE PRODUCT (CUS\_ID) | 2 |

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# Data Dictionary

Text

# 

# Architecture

Text

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# Project Plan / Schedule

Text

# 

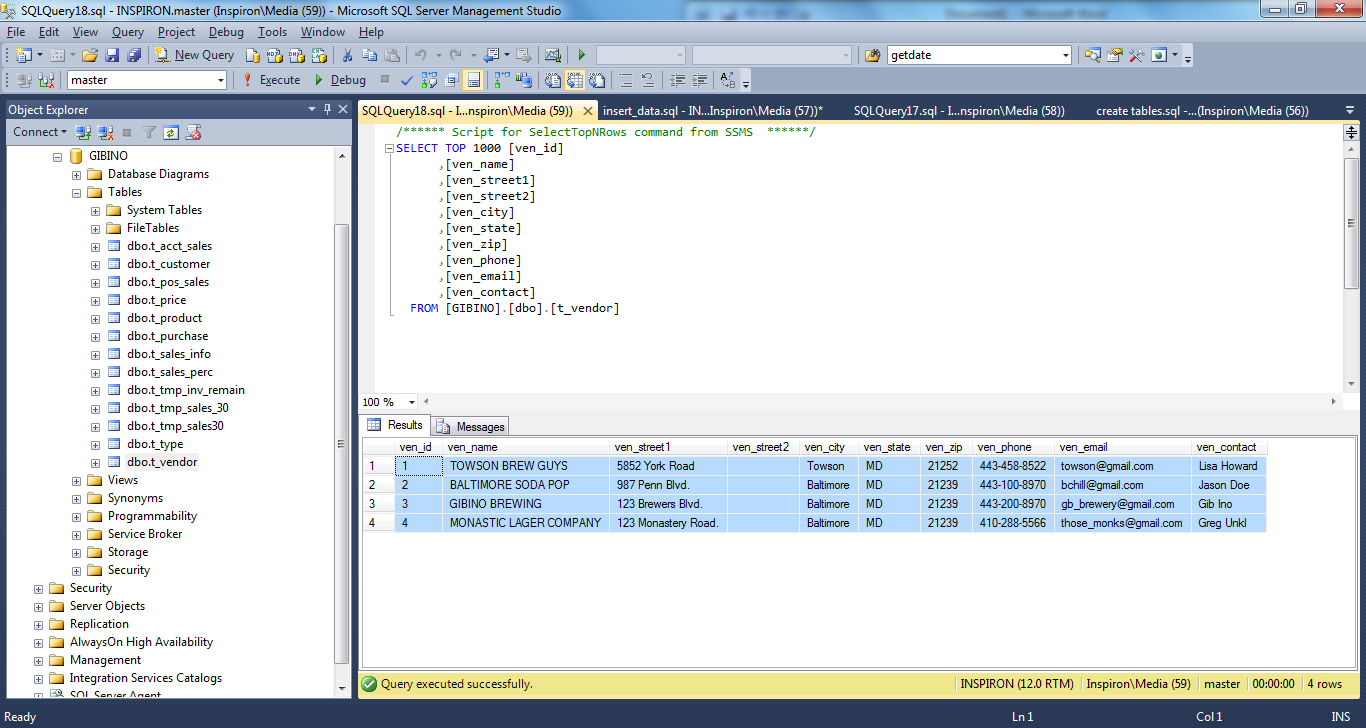
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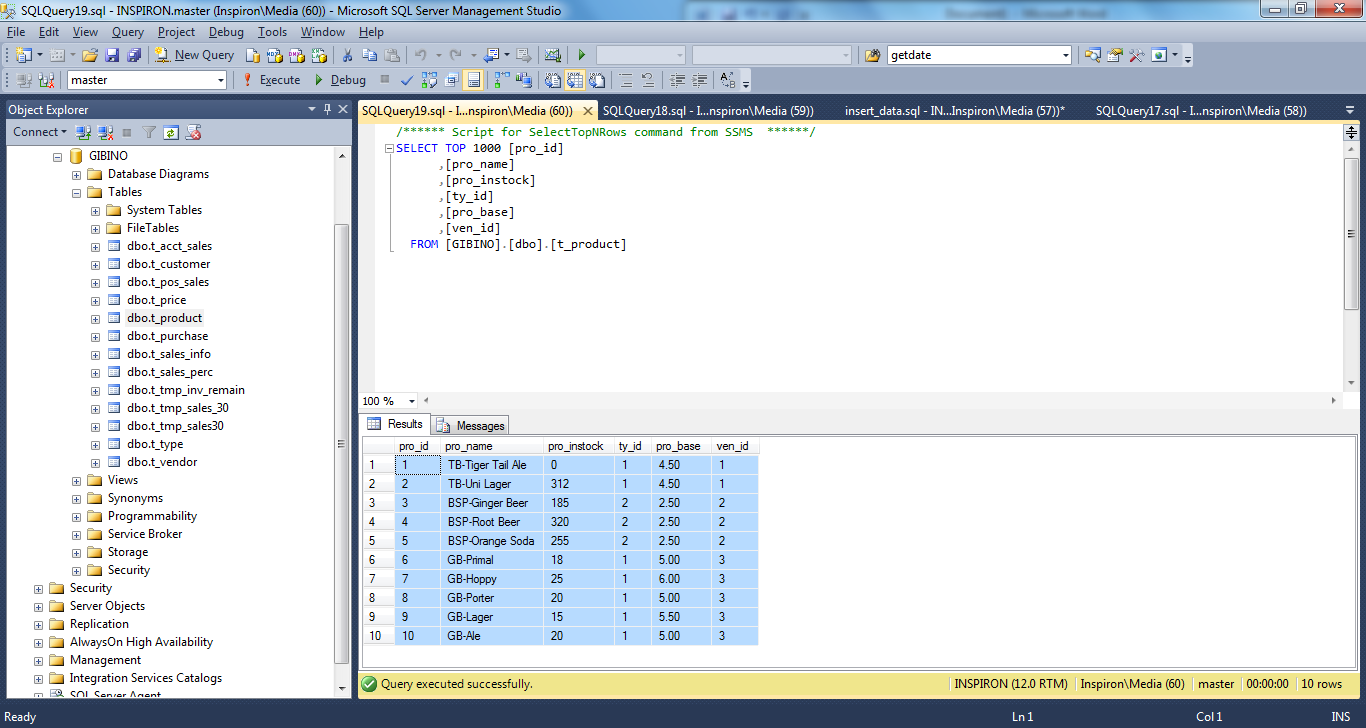
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# Sample Data

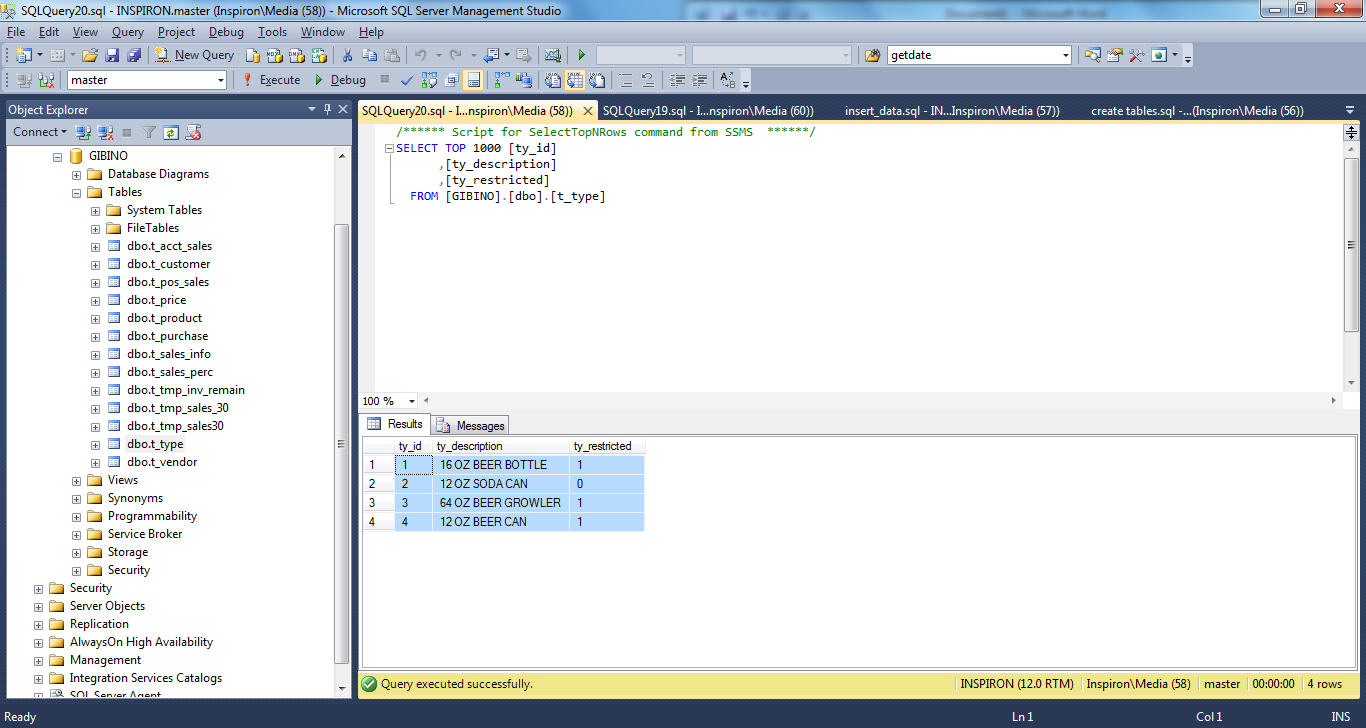
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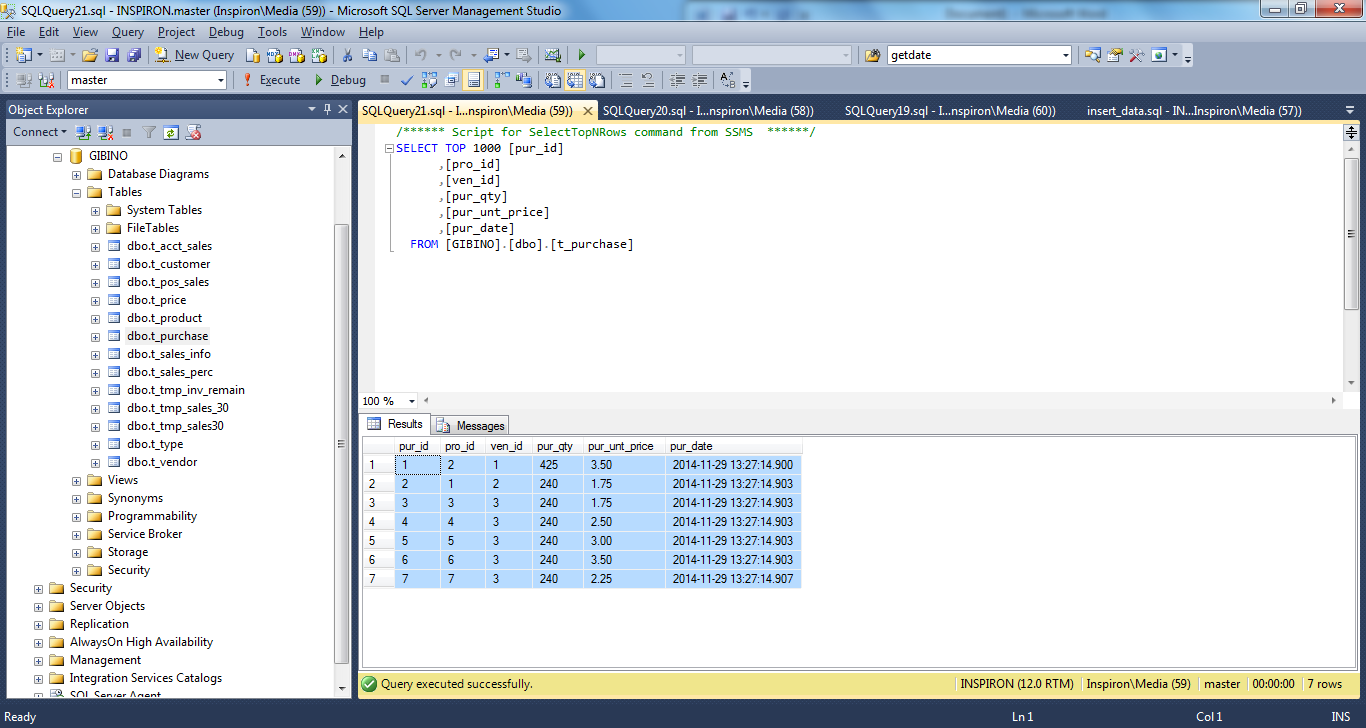
T\_PRODUCT



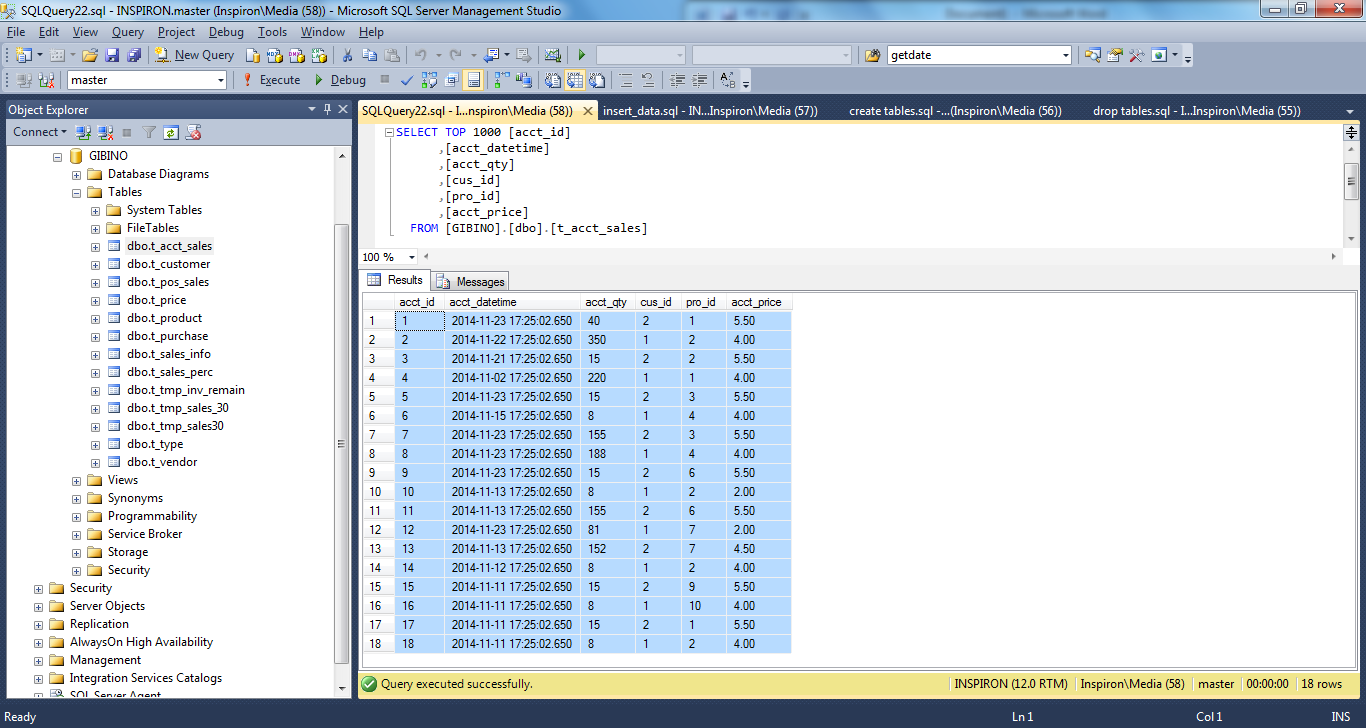
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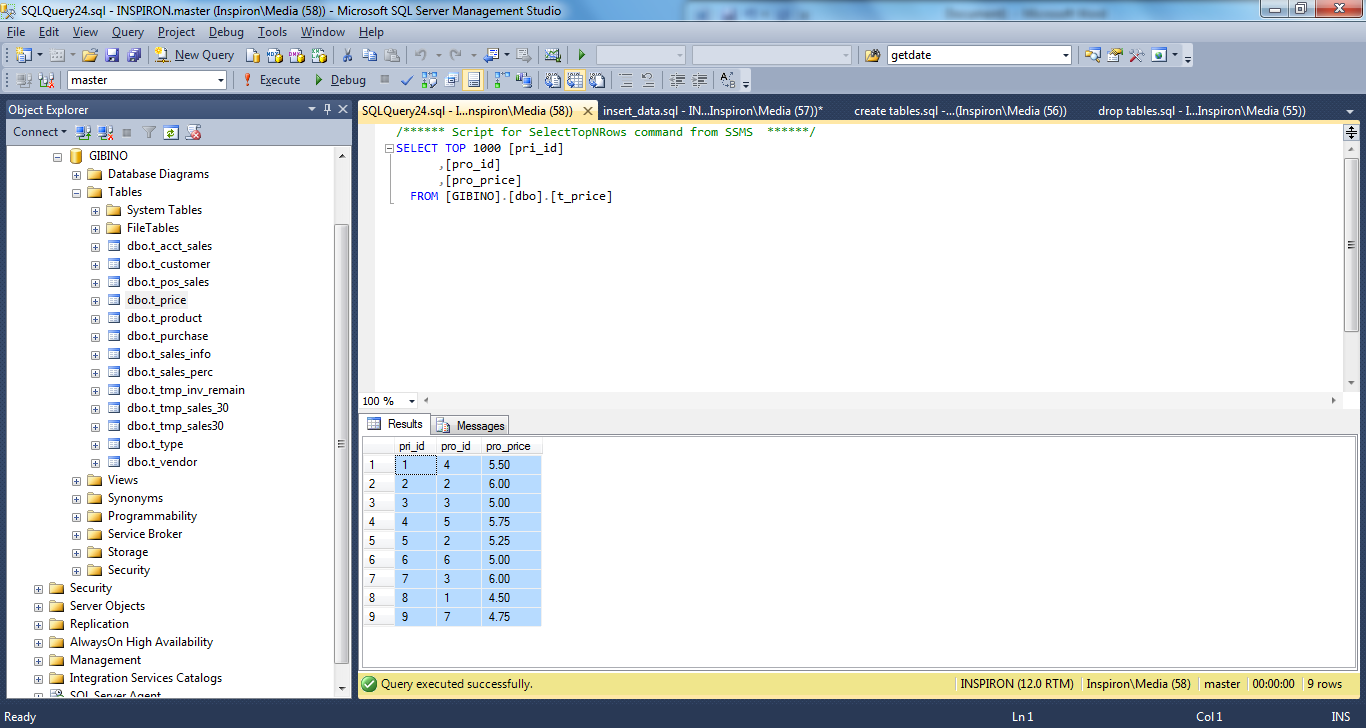
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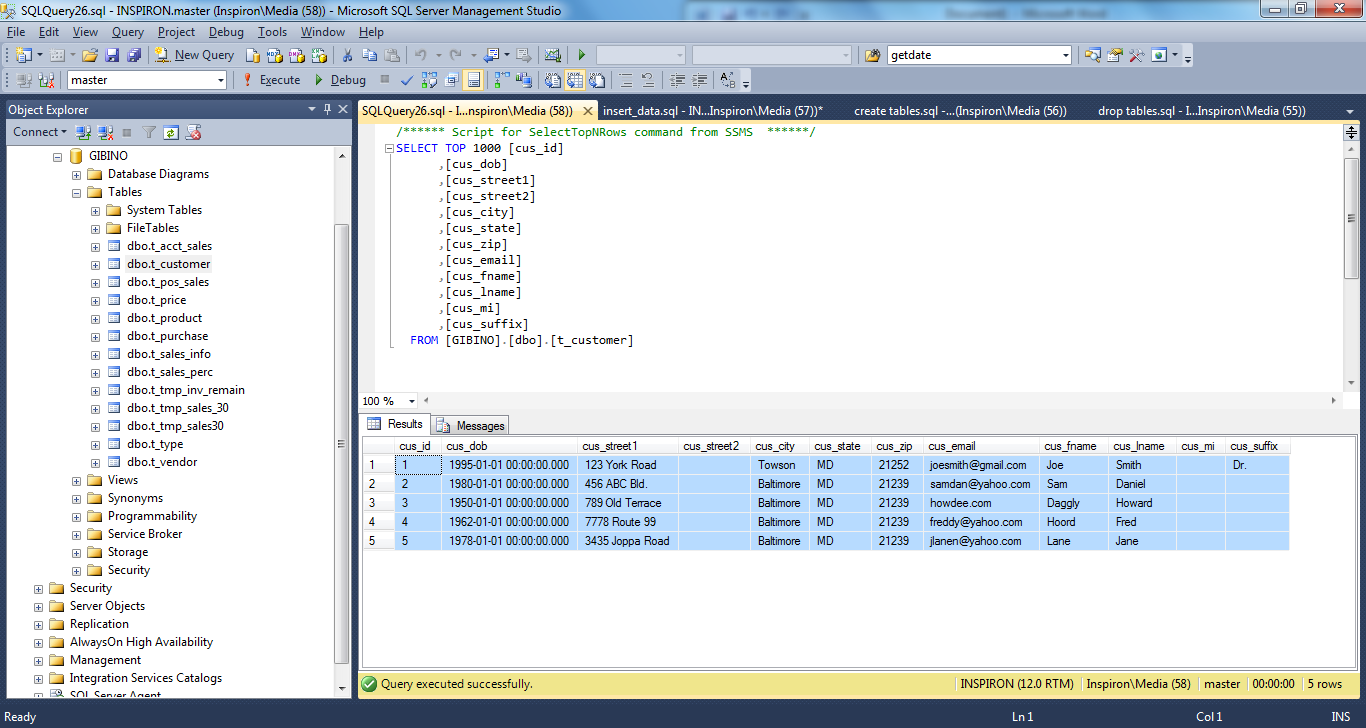
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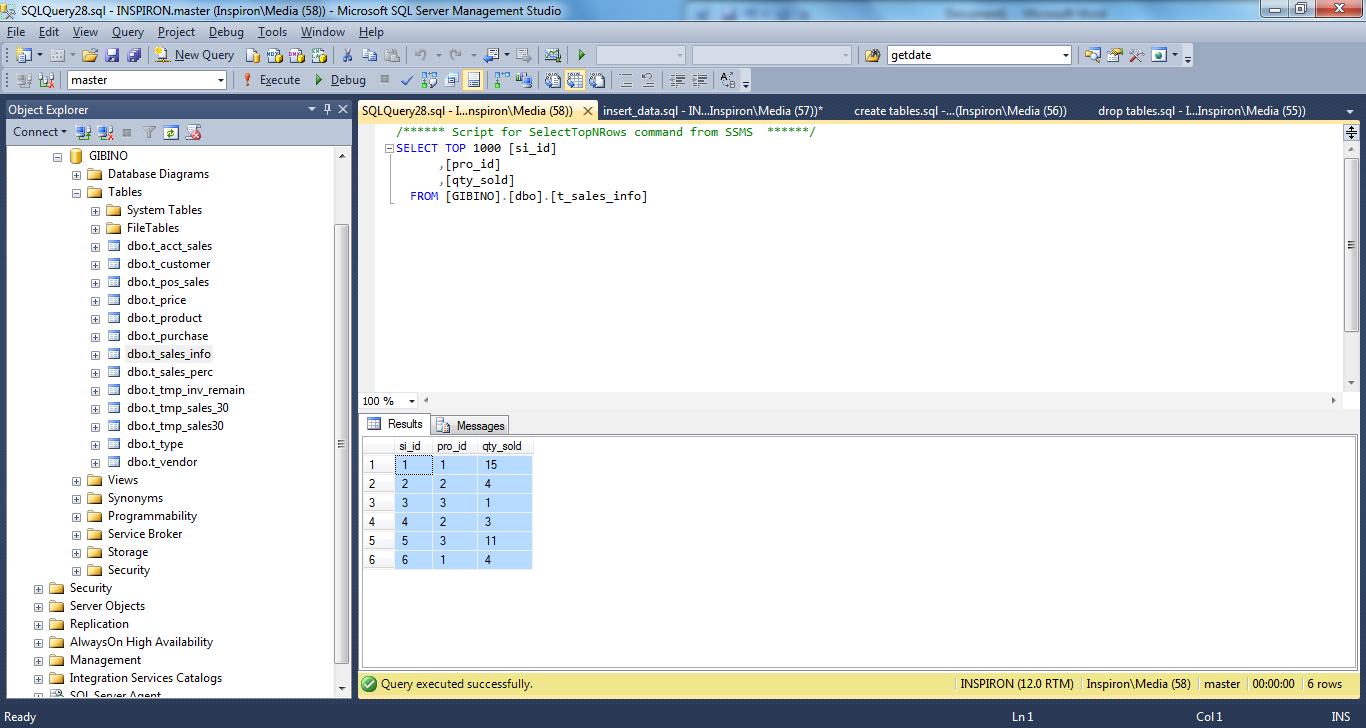
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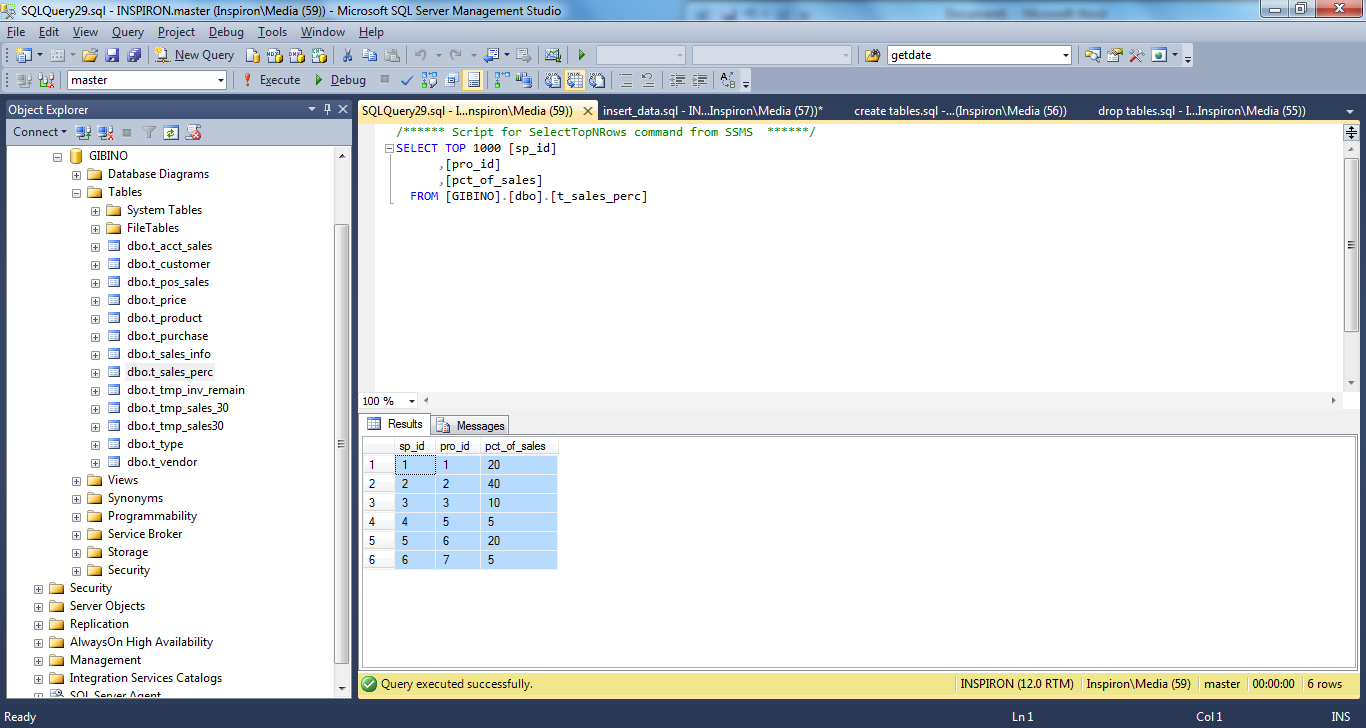
T\_CUSTOMER



T\_SALES\_INFO



T\_SALES\_PERC



T\_POS\_SALES

