

IST 722- DATA WAREHOUSE PROJECT REPORT

Fudgemart Data Warehouse

Team Members:

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PROJECT CHARTER

Objectives:

We have been presented with a conglomerate, Fudgemart Inc., consisting of two subsidiary companies, Fudgemart and Fudgeflix.

Fudgemart- It is an online retailer with 6 departments, 53 primary products being sold across them with 33 employees working these 6 departments.

Fudgeflix- It is an online DVD by mail and video on demand service providing users with 7185 movies across 485 different genres.

Currently Fudgemart and FudgeFlix have two independent databases along with a third supporting database. Fudgemart has commissioned the creation of a centrally integrated DW/BI solution from scratch, which will involve:

- staging the required data
- performing ETL
- transferring the data onto the warehouse
- using BI tools to generate actionable insights

Business case:

The Data Warehouse is being created in order to enable the seamless integration of the two given databases into a single data warehouse, compatible with Business Intelligence tools. Essentially, this is done in order to achieve Subject- orientation, Non-volatility, Integration, and Time- Variance, hence fulfilling the very need for a Data Warehouse.

Project plan:

Functional requirements:

Our main intention of this project is to various business questions revolving around Fudgemart and Fudgeflix, some of them being:

- Understanding how marital status and income levels affect customer behavior under different product departments
- Identifying regions that have a higher difference between requested and shipped dates, to improve functioning in those areas
- Evaluating customer trends to see which customers fall into the category of high spenders per year for both Fudgemart and Fudgeflix
- Assessing quality of various products to suggest best vendor to purchase the product from
- Understanding details like movies watched, number of movies shipped, which can help us make recommendations
- Understanding positive and negative views for both business fronts
- Revenue generated by each of the individual subscription plans

- Evaluating the top 10 movies by year, ranked by average customer reviews

Business Processes:

The business processes we have chosen are as follows:

- Shopping behavior: Shopping behavior of different customers based on the product categories. The customers can be grouped by the marital status and income. This helps us understand how the departments cater differently to different sections of people, and if certain products need to be ordered more than others.
- Delivery efficiency: Determining the shipments which have a lot of difference between the requested and shipped date, based on their zip codes. This will help us understand areas where the delivery process needs to be improved.
- Revenue reporting: Evaluating the customer trends to see which customers fall into the category of high spenders per year for both Fudgemart and Fudgeflix. This will eventually help us provide customer vouchers, extra discounts and loyalty points to loyal customers in order to make sure they remain faithful to the brand in the long term.
- Account reporting: This helps us understand the details of a particular customer, like the movies watched, the number of movies to be shipped. This will help us make suggestions based on the movie genre and optimize the shipping process in case many movies are to be sent to the customer.
- Product quality: Assesses the quality of a particular product provided by different vendors in order to suggest the best vendor to purchase the product from. This gives the customer a better idea of the service provided by the different vendors, and facilitates the process of choosing the most suitable one.

Tasks Performed:

The various tasks performed in order to accomplish the project are as follows:

- Creation of High level dimensional model
- Creation of Detailed level dimensional model
- Execution of ETL in SSIS
- Creation MOLAP cubes using SSAS and using PowerBI to generate dashboards

Roles:

- Aditya Chauhan: Dimensional Modeling, ETL in SSIS, Data Warehouse on SQL Server, Business Intelligence
- Anisha Sudhesh Kumar: Dimensional Modeling, Data Warehouse on SQL Server, Business Intelligence
- Khushabh Thakar: Dimensional Modeling, Data Warehouse on SQL Server, Business Intelligence
- Niti Saluja: Dimensional Modeling, ETL using SSIS, Data Warehouse on SQL Server, Business Intelligence

- **Data Profiling:**

Database	Table Name	Type of Data?	Row Count - One row in this table means....	Business Keys	Notes / Issues ?
ExternalSources	fsm_customer_survey	Master Data	25 Customer demographic	Email	
ExternalSources	fsm_customer_tweets	Business Process	625 Tweet details and tweet	TweetID	
fudgeflix_v3	ff_account_billing	Business Process	1294 Billing details as per account id	ab_id	
fudgeflix_v3	ff_account_titles	Business Process	2368 Shipping details of every ordered title	at_id	
fudgeflix_v3	ff_accounts	Master Data	35 Customer details	account_email	
fudgeflix_v3	ff_cast	Business Process	70543 Actor of a title	cast_people_id + cast_title_id	
fudgeflix_v3	ff_directors	Business Process	7136 Director of a title	director_people_id + director_title_id	
fudgeflix_v3	ff_genres	Master Data	485 A genre available in fudgeflix	genre_name	
fudgeflix_v3	ff_people	Master Data	25347 Person in a title	people_id	
fudgeflix_v3	ff_plans	Master Data	7 Plan details	plan_id	
fudgeflix_v3	ff_title_genres	Business Process	27841 Genre of a title	tg_genre_name + tg_title_id	
fudgeflix_v3	ff_titles	Master Data	7185 Title details	title_name	
fudgeflix_v3	ff_zipcodes	Master Data	41968 City and state of every zipcode	zip_code	
fudgemart_v3	fsm_creditcards	Master Data	49 Details of credit card used	creditcard_number	
fudgemart_v3	fsm_customer_creditcards	Business Process	54 Credit card details used by customer	customer_id, creditcard_id	
fudgemart_v3	fsm_customer_product_reviews	Business Process	1039 Product rating given by a customer	customer_id, product_id	
fudgemart_v3	fsm_customers	Master Data	25 Complete customer details	customer_email	
fudgemart_v3	fsm_departments_lookup	Master Data	6 Department type in fudgemart	department_id	
fudgemart_v3	fsm_employee_timesheets	Business Process	6275 Details filled by an employee in the timesheet	timesheet_id	
fudgemart_v3	fsm_employees	Master Data	33 Complete employee details	employee_ssn	
fudgemart_v3	fsm_jobtitles_lookup	Master Data	4 Position in fudgemart	jobtitle_id	
fudgemart_v3	fsm_order_details	Business Process	10466 Quantity of every product in an order	order_id, product_id	
fudgemart_v3	fsm_orders	Business Process	3516 Important order details	order_id	
fudgemart_v3	fsm_products	Master Data	53 All details of a product	product_name	
fudgemart_v3	fsm_shipvia_lookup	Master Data	4 Shipping vendor	ship_via	
fudgemart_v3	fsm_vendors	Master Data	9 Details of product supplier	vendor_name, vendor_phone, vendor_website	

High-level Dimensional Modeling:

We created a High-level dimensional model for two of our business processes: FactShoppingBehavior and FactDeliveryEfficiency, and defined the grain type, granularity, facts and dimensions composing each of the business processes.

Bus Matrix:

Instructions!					Dim_Account	Dim_Order_L	Dim_Order_D	Dim_ab_date	Dim_Product	Dim_Supplier	Dim_Materials	Dim_Route	Dim_Zipcode	Dim_Queue	Dim_Shipped	Dim_Titles	Dim_Customers	Dim_Returns	Dim_Account
Business Process Name	Fact Table	Fact Grain Type	Granularity	Facts															
Revenue Generation	Fact_RevenueGeneration	Periodic Snapshot	One row per customer	Total Billed Amount for FudgeFlix, Total billed amount for FudgeMart, Number of customers in a specific year	x	x	x	x	x	x									
Shopping Behavior	Fact_ShoppingBehavior	Transaction	One row per order	OrderQuantity, ProductPrice, EstimatedTitleCost, FlixTotalBill, TotalViewCount, ProductCost	x				x	x	x	x				x	x		x
DeliveryEfficiency	Fact_DeliveryEfficiency	Accumulating Snapshot	One row per order	ShippedCount, ReturnedCount, ShipLeg, ReturnLeg									x	x	x	x		x	x
Account Reporting	Fact_AccountReporting	Accumulating Snapshot	One row per account and title Showing the movies rented	Days taken to receive the movie, Days taken to return the movies, Count of movies in Queue, Rating given by the customer											x	x	x	x	x

Attributes and metrics

Instructions!				
Dimension / Fact Table	Attribute / Fact Name	Description	Alternate Names	Sample Values
Fact_RevenueGeneration	Total Billed Amount for FudgeFlix	Sum of the billed amount of each account		
	Total Billed Amount for Fudge Mart	Sum of the ordered amount(Qty*Retail Price) for each customer		
	Number of Customers of Fudge Mart in a specific year			
	Number of Customers of Fudge Flix in a specific year			
Fact_ShoppingBehavior	Order Quantity			
	ProductPrice			
	EstimatedTitleCost			
	FlixTotalBill			
Fact_DeliveryEfficiency	TotalViewCount			
	ProductCost			
	ShippedCount			
	ReturnedCount			
Fact_Account Reporting	ShipLag			
	ReturnLag			
	Days taken to receive the movie			
	Days taken to return the movies			
Dim_Account_Billing	Count of movies in Queue			
	Rating given by the customer			
	ab_date			
	ab_billed_amount			
Dim_Order_Details	order_qty			
Dim_Products	Product_Name			
	Product_Department	Category of the Product		Clothing, Household
	Vendor_ID			
	Vendor_Name			
Dim_Snapshot Year	Product_Retail_Price			
		Used to track the date when the revenue generated was recorded for fudgeflix and fudge mart		
	Zipcode city			
	Zipcode State			
Dim_Queue Date		Date when the movie was requested/ordred by the customer		
Dim_Returned_Date		Date when the movie was returned back by the customer		
Dim_OrderDate				
Dim_Shipped Date				
Dim_Titles	Title_Name			
	Title_Type			
	Title_avg_rating			
	Title_release_date			
Dim_Customers	Title_rating			
	Customer_First_Name			
	Customer_Last_Name			
	Customer_Email			
	Customer_Address			
	Customer_Zipcode			
	Customer_Phone			
	Account_opened_on			
	Marital Status			Single/Married
	Household Income			
	Gender			
Dim Accounts	Account_First_Name			
	Account_Last_Name			
	Account_Email			
	Account_Address			
	Account_Zipcode			
	Account_Plan_Id			

Issues list:

Task /			Identified	Reported	Respon-	Date		
Issue #	Topic	Issue	Date	By	sible	Status	Priority	Closed
1	Limited Data	There are very few customers common in both Fudge Mart and Fudge Flix. Due to the limited data, analysis would be difficult	2/13/2018	Team 7		WIP	Medium	
2	Incorrect Dates	The Queue Date and Shipped Date have redundant values with no exact timestamp. Due to this we are unable to track the amount of time required to return the movie	2/13/2018	Team 7		WIP	High	

Detail-level Dimensional Modeling:

The Detail-level Dimensional Modeling sheet was used in order to define each of the dimensions and facts. This macros file defined by Kimball Group, helped us generate the SQL codes for the same, which in-turn helped us create the star schema for our business processes.

DimDates:

Table Name	DimDates	Table Type	Dimension	Display Name	DimDates	Database Schema	DimDates	Table Description	Date dimension contains one row for every day. Only date is used for "hasn't happened yet". The Date dimension is derived, it is not populated from any transaction system.							File Filter Logic	30 year	Generate Script?	N
Column Name	Display Name	Description	Uniqueness	Example Values	SQL Type	Display Filter	ETL Rule	Comments	Source	Size	Precision	Exp To	NULL	Default Value	Source System				
FullDate	Full Date	Any date in a SQL date	Unique	2004/01/01	DATE			In the form yyyymmdd	SS	8			Y	N	DimDates				
Day	Day	Day of the week	Unique	1	INT				SS	4			Y	N	DimDates				
DayOfWeek	Day of Week	Day of the week	Unique	1	INT				SS	4			Y	N	DimDates				
DayOfMonth	Day of Month	Day of the month	Unique	1	INT				SS	4			Y	N	DimDates				
DayOfYear	Day of Year	Day of the year	Unique	1	INT				SS	4			Y	N	DimDates				
Month	Month	Month of the year	Unique	1	INT				SS	4			Y	N	DimDates				
MonthName	Month Name	Month of the year	Unique	1	TEXT				SS	16			Y	N	DimDates				
Quarter	Quarter	Quarter of the year	Unique	1	INT				SS	4			Y	N	DimDates				
QuarterName	Quarter Name	Quarter of the year	Unique	1	TEXT				SS	16			Y	N	DimDates				
Year	Year	Year of the year	Unique	1	INT				SS	4			Y	N	DimDates				
YearName	Year Name	Year of the year	Unique	1	TEXT				SS	16			Y	N	DimDates				

DimFudgeProduct:

Table Name: DimFudgeProduct																
Table Type: Dimension																
Display Name: DimFudgeProduct																
Database Schema: FudgeMart																
Table Description: Always create a table description, which becomes a table extended property																
Comment: You can add a table comment here. It cannot be updated in the database in any way.																
File Filter Logic: None																
Generate Script? <input checked="" type="checkbox"/>																
Source System: <input type="text"/>																
Target System: <input type="text"/>																
Target Table: <input type="text"/>																
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Target Target Target Target Target Target Target Target Target Target Target Target Target Target Target Target Target Target Default Value: <input type="text"/>																
Target Target Target Target Target Target Target Target Target Target Target Target Target Target Target Target Target Target Comments: <input type="text"/>																
Target Target Target Target Target Target Target Target Target Target Target Target Target Target Target Target Target Target Extended Properties: <input type="text"/>																
Target Target Target Target Target Target Target Target Target Target Target Target Target Target Target																

DimFudgeTitles:

Table Name		DimFudgeTitles														
Table Type		Dimension														
Display Name		DimFudgeTitles														
Database Schema		AdventureWorks														
Table Description		Always create a table description, which becomes a table extended property. You cannot technically remove information here -- it doesn't get exported to the database in any way.														
Column Filter Logic																
Generate Script?		Yes														
Column Name	Display Name	Description	Uniqueness	Example Values	SQL Type	Display Filter	ETL Rule	Comments	Source	Size	Precision	Exp	IS To	NULL	Default Value	Source System
TitleID	TitleID	Title ID	Unique	1	INT				SS	4			Y	N		DimFudgeTitles
Title	Title	Title Name	Unique	1	TEXT				SS	16			Y	N		DimFudgeTitles
TitleCategory	TitleCategory	Title Category	Unique	1	TEXT				SS	16			Y	N		DimFudgeTitles
TitleSubcategory	TitleSubcategory	Title Subcategory	Unique	1	TEXT				SS	16			Y	N		DimFudgeTitles
TitleManufacturer	TitleManufacturer	Title Manufacturer	Unique	1	TEXT				SS	16			Y	N		DimFudgeTitles
TitleModel	TitleModel	Title Model	Unique	1	TEXT				SS	16			Y	N		DimFudgeTitles
TitleMaterial	TitleMaterial	Title Material	Unique	1	TEXT				SS	16			Y	N		DimFudgeTitles
TitleWeight	TitleWeight	Title Weight	Unique	1	TEXT				SS	16			Y	N		DimFudgeTitles
TitleColor	TitleColor	Title Color	Unique	1	TEXT				SS	16			Y	N		DimFudgeTitles
TitlePrice	TitlePrice	Title Price	Unique	1	TEXT				SS	16			Y	N		DimFudgeTitles

[illegible]

DimFudgeAccounts

Account Name	Display Name	Description	License Model	Example Value	SLA Type	Charging Plan	SLA Plan	Comments	Example	On	Provision Fee	PS Fee	2023-10 School Year	Source System	Source System Name	Source System ID	Source Public Name	Source Storage
Accounting Account 0	Accounting 0	Financial Accounting	1	1.0.0.0	144				Accounting 0	On	0.00	0.00	0.00	Accounting 0	Accounting 0	Accounting 0	Accounting 0	Accounting 0
Accounting Account 1	Accounting 1	Financial Accounting	1	1.0.0.0	144				Accounting 1	On	0.00	0.00	0.00	Accounting 1	Accounting 1	Accounting 1	Accounting 1	Accounting 1
Accounting Account 2	Accounting 2	Financial Accounting	1	1.0.0.0	144				Accounting 2	On	0.00	0.00	0.00	Accounting 2	Accounting 2	Accounting 2	Accounting 2	Accounting 2
Accounting Account 3	Accounting 3	Financial Accounting	1	1.0.0.0	144				Accounting 3	On	0.00	0.00	0.00	Accounting 3	Accounting 3	Accounting 3	Accounting 3	Accounting 3
Accounting Account 4	Accounting 4	Financial Accounting	1	1.0.0.0	144				Accounting 4	On	0.00	0.00	0.00	Accounting 4	Accounting 4	Accounting 4	Accounting 4	Accounting 4
Accounting Account 5	Accounting 5	Financial Accounting	1	1.0.0.0	144				Accounting 5	On	0.00	0.00	0.00	Accounting 5	Accounting 5	Accounting 5	Accounting 5	Accounting 5
Accounting Account 6	Accounting 6	Financial Accounting	1	1.0.0.0	144				Accounting 6	On	0.00	0.00	0.00	Accounting 6	Accounting 6	Accounting 6	Accounting 6	Accounting 6
Accounting Account 7	Accounting 7	Financial Accounting	1	1.0.0.0	144				Accounting 7	On	0.00	0.00	0.00	Accounting 7	Accounting 7	Accounting 7	Accounting 7	Accounting 7
Accounting Account 8	Accounting 8	Financial Accounting	1	1.0.0.0	144				Accounting 8	On	0.00	0.00	0.00	Accounting 8	Accounting 8	Accounting 8	Accounting 8	Accounting 8
Accounting Account 9	Accounting 9	Financial Accounting	1	1.0.0.0	144				Accounting 9	On	0.00	0.00	0.00	Accounting 9	Accounting 9	Accounting 9	Accounting 9	Accounting 9
Accounting Account 10	Accounting 10	Financial Accounting	1	1.0.0.0	144				Accounting 10	On	0.00	0.00	0.00	Accounting 10	Accounting 10	Accounting 10	Accounting 10	Accounting 10
Accounting Account 11	Accounting 11	Financial Accounting	1	1.0.0.0	144				Accounting 11	On	0.00	0.00	0.00	Accounting 11	Accounting 11	Accounting 11	Accounting 11	Accounting 11
Accounting Account 12	Accounting 12	Financial Accounting	1	1.0.0.0	144				Accounting 12	On	0.00	0.00	0.00	Accounting 12	Accounting 12	Accounting 12	Accounting 12	Accounting 12
Accounting Account 13	Accounting 13	Financial Accounting	1	1.0.0.0	144				Accounting 13	On	0.00	0.00	0.00	Accounting 13	Accounting 13	Accounting 13	Accounting 13	Accounting 13
Accounting Account 14	Accounting 14	Financial Accounting	1	1.0.0.0	144				Accounting 14	On	0.00	0.00	0.00	Accounting 14	Accounting 14	Accounting 14	Accounting 14	Accounting 14
Accounting Account 15	Accounting 15	Financial Accounting	1	1.0.0.0	144				Accounting 15	On	0.00	0.00	0.00	Accounting 15	Accounting 15	Accounting 15	Accounting 15	Accounting 15
Accounting Account 16	Accounting 16	Financial Accounting	1	1.0.0.0	144				Accounting 16	On	0.00	0.00	0.00	Accounting 16	Accounting 16	Accounting 16	Accounting 16	Accounting 16
Accounting Account 17	Accounting 17	Financial Accounting	1	1.0.0.0	144				Accounting 17	On	0.00	0.00	0.00	Accounting 17	Accounting 17	Accounting 17	Accounting 17	Accounting 17
Accounting Account 18	Accounting 18	Financial Accounting	1	1.0.0.0	144				Accounting 18	On	0.00	0.00	0.00	Accounting 18	Accounting 18	Accounting 18	Accounting 18	Accounting 18
Accounting Account 19	Accounting 19	Financial Accounting	1	1.0.0.0	144				Accounting 19	On	0.00	0.00	0.00	Accounting 19	Accounting 19	Accounting 19	Accounting 19	Accounting 19
Accounting Account 20	Accounting 20	Financial Accounting	1	1.0.0.0	144				Accounting 20	On	0.00	0.00	0.00	Accounting 20	Accounting 20	Accounting 20	Accounting 20	Accounting 20
Accounting Account 21	Accounting 21	Financial Accounting	1	1.0.0.0	144				Accounting 21	On	0.00	0.00	0.00	Accounting 21	Accounting 21	Accounting 21	Accounting 21	Accounting 21
Accounting Account 22	Accounting 22	Financial Accounting	1	1.0.0.0	144				Accounting 22	On	0.00	0.00	0.00	Accounting 22	Accounting 22	Accounting 22	Accounting 22	Accounting 22
Accounting Account 23	Accounting 23	Financial Accounting	1	1.0.0.0	144				Accounting 23	On	0.00	0.00	0.00	Accounting 23	Accounting 23	Accounting 23	Accounting 23	Accounting 23
Accounting Account 24	Accounting 24	Financial Accounting	1	1.0.0.0	144				Accounting 24	On	0.00	0.00	0.00	Accounting 24	Accounting 24	Accounting 24	Accounting 24	Accounting 24
Accounting Account 25	Accounting 25	Financial Accounting	1	1.0.0.0	144				Accounting 25	On	0.00	0.00	0.00	Accounting 25	Accounting 25	Accounting 25	Accounting 25	Accounting 25
Accounting Account 26	Accounting 26	Financial Accounting	1	1.0.0.0	144				Accounting 26	On	0.00	0.00	0.00	Accounting 26	Accounting 26	Accounting 26	Accounting 26	Accounting 26
Accounting Account 27	Accounting 27	Financial Accounting	1	1.0.0.0	144				Accounting 27	On	0.00	0.00	0.00	Accounting 27	Accounting 27	Accounting 27	Accounting 27	Accounting 27
Accounting Account 28	Accounting 28	Financial Accounting	1	1.0.0.0	144				Accounting 28	On	0.00	0.00	0.00	Accounting 28	Accounting 28	Accounting 28	Accounting 28	Accounting 28
Accounting Account 29	Accounting 29	Financial Accounting	1	1.0.0.0	144				Accounting 29	On	0.00	0.00	0.00	Accounting 29	Accounting 29	Accounting 29	Accounting 29	Accounting 29
Accounting Account 30	Accounting 30	Financial Accounting	1	1.0.0.0	144				Accounting 30	On	0.00	0.00	0.00	Accounting 30	Accounting 30	Accounting 30	Accounting 30	Accounting 30
Accounting Account 31	Accounting 31	Financial Accounting	1	1.0.0.0	144				Accounting 31	On	0.00	0.00	0.00	Accounting 31	Accounting 31	Accounting 31	Accounting 31	Accounting 31
Accounting Account 32	Accounting 32	Financial Accounting	1	1.0.0.0	144				Accounting 32	On	0.00	0.00	0.00	Accounting 32	Accounting 32	Accounting 32	Accounting 32	Accounting 32
Accounting Account 33	Accounting 33	Financial Accounting	1	1.0.0.0	144				Accounting 33	On	0.00	0.00	0.00	Accounting 33	Accounting 33	Accounting 33	Accounting 33	Accounting 33
Accounting Account 34	Accounting 34	Financial Accounting	1	1.0.0.0	144				Accounting 34	On	0.00	0.00	0.00	Accounting 34	Accounting 34	Accounting 34	Accounting 34	Accounting 34
Accounting Account 35	Accounting 35	Financial Accounting	1	1.0.0.0	144				Accounting 35	On	0.00	0.00	0.00	Accounting 35	Accounting 35	Accounting 35	Accounting 35	Accounting 35
Accounting Account 36	Accounting 36	Financial Accounting	1	1.0.0.0	144				Accounting 36	On	0.00	0.00	0.00	Accounting 36	Accounting 36	Accounting 36	Accounting 36	Accounting 36
Accounting Account 37	Accounting 37	Financial Accounting	1	1.0.0.0	144				Accounting 37	On	0.00	0.00	0.00	Accounting 37	Accounting 37	Accounting 37	Accounting 37	Accounting 37
Accounting Account 38	Accounting 38	Financial Accounting	1	1.0.0.0	144				Accounting 38	On	0.00	0.00	0.00	Accounting 38	Accounting 38	Accounting 38	Accounting 38	Accounting 38
Accounting Account 39	Accounting 39	Financial Accounting	1	1.0.0.0	144				Accounting 39	On	0.00	0.00	0.00	Accounting 39	Accounting 39	Accounting 39	Accounting 39	Accounting 39
Accounting Account 40	Accounting 40	Financial Accounting	1	1.0.0.0	144				Accounting 40	On	0.00	0.00	0.00	Accounting 40	Accounting 40	Accounting 40	Accounting 40	Accounting 40
Accounting Account 41	Accounting 41	Financial Accounting	1	1.0.0.0	144				Accounting 41	On	0.00	0.00	0.00	Accounting 41	Accounting 41	Accounting 41	Accounting 41	Accounting 41
Accounting Account 42	Accounting 42	Financial Accounting	1	1.0.0.0	144				Accounting 42	On	0.00	0.00	0.00	Accounting 42	Accounting 42	Accounting 42	Accounting 42	Accounting 42
Accounting Account 43	Accounting 43	Financial Accounting	1	1.0.0.0	144				Accounting 43	On	0.00	0.00	0.00	Accounting 43	Accounting 43	Accounting 43	Accounting 43	Accounting 43
Accounting Account 44	Accounting 44	Financial Accounting	1	1.0.0.0	144				Accounting 44	On	0.00	0.00	0.00	Accounting 44	Accounting 44	Accounting 44	Accounting 44	Accounting 44
Accounting Account 45	Accounting 45	Financial Accounting	1	1.0.0.0	144				Accounting 45	On	0.00	0.00	0.00	Accounting 45	Accounting 45	Accounting 45	Accounting 45	Accounting 45
Accounting Account 46	Accounting 46	Financial Accounting	1	1.0.0.0	144				Accounting 46	On	0.00	0.00	0.00	Accounting 46	Accounting 46	Accounting 46	Accounting 46	Accounting 46
Accounting Account 47	Accounting 47	Financial Accounting	1	1.0.0.0	144				Accounting 47	On	0.00	0.00	0.00	Accounting 47	Accounting 47	Accounting 47	Accounting 47	Accounting 47
Accounting Account 48	Accounting 48	Financial Accounting	1	1.0.0.0	144				Accounting 48	On	0.00	0.00	0.00	Accounting 48	Accounting 48	Accounting 48	Accounting 48	Accounting 48
Accounting Account 49	Accounting 49	Financial Accounting	1	1.0.0.0	144				Accounting 49	On	0.00	0.00	0.00	Accounting 49	Accounting 49	Accounting 49	Accounting 49	Accounting 49
Accounting Account 50	Accounting 50	Financial Accounting	1	1.0.0.0	144				Accounting 50	On	0.00	0.00	0.00	Accounting 50	Accounting 50	Accounting 50	Accounting 50	Accounting 50
Accounting Account 51	Accounting 51	Financial Accounting	1	1.0.0.0	144				Accounting 51	On	0.00	0.00	0.00	Accounting 51	Accounting 51	Accounting 51	Accounting 51	Accounting 51
Accounting Account 52	Accounting 52	Financial Accounting	1	1.0.0.0	144				Accounting 52	On	0.00	0.00	0.00	Accounting 52	Accounting 52	Accounting 52	Accounting 52	Accounting 52
Accounting Account 53	Accounting 53	Financial Accounting	1	1.0.0.0	144				Accounting 53	On	0.00	0.00	0.00	Accounting 53	Accounting 53	Accounting 53	Accounting 53	Accounting 53
Accounting Account 54	Accounting 54	Financial Accounting	1	1.0.0.0	144				Accounting 54	On	0.00	0.00	0.00	Accounting 54	Accounting 54	Accounting 54	Accounting 54	Accounting 54
Accounting Account 55	Accounting 55	Financial Accounting	1	1.0.0.0	144				Accounting 55	On	0.00	0.00	0.00	Accounting 55	Accounting 55	Accounting 55	Accounting 55	Accounting 55
Accounting Account 56	Accounting 56	Financial Accounting	1	1.0.0.0	144				Accounting 56	On	0.00	0.00	0.00	Accounting 56	Accounting 56	Accounting 56	Accounting 56	Accounting 56
Accounting Account 57	Accounting 57	Financial Accounting	1	1.0.0.0	144				Accounting 57	On	0.00	0.00	0.00	Accounting 57	Accounting 57	Accounting 57	Accounting 57	Accounting 57
Accounting Account 58	Accounting 58	Financial Accounting	1	1.0.0.0	144				Accounting 58	On	0.00	0.00	0.00	Accounting 58	Accounting 58	Accounting 58	Accounting 58	Accounting 58
Accounting Account 59	Accounting 59	Financial Accounting	1	1.0.0.0	144				Accounting 59	On	0.00	0.00	0.00	Accounting 59	Accounting 59	Accounting 59	Accounting 59	Accounting 59
Accounting Account 60	Accounting 60	Financial Accounting	1	1.0.0.0	144				Accounting 60	On	0.00	0.00	0.00	Accounting 60	Accounting 60	Accounting 60	Accounting 60	Accounting 60
Accounting Account 61	Accounting 61	Financial Accounting	1	1.0.0.0	144				Accounting 61	On	0.00	0.00	0.00	Accounting 61	Accounting 61	Accounting 61	Accounting 61	Accounting 61
Accounting Account 62	Accounting 62	Financial Accounting	1	1.0.0.0	144				Accounting 62	On	0.00	0.00	0.00	Accounting 62	Accounting 62	Accounting 62	Accounting 62	Accounting 62
Accounting Account 63	Accounting 63	Financial Accounting	1	1.0.0.0	144				Accounting 63	On	0.00	0.00	0.00	Accounting 63	Accounting 63	Accounting 63	Accounting 63	Accounting 63
Accounting Account 64	Accounting 64	Financial Accounting	1	1.0.0.0	144				Accounting 64	On	0.00	0.00	0.00	Accounting 64	Accounting 64	Accounting 64	Accounting 64	Accounting 64
Accounting Account 65	Accounting 65	Financial Accounting	1	1.0.0.0	144				Accounting 65	On	0.00	0.00	0.00	Accounting 65	Accounting 65	Accounting 65	Accounting 65	Accounting 65
Accounting Account 66	Accounting 66	Financial Accounting	1	1.0.0.0	144				Accounting 66	On	0.00	0.00	0.00	Accounting 66	Accounting 66	Accounting 66	Accounting 66	Accounting 66
Accounting Account 67	Accounting 67	Financial Accounting	1	1.0.0.0	144				Accounting 67	On	0.00	0.00	0.00	Accounting 67	Accounting 67	Accounting 67	Accounting 67	Accounting 67
Accounting Account 68	Accounting 68	Financial Accounting	1	1.0.0.0	144				Accounting 68	On	0.00	0.00	0.00	Accounting 68	Accounting 68	Accounting 68	Accounting 68	Accounting 68
Accounting Account 69	Accounting 69	Financial Accounting	1	1.0.0.0	144				Accounting 69	On	0.00	0.00	0.00	Accounting 69	Accounting 69	Accounting 69	Accounting 69	Accounting 69
Accounting Account 70	Accounting 70	Financial Accounting	1	1.0.0.0	144				Accounting 70	On	0.00	0.00	0.00	Accounting 70	Accounting 70	Accounting 70	Accounting 70	Accounting 70
Accounting Account 71	Accounting 71	Financial Accounting	1	1.0.0.0	144				Accounting 71	On	0.00	0.00	0.00	Accounting 71	Accounting 71	Accounting 71	Accounting 71	Accounting 71
Accounting Account 72	Accounting 72	Financial Accounting	1	1.0.0.0	144				Accounting 72	On	0.00	0.00	0.00	Accounting 72	Accounting 72	Accounting 72	Accounting 72	Accounting 72
Accounting Account 73	Accounting 73	Financial Accounting	1	1.0.0.0	144				Accounting 73	On	0.00	0.00	0.00	Accounting 73	Accounting 73	Accounting 73	Accounting 73	Accounting 73
Accounting Account 74	Accounting 74	Financial Accounting	1	1.0.0.0	144				Accounting 74	On	0.00	0.00	0.00	Accounting 74	Accounting 74	Accounting 74	Accounting 74	Accounting 74
Accounting Account 75	Accounting 75	Financial Accounting	1	1.0.0.0	144				Accounting 75	On	0.00</							

FactShoppingBehavior

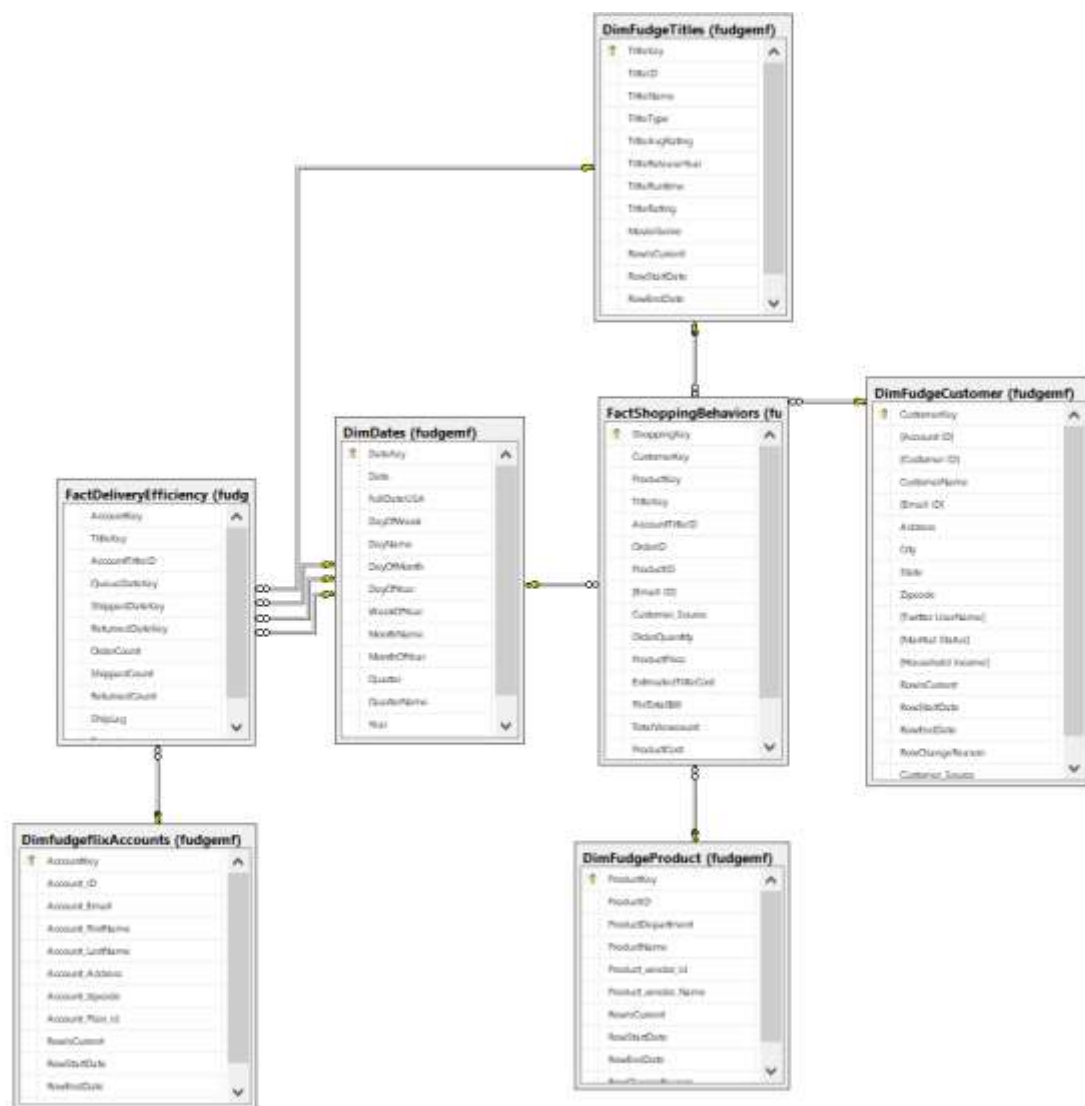
[illegible]

FactDeliveryEfficiency

[illegible]

DATA WAREHOUSE ON SQL SERVER

The Detail- Level Dimensional Modeling sheet is used to create the dimensions and facts on the SQL Server. Our Dimensional Schema:



ETL USING SQL SERVER INTEGRATION SERVICES

Source to Target Map:

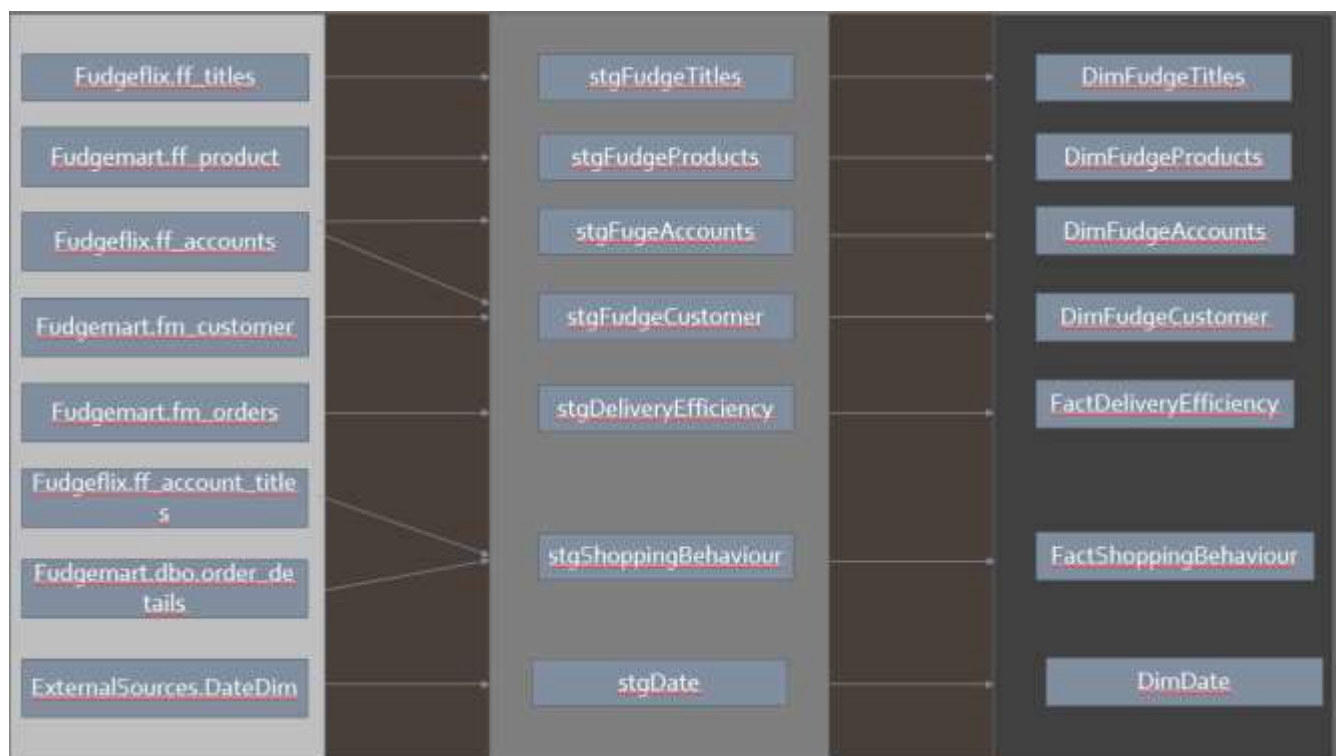
The main objective of the S-T-M is to document ETL processing done using tools. The processes documented :

OLTP Source -> ETL Stage -> DW

Source to target map

Stage:

We staged OLTP source data from Fudgemart, Fudgeflix, and external sources. Staging data allows us to address data sizing issues and freeze data to a point in time during the initial development.



Stage Date Dimension:

SQLQuery1.sql - ist...e (AD\kjhakar (62)) x IST-CS-DW1.ist722...stage - Diagram_0*

```

/***** Script for SelectTopRows command from SSMS *****/
SELECT TOP 1000 [DateKey]
, [Date]
, [FullDateUK]
, [FullDateUSA]
, [DayOfMonth]
, [DaySuffix]
, [DayName]
, [DayOfWeekUSA]
, [DayOfWeekUK]
, [DayOfWeekInMonth]
, [DayOfWeekInYear]
, [DayOfQuarter]
, [DayOfYear]
, [WeekOfMonth]
, [WeekOfQuarter]
, [WeekOfYear]
, [Month]
, [MonthName]
, [MonthOfQuarter]
, [Quarter]

```

100 %

Results Messages

	DateKey	Date	FullDateUK	FullDateUSA	DayOfMonth	DaySuffix	DayName	DayOfWeekUSA	DayOfWeekUK	DayOfWeekInMonth	DayOfWeekInYear	DayOfQuarter	DayOfYear
1	20111109	2011-11-09 00:00:00.000	09/11/2011	11/09/2011	9	9th	Wednesday	4	3	2	45	6	313
2	20111110	2011-11-10 00:00:00.000	10/11/2011	11/10/2011	10	10th	Thursday	5	4	2	45	6	314
3	20111111	2011-11-11 00:00:00.000	11/11/2011	11/11/2011	11	11th	Friday	6	5	2	45	6	315
4	20111112	2011-11-12 00:00:00.000	12/11/2011	11/12/2011	12	12th	Saturday	7	6	2	46	7	316
5	20111113	2011-11-13 00:00:00.000	13/11/2011	11/13/2011	13	13th	Sunday	1	7	2	46	7	317
6	20111114	2011-11-14 00:00:00.000	14/11/2011	11/14/2011	14	14th	Monday	2	1	2	46	7	318
7	20111115	2011-11-15 00:00:00.000	15/11/2011	11/15/2011	15	15th	Tuesday	3	2	3	46	7	319
8	20111116	2011-11-16 00:00:00.000	16/11/2011	11/16/2011	16	16th	Wednesday	4	3	3	46	7	320
9	20111117	2011-11-17 00:00:00.000	17/11/2011	11/17/2011	17	17th	Thursday	5	4	3	46	7	321
10	20111118	2011-11-18 00:00:00.000	18/11/2011	11/18/2011	18	18th	Friday	6	5	3	46	7	322
11	20111119	2011-11-19 00:00:00.000	19/11/2011	11/19/2011	19	19th	Saturday	7	6	3	47	8	323
12	20111120	2011-11-20 00:00:00.000	20/11/2011	11/20/2011	20	20th	Sunday	1	7	3	47	8	324
13	20111121	2011-11-21 00:00:00.000	21/11/2011	11/21/2011	21	21st	Monday	2	1	3	47	8	325
14	20111122	2011-11-22 00:00:00.000	22/11/2011	11/22/2011	22	22nd	Tuesday	3	2	4	47	8	326

Query executed successfully. ist-cs-dw1.ad.syn.edu (12.5... AD\kjhakar (62) ist722_fudge_c7_stage 00:00:00 1000 rows

Stage Titles table:

SQLQuery2.sql - ist...e (AD\kjhakar (65)) x SQLQuery1.sql - ist...e (AD\kjhakar (62)) IST-C5-DW1.ist722,...stage - Diagram_0'

```

/***** Script for SelectTopNRows command from SSRS *****/
SELECT TOP 1000 [title_id]
, [title_name]
, [title_type]
, [title_synopsis]
, [title_avg_rating]
, [title_release_year]
, [title_runtime]
, [title_rating]
, [title_bluray_available]
, [title_dvd_available]
, [title_instant_available]
, [title_date_modified]
, [tg_title_id]
, [TopGenre]
FROM [ist722_fudge_c7_stage].[dbo].[StgfudgeFlimffTitles]

```

100 %

Results Messages

	title_id	title_name	title_type	title_synopsis	title_avg_rating	title_release_year	title_runtime	title_rating	title_bluray_available	title
1	BVpBq	Teenage Dirtbag	Movie	In this sensitive drama based on true events, two d...	3.50	2009	6360	NR	0	1
2	BVpck	Machief	Movie	Shy teen Jonathan Bellah (<a href="http://www.n...	3.50	1985	5820	R	0	1
3	BVpCs	That Dam Cat	Movie	After a bank teller is kidnapped during a robbery, a...	3.60	1965	6840	G	0	1
4	BVPe0	John Lennon: Sweet Toronto	Movie	Filmed live at the 1969 Sweet Toronto Peace Festi...	3.00	1969	3360	NR	0	1
5	BVPe4	Karaoke Sing-Along: Vol. 5	Movie	Some of the greatest country hits made the cut into...	2.30	1999	3600	NR	0	0
6	BVPE	Heaven Sent	Movie	When troubled teen Eddie is hit by a car, he's give...	2.90	1998	7200	PG	0	1
7	BVpEj	L.A. Without a Map	Movie	A holiday affair in England mushrooms into a full-blo...	2.80	1998	6420	NR	0	0
8	BVpEr	Apocalypse Now / Apocalypse Now Redux	Movie	Francis Ford Coppola's timeless epic adapts Josep...	4.20	1979	20460	R	0	1
9	BVpES	Valentine's Day	Movie	In this Los Angeles-set comedy from director Gary ...	3.40	2010	7500	PG-13	1	1
10	BVpEt	An American in China	Movie	Twentysomething David Braddock is fresh out of S...	2.50	2008	5280	PG-13	0	0
11	BVpEV	Extraordinary Measures	Movie	After their two young children are diagnosed with a...	3.70	2010	6360	PG	1	1
12	BVPEx	Future Shock	Movie	Using a virtual reality device, psychiatrist Dr. Langd...	1.90	1993	6120	PG-13	0	1
13	BVpF0	The Rockford Files: If the Frame Fits / Godfather ...	Movie	In "If the Frame Fits," Jim Rockford is suspected of...	3.20	1996	10980	NR	0	1
14	BVpFn	Whispered of Anzels: A Story of the Underground R...	Movie	Combining archival photographs, interviews with hi...	2.90	2004	3600	NR	0	0

Stage Account Billing table:

SQLQuery3.sql - ist...e (AD\kjthakar (71)) X SQLQuery2.sql - ist...e (AD\kjthakar (65)) SQLQue

```
/****** Script for SelectTopNRows command from SSMS *****/  
SELECT TOP 1000 [ab_id]  
    ,[ab_date]  
    ,[ab_account_id]  
    ,[ab_plan_id]  
    ,[ab_billed_amount]  
FROM [ist722_fudge_c7_stage].[dbo].[stgFudgemfAccountBilling]
```

100 %

Results Messages

	ab_id	ab_date	ab_account_id	ab_plan_id	ab_billed_amount
1	1	2010-01-01 00:00:00.000	10016	5	7.99
2	2	2010-01-01 00:00:00.000	10018	5	7.99
3	3	2010-01-01 00:00:00.000	10031	5	7.99
4	5	2010-02-01 00:00:00.000	10001	5	7.99
5	6	2010-02-01 00:00:00.000	10002	5	7.99
6	7	2010-02-01 00:00:00.000	10003	5	7.99
7	8	2010-02-01 00:00:00.000	10004	6	19.99
8	9	2010-02-01 00:00:00.000	10005	5	7.99
9	10	2010-02-01 00:00:00.000	10006	5	7.99
10	11	2010-02-01 00:00:00.000	10007	5	7.99
11	12	2010-02-01 00:00:00.000	10008	5	7.99
12	13	2010-02-01 00:00:00.000	10009	7	12.99
13	14	2010-02-01 00:00:00.000	10010	6	19.99
14	15	2010-02-01 00:00:00.000	10011	6	19.99
15	16	2010-02-01 00:00:00.000	10012	6	19.99

Query executed successfully.

Stage Accounts table:

SQLQuery4.sql - ist...e (AD\kjthakar (74)) X SQLQuery3.sql - ist...e (AD\kjthakar (71)) SQLQuery2.sql - ist...e (AD\kjthakar (65)) SQLQuery1.sql - ist...e (AD\kjthakar (62))

```

/***** Script for SelectTopNRows command from SSMS *****/
SELECT TOP 1000 [account_id]
, [account_email]
, [account_firstname]
, [account_lastname]
, [account_address]
, [account_zipcode]
, [account_plan_id]
, [account_opened_on]
FROM [ist722_fudge_c7_stage].[dbo].[stgFudgeemAccounts]

```

100 %

Results Messages

	account_id	account_email	account_firstname	account_lastname	account_address	account_zipcode	account_plan_id	account_opened_on
1	10001	mmeadows@dayrep.com	Maty	Meadows	60 Madison Ave	10010	4	2010-01-12 00:00:00.000
2	10002	btall@dayrep.com	Bette	Itall	3250 Spring Grove Ave	45225	4	2010-01-08 00:00:00.000
3	10003	bbaron@mail.org	Barb	Baron	NULL	85222	2	2010-01-06 00:00:00.000
4	10004	bdehatchett@dayrep.com	Bary	DeHatchett	9022 E Merchant Wy	52556	3	2010-01-29 00:00:00.000
5	10005	benameau@supento.com	Bo	Enameau	7833 N Ridge Rd	95887	2	2010-01-16 00:00:00.000
6	10006	gtotwind@dayrep.com	Gus	Totwind	882 W Easton Wy	90084	1	2010-01-26 00:00:00.000
7	10007	igunner@mail.org	Isabelle	Gunnering	NULL	94562	1	2010-01-25 00:00:00.000
8	10008	lkarforless@supento.com	Lisa	Karforless	1555 W Lane Ave	43221	1	2010-01-16 00:00:00.000
9	10009	meyezing@dayrep.com	Martin	Eyazing	627 Aviation Way	90266	2	2010-01-04 00:00:00.000
10	10010	mmelator@mail.org	Mary	Melator	NULL	33862	3	2010-01-05 00:00:00.000
11	10011	rabovdu@mail.org	Rose	Abov-Duresat	NULL	13244	4	2010-01-10 00:00:00.000
12	10012	rovlight@mail.org	Ray	Ovlight	NULL	13607	3	2010-01-06 00:00:00.000
13	10013	vhree@dayrep.com	Victor	Rhee	1099 N Farcount St	92807	2	2010-01-11 00:00:00.000
14	10014	tanott@guatr.com	Ty	Anott	789 E Mercy Ave	85038	1	2010-01-25 00:00:00.000
15	10015	enferre@mail.org	Sermore	Oferre	NULL	10006	3	2010-01-16 00:00:00.000

Query executed successfully. ist-cs-dw1.ad.syr.edu (12.0... AD\kjthakar (74) ist722_fu

Stage Account Titles:

SQLQuery5.sql - ist...e (AD\kjthakar (75)) X SQLQuery4.sql - ist...e (AD\kjthakar (74)) SQLQuery3.sql - ist...e (AD\kjthakar (71)) SC

```

/***** Script for SelectTopNRows command from SSMS *****/
SELECT TOP 1000 [at_id]
      ,[at_account_id]
      ,[at_title_id]
      ,[at_queue_date]
      ,[at_shipped_date]
      ,[at_returned_date]
      ,[at_rating]
FROM [ist722_fudge_c7_stage].[dbo].[stgfudgemfAccountTitles]

```

100 %

Results Messages

	at_id	at_account_id	at_title_id	at_queue_date	at_shipped_date	at_returned_date	at_rating
1	1	10001	7NG6	2013-02-01 00:00:00.000	2013-02-02 00:00:00.000	2013-02-02 00:00:00.000	3
2	2	10004	BVNdO	2013-02-01 00:00:00.000	2013-02-02 00:00:00.000	2013-02-02 00:00:00.000	2
3	3	10004	knkj	2013-02-01 00:00:00.000	2013-02-02 00:00:00.000	2013-02-02 00:00:00.000	NULL
4	4	10004	ApNwh	2013-02-02 00:00:00.000	NULL	NULL	3
5	5	10004	ApQhl	2013-02-03 00:00:00.000	NULL	NULL	4
6	6	10005	7Eu	2013-02-01 00:00:00.000	2013-02-02 00:00:00.000	2013-02-02 00:00:00.000	4
7	7	10005	knkj	2013-02-02 00:00:00.000	NULL	NULL	NULL
8	8	10012	5prm	2013-02-01 00:00:00.000	2013-02-02 00:00:00.000	2013-02-02 00:00:00.000	4
9	9	10012	ApO1H	2013-02-02 00:00:00.000	NULL	NULL	4
10	10	10012	ApQrJ	2013-02-02 00:00:00.000	NULL	NULL	4
11	11	10012	BVV1C	2013-02-03 00:00:00.000	NULL	NULL	3
12	12	10016	BVODD	2013-02-01 00:00:00.000	2013-02-02 00:00:00.000	2013-02-02 00:00:00.000	NULL
13	13	10016	BVUNd	2013-02-02 00:00:00.000	NULL	NULL	NULL
14	14	10020	8XnPX	2013-02-01 00:00:00.000	2013-02-02 00:00:00.000	2013-02-02 00:00:00.000	NULL
15	15	10020	BVUNd	2013-02-02 00:00:00.000	NULL	NULL	2

Query executed successfully. ist-cs-dw1.ad.syr

Stage Customers:

SQLQuery6.sql - int...e (AD\jthakar (76)) SQLQuery5.sql - int...e (AD\jthakar (73)) SQLQuery4.sql - int...e (AD\jthakar (74)) SQLQuery3.sql - int...e (AD\jthakar (71))

```

/***** Script for SelectTopNRows command from SSMS *****/
SELECT TOP 1000 [customer_source]
, [account_id]
, [account_email]
, [account_firstname]
, [account_lastname]
, [account_address]
, [account_zipcode]
, [account_plan_id]
, [account_opened_on]
, [customer_id]
, [customer_email]
, [customer_firstname]
, [customer_lastname]
, [customer_address]
, [customer_city]
, [customer_state]
, [customer_zip]
, [customer_phone]
, [customer_fax]
, [Twitter Username]

```

100 %

	customer_source	account_id	account_email	account_firstname	account_lastname	account_address	account_zipcode	account_plan_id	account_opened_on	customer_id	customer_email
1	Both	10001	rmeadows@dayrep.com	Maty	Meadows	60 Madison Ave	10010	4	2010-01-12 00:00:00.000	3	rmeadows
2	Both	10002	btall@dayrep.com	Bette	Ball	3250 Spring Grove Ave	45225	4	2010-01-06 00:00:00.000	6	btall@dayrep
3	Fudgefix	10003	bbaron@mail.org	Barb	Baron	NULL	85222	2	2010-01-06 00:00:00.000	NULL	NULL
4	Both	10004	bdehatchett@dayrep.com	Berry	DeHatchett	9022 E Merchant Wy	52556	3	2010-01-29 00:00:00.000	7	bdehatchett
5	Both	10005	benamau@supperlo.com	Bo	Enamau	7833 N Ridge Rd	95887	2	2010-01-16 00:00:00.000	11	benamau
6	Both	10006	gtohwind@dayrep.com	Gus	Tohwind	882 W Easton Wy	90084	1	2010-01-26 00:00:00.000	9	gtohwind@
7	Fudgefix	10007	gunner@mail.org	Isabelle	Gunning	NULL	94562	1	2010-01-25 00:00:00.000	NULL	NULL
8	Both	10008	karlofless@supperlo.com	Lisa	Karlofless	1555 W Lane Ave	43221	1	2010-01-16 00:00:00.000	1	karlofless
9	Both	10009	meyezding@dayrep.com	Martin	Eyezding	627 Aviation Way	90266	2	2010-01-04 00:00:00.000	23	meyezding@
10	Fudgefix	10010	mmelator@mail.org	Mary	Melator	NULL	33862	3	2010-01-25 00:00:00.000	NULL	NULL
11	Fudgefix	10011	nabovdu@mail.org	Rose	Abov-Duresil	NULL	13244	4	2010-01-10 00:00:00.000	NULL	NULL
12	Fudgefix	10012	rovlght@mail.org	Ray	Ovlght	NULL	13607	3	2010-01-06 00:00:00.000	NULL	NULL
13	Both	10013	vhree@dayrep.com	Victor	Rhee	1099 N Faircourt St	92807	2	2010-01-11 00:00:00.000	15	vhree@day
14	Both	10014	twinn@dayrep.com	Ty	Arntt	788 F Merry Ave	RM108	1	2010-01-26 00:00:00.000	16	twinn@day

Query executed successfully. ist-cs-0w1.ad.syr.edu (12.0... AD\jthakar (76) : ist722_fudge_c7_stage : 00:00:00 : 46 rows

Stage Fact Delivery:

SQLQuery8.sql - ist.e (AD\jghakar (78)) SQLQuery7.sql - ist.e (AD\jghakar (77)) SQLQuery6.sql - ist.e (AD\jghakar (76)) SQLQuery5.sql - ist.e (AD\jghakar (75))

```
/****** Script for SelectTopNRows command from SSRS *****/  
SELECT TOP 1000 [order_id]  
,[customer_id]  
,[order_date]  
,[shipped_date]  
,[ship_via]  
,[creditcard_id]  
,[customer_zip]  
,[customer_state]  
FROM [ist722_fudge_c7_stage].[dbo].[stgfudgenFactDelivery]
```

100 %

Results Messages

	order_id	customer_id	order_date	shipped_date	ship_via	creditcard_id	customer_zip	customer_state
1	1	13	2009-01-01 00:00:00.000	2009-01-10 00:00:00.000	airEx	31	93711	CA
2	2	25	2009-01-01 00:00:00.000	2009-01-04 00:00:00.000	UDS	53	20559	DC
3	3	19	2009-01-01 00:00:00.000	2009-01-07 00:00:00.000	Postal Service	41	85038	AZ
4	4	1	2009-01-02 00:00:00.000	2009-01-08 00:00:00.000	Postal Service	3	43221	OH
5	5	4	2009-01-02 00:00:00.000	2009-01-05 00:00:00.000	UDS	14	20006	DC
6	6	10	2009-01-02 00:00:00.000	2009-01-07 00:00:00.000	Postal Service	38	10591	NY
7	7	7	2009-01-03 00:00:00.000	2009-01-08 00:00:00.000	UDS	18	52556	IA
8	8	25	2009-12-03 00:00:00.000	2009-12-09 00:00:00.000	airEx	53	20559	DC
9	9	19	2009-01-04 00:00:00.000	2009-01-07 00:00:00.000	UDS	41	85038	AZ
10	10	10	2009-01-05 00:00:00.000	2009-01-08 00:00:00.000	UDS	38	10591	NY
11	11	21	2009-01-05 00:00:00.000	2009-01-08 00:00:00.000	airEx	43	43260	OH
12	12	18	2009-01-05 00:00:00.000	2009-01-08 00:00:00.000	UDS	38	10591	NY
13	13	21	2009-11-05 00:00:00.000	2009-11-08 00:00:00.000	airEx	43	43260	OH
14	14	25	2009-12-06 00:00:00.000	2009-12-10 00:00:00.000	airEx	53	20559	DC
15	15	17	2009-01-06 00:00:00.000	2009-01-09 00:00:00.000	UDS	30	62711	CA

Query executed successfully. ist-cs-dw1.ad.syr.edu (12.0... AD\jghakar (78) | ist722_fudge_c7_stage 00:00:00 1000 rows

Stage Fudge Orders:

SQLQuery9.sql - ist...e (AD\kjthakar (79)) X SQLQuery8.sql - ist...e (AD\kjthakar (78)) SQLQuery7.sql - ist...e (AD\kjthakar (7

```
/****** Script for SelectTopNRows command from SSMS *****/  
SELECT TOP 1000 [order_id]  
    ,[order_qty]  
    ,[order_date]  
    ,[ship_via]  
    ,[creditcard_id]  
    ,[product_id]  
    ,[customer_id]  
    ,[SubOrderID]  
FROM [ist722_fudge_c7_stage].[dbo].[stgfudgemfOrders]
```

100 %

Results Messages

	order_id	order_qty	order_date	ship_via	creditcard_id	product_id	customer_id	SubOrderID
1	1	1	2009-01-01 00:00:00.000	JiffyEx	31	12	13	1
2	1	2	2009-01-01 00:00:00.000	JiffyEx	31	14	13	2
3	1	1	2009-01-01 00:00:00.000	JiffyEx	31	16	13	3
4	1	2	2009-01-01 00:00:00.000	JiffyEx	31	49	13	4
5	2	1	2009-01-01 00:00:00.000	UDS	53	50	25	1
6	3	5	2009-01-01 00:00:00.000	Postal Service	41	12	19	1
7	3	2	2009-01-01 00:00:00.000	Postal Service	41	43	19	2
8	4	4	2009-01-02 00:00:00.000	Postal Service	3	41	1	1
9	5	1	2009-01-02 00:00:00.000	UDS	14	1	4	1
10	5	2	2009-01-02 00:00:00.000	UDS	14	4	4	2
11	5	2	2009-01-02 00:00:00.000	UDS	14	18	4	3
12	5	3	2009-01-02 00:00:00.000	UDS	14	31	4	4
13	5	1	2009-01-02 00:00:00.000	UDS	14	40	4	5
14	6	1	2009-01-02 00:00:00.000	Postal Service	38	15	18	1
15	6	1	2009-01-02 00:00:00.000	Postal Service	38	25	18	2

Query executed successfully. ist-cs-

Stage Products Table:

SQLQuery10.sql - ist...e (AD\kjhakar (80)) x SQLQuery9.sql - ist...e (AD\kjhakar (79)) SQLQuery8.sql - ist...e (AD\kjhakar (78)) SQLQuery7.sql - ist...e (AD\kjhakar (77))

```

/***** Script for SelectTopNRows command from SSMS *****/
SELECT TOP 1000 [product_id]
,[product_department]
,[product_name]
,[product_retail_price]
,[product_wholesale_price]
,[product_is_active]
,[product_add_date]
,[product_description]
,[vendor_id]
,[vendor_name]
FROM [ist722_fudge_c7_stage].[dbo].[StgFudgeMfProducts]

```

100 %

Results Messages

	product_id	product_department	product_name	product_retail_price	product_wholesale_price	product_is_active	product_add_date	product_description	vendor_id	vendor_name
1	1	Hardware	Straight Claw Hammer	15.95	11.00	1	2007-08-31 17:42:44.703	NULL	3	Stanlee
2	2	Hardware	Sledge Hammer	21.95	15.00	1	2007-08-31 17:42:44.703	NULL	3	Stanlee
3	3	Hardware	Rip Claw Hammer	19.95	12.00	1	2007-08-31 17:42:44.703	NULL	3	Stanlee
4	4	Clothing	Dri-Fit Tee	20.00	8.00	1	2007-09-14 17:13:45.553	NULL	2	Mikay
5	5	Clothing	Running Pants	35.00	12.00	1	2007-09-14 17:14:04.443	NULL	2	Mikay
6	6	Clothing	Wool Socks	8.00	2.00	1	2007-09-14 17:14:20.117	NULL	2	Mikay
7	7	Clothing	Squeaky Sneaks	65.00	20.00	1	2007-09-14 17:14:43.270	NULL	2	Mikay
8	8	Clothing	Cool Jeans	45.00	10.00	1	2007-09-14 17:15:07.803	NULL	7	Leaveeyes
9	9	Clothing	Denim Jacket	60.00	15.00	1	2007-09-14 17:15:20.630	NULL	7	Leaveeyes
10	10	Clothing	Leather Jacket	95.00	45.00	1	2007-09-14 17:15:30.367	NULL	7	Leaveeyes
11	11	Clothing	Coudory Pants	24.00	12.00	1	2007-09-15 22:43:13.227	NULL	7	Leaveeyes
12	12	Clothing	Work Pants	38.00	20.00	1	2007-09-15 22:43:44.397	NULL	3	Stanlee
13	13	Clothing	Work Gloves	8.00	4.00	1	2007-09-15 22:44:03.583	NULL	3	Stanlee
14	14	Clothing	Comfort Tee	12.00	2.00	1	2007-09-15 22:44:33.930	NULL	8	Weeback
15	15	Clothing	Running Shorts	30.00	8.00	1	2007-09-15 22:44:49.977	NULL	8	Weeback

Query executed successfully. ist-cs-dw1.ad.syr.edu (12.0...) AD\kjhakar (80) : ist722_fudge_c7_stage : 00:00:00 : 53

Stage Order Table:

SQLQuery11.sql - is...e (AD\kjthakar (81)) X SQLQuery10.sql - is...e (AD\kjthakar (80)) SQLQuery9.sql - ist...e (A

```
/****** Script for SelectTopNRows command from SSMS *****/  
SELECT TOP 1000 [order_id]  
    ,[customer_id]  
    ,[order_date]  
    ,[shipped_date]  
    ,[ship_via]  
    ,[creditcard_id]  
FROM [ist722_fudge_c7_stage].[dbo].[stgsrsrcOrder]
```

100 %

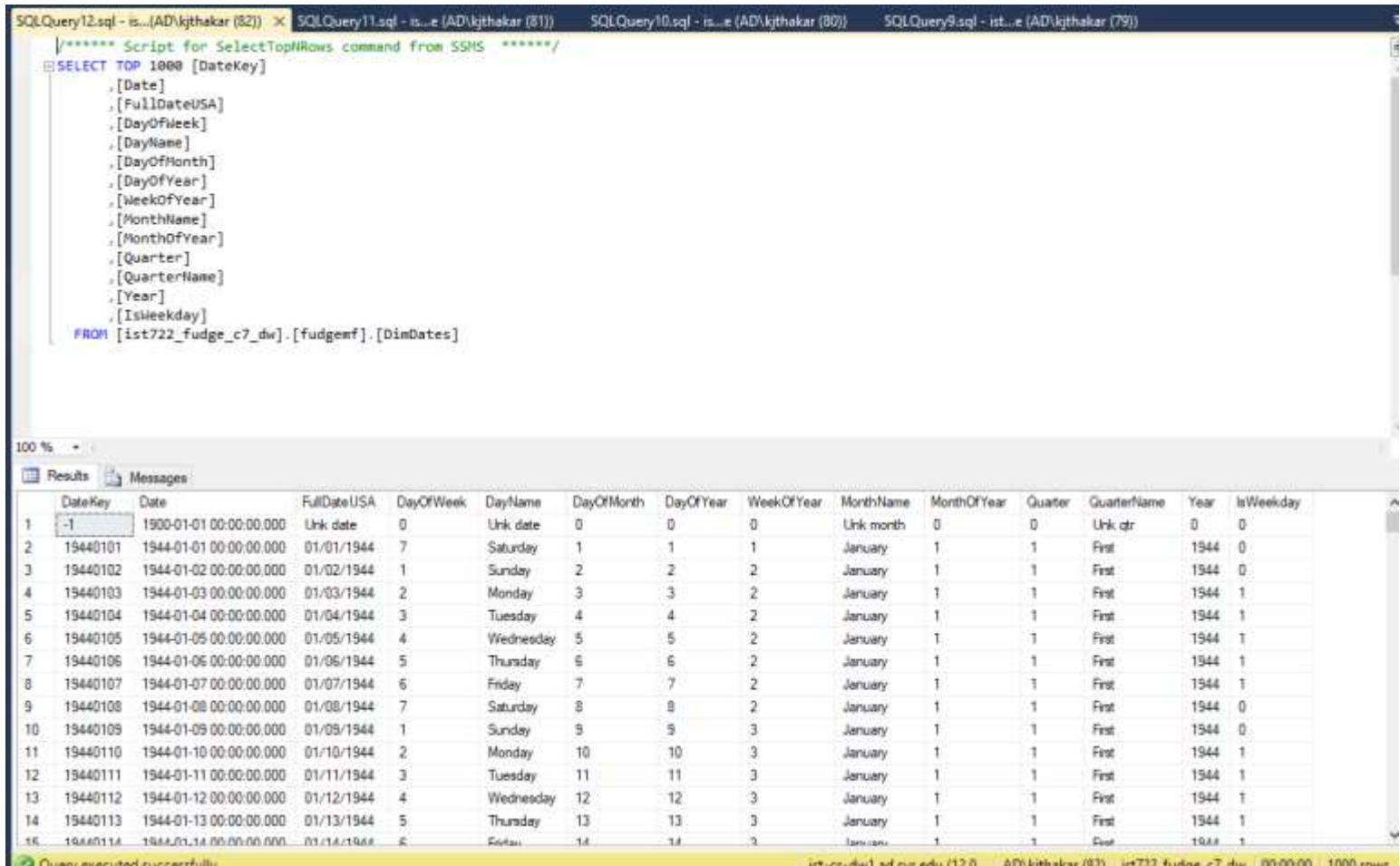
Results Messages

	order_id	customer_id	order_date	shipped_date	ship_via	creditcard_id
1	1	13	2009-01-01 00:00:00.000	2009-01-10 00:00:00.000	JiffyEx	31
2	2	25	2009-01-01 00:00:00.000	2009-01-04 00:00:00.000	UDS	53
3	3	19	2009-01-01 00:00:00.000	2009-01-07 00:00:00.000	Postal Service	41
4	4	1	2009-01-02 00:00:00.000	2009-01-08 00:00:00.000	Postal Service	3
5	5	4	2009-01-02 00:00:00.000	2009-01-05 00:00:00.000	UDS	14
6	6	18	2009-01-02 00:00:00.000	2009-01-07 00:00:00.000	Postal Service	38
7	7	7	2009-01-03 00:00:00.000	2009-01-08 00:00:00.000	UDS	18
8	8	25	2009-12-03 00:00:00.000	2009-12-09 00:00:00.000	JiffyEx	53
9	9	19	2009-01-04 00:00:00.000	2009-01-07 00:00:00.000	UDS	41
10	10	18	2009-01-05 00:00:00.000	2009-01-08 00:00:00.000	UDS	38
11	11	21	2009-01-05 00:00:00.000	2009-01-08 00:00:00.000	JiffyEx	43
12	12	18	2009-01-05 00:00:00.000	2009-01-08 00:00:00.000	UDS	38
13	13	21	2009-11-05 00:00:00.000	2009-11-08 00:00:00.000	JiffyEx	43
14	14	25	2009-12-06 00:00:00.000	2009-12-10 00:00:00.000	JiffyEx	53
15	15	17	2009-01-06 00:00:00.000	2009-01-09 00:00:00.000	UDS	20

Query executed successfully.

LOADING STAGE DATA TO DATA WAREHOUSE

We use a similar ETL for loading the data to the Data Warehouse, like we used for Staging.



The screenshot displays the SQL Server Enterprise Manager interface. The top pane shows a query script for 'Script for SelectTopNRows command from SSMS'. The script is a SELECT TOP 1000 statement querying the 'DimDates' table in the 'fudgemf' schema of the 'ist722_fudge_c7_dw' database. The script lists various date-related columns. The bottom pane shows the results of the query, displaying a table with 15 columns and 15 rows of data. The status bar at the bottom indicates the query was executed successfully.

```
/****** Script for SelectTopNRows command from SSMS *****/
SELECT TOP 1000 [DateKey]
, [Date]
, [FullDateUSA]
, [DayOfWeek]
, [DayName]
, [DayOfMonth]
, [DayOfYear]
, [WeekOfYear]
, [MonthName]
, [MonthOfYear]
, [Quarter]
, [QuarterName]
, [Year]
, [IsWeekday]
FROM [ist722_fudge_c7_dw].[fudgemf].[DimDates]
```

DateKey	Date	FullDateUSA	DayOfWeek	DayName	DayOfMonth	DayOfYear	WeekOfYear	MonthName	MonthOfYear	Quarter	QuarterName	Year	IsWeekday
-1	1900-01-01 00:00:00.000	Unk date	0	Unk date	0	0	0	Unk month	0	0	Unk qtr	0	0
19440101	1944-01-01 00:00:00.000	01/01/1944	7	Saturday	1	1	1	January	1	1	First	1944	0
19440102	1944-01-02 00:00:00.000	01/02/1944	1	Sunday	2	2	2	January	1	1	First	1944	0
19440103	1944-01-03 00:00:00.000	01/03/1944	2	Monday	3	3	2	January	1	1	First	1944	1
19440104	1944-01-04 00:00:00.000	01/04/1944	3	Tuesday	4	4	2	January	1	1	First	1944	1
19440105	1944-01-05 00:00:00.000	01/05/1944	4	Wednesday	5	5	2	January	1	1	First	1944	1
19440106	1944-01-06 00:00:00.000	01/06/1944	5	Thursday	6	6	2	January	1	1	First	1944	1
19440107	1944-01-07 00:00:00.000	01/07/1944	6	Friday	7	7	2	January	1	1	First	1944	1
19440108	1944-01-08 00:00:00.000	01/08/1944	7	Saturday	8	8	2	January	1	1	First	1944	0
19440109	1944-01-09 00:00:00.000	01/09/1944	1	Sunday	9	9	3	January	1	1	First	1944	0
19440110	1944-01-10 00:00:00.000	01/10/1944	2	Monday	10	10	3	January	1	1	First	1944	1
19440111	1944-01-11 00:00:00.000	01/11/1944	3	Tuesday	11	11	3	January	1	1	First	1944	1
19440112	1944-01-12 00:00:00.000	01/12/1944	4	Wednesday	12	12	3	January	1	1	First	1944	1
19440113	1944-01-13 00:00:00.000	01/13/1944	5	Thursday	13	13	3	January	1	1	First	1944	1
19440114	1944-01-14 00:00:00.000	01/14/1944	6	Friday	14	14	3	January	1	1	First	1944	1

Dim Dates:

Dim Account Titles:

SQLQuery13.sql - is... (AD\kjthakar (83)) x SQLQuery12.sql - is... (AD\kjthakar (82)) SQLQuery11.sql - is...e (AD\kjthakar (81)) SQLQuery10.sql - is...e (AD\kjthakar (80))

```

/***** Script for SelectTopRows command from SSMS *****/
SELECT TOP 1000 [AccountTitleKey]
,[AccountTitleID]
,[AccountID]
,[TitleID]
,[QueueDate]
,[ShippedDate]
,[ReturnedDate]
,[Rating]
,[RowIsCurrent]
,[RowStartDate]
,[RowEndDate]
,[RowChangeReason]
FROM [ist722_fudge_c7_dw].[fudgemf].[DimFudgeAccountTitles]

```

100 %

Results Messages

	AccountTitleKey	AccountTitleID	AccountID	TitleID	QueueDate	ShippedDate	ReturnedDate	Rating	RowIsCurrent	RowStartDate	RowEndDate	RowChangeReason
1	-1	-1	-1	Unknown Movie	-1	-1	-1	-1	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	N/A
2	1	1	10001	7NG6	20130201	20130202	20130202	3	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
3	2	2	10004	BVNdO	20130201	20130202	20130202	2	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
4	3	3	10004	knkj	20130201	20130202	20130202	-1	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
5	4	4	10004	ApNwh	20130202	-1	-1	3	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
6	5	5	10004	ApQhI	20130203	-1	-1	4	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
7	6	6	10005	7Eu	20130201	20130202	20130202	4	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
8	7	7	10005	knkj	20130202	-1	-1	-1	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
9	8	8	10012	Spm	20130201	20130202	20130202	4	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
10	9	9	10012	ApOIH	20130202	-1	-1	4	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
11	10	10	10012	ApQhJ	20130202	-1	-1	4	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
12	11	11	10012	BVVIC	20130203	-1	-1	3	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
13	12	12	10016	BVODD	20130201	20130202	20130202	-1	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
14	13	13	10016	BVUNd	20130202	-1	-1	-1	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
15	14	14	10020	8VwRV	20130201	20130202	20130202	-1	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL

Query executed successfully. ist-cs-dw1.ad.syr.edu (12.0... AD\kjthakar (83)) ist722_fudge_c7_dw 00:00:00 1000 rows

Dim Customer:

SQLQuery14.sql - is...(AD\kjthakar (84)) X SQLQuery13.sql - is...(AD\kjthakar (83)) SQLQuery12.sql - is...(AD\kjthakar (82)) SQLQuery11.sql - is...e (AD\kjthakar (81))

```

/***** Script for SelectTopNRows command from SSRS *****/
SELECT TOP 1000 [CustomerKey]
, [Account ID]
, [Customer ID]
, [CustomerName]
, [Email ID]
, [Address]
, [City]
, [State]
, [Zipcode]
, [Twitter UserName]
, [Marital Status]
, [Household Income]
, [RowIsCurrent]
, [RowStartDate]
, [RowEndDate]
, [RowChangeReason]
, [Customer_Source]
FROM [ist722_fudge_c7_dw].[fudgemf].[DimFudgeCustomer]

```

100 %

Results Messages

	CustomerKey	Account ID	Customer ID	CustomerName	Email ID	Address	City	State	Zipcode	Twitter UserName	Marital Status
1	-1	-1	-1	Unknown Name	Unknown Email ID	Unknown Address	Unknown City	Unknown State	Unknown Zip	Unknown Username	Unknown Status
2	69	10001	3	Misty Meadows	mmeadows@dayrep.com	60 Madison Ave	New York	NY	10010	mmeadows	Single
3	70	10002	6	Bette Hall	bital@dayrep.com	3250 Spring Grove Ave	Cincinnati	OH	45225	bital	Married
4	71	10003	-1	Barb Barton	bbarton@mail.org	Unknown Address	Unknown City	Unknown State	85222	Unknown Username	Unknown Status
5	72	10004	7	Barry DeHatchett	bdehatchett@dayrep.com	9022 E Merchant Wy	Fairfield	IA	52556	bdehatchett	Prefer not to Answer
6	73	10005	11	Bo Enameau	benameau@supemto.com	7833 N Ridge Rd	Sacramento	CA	95887	benameau	Prefer not to Answer
7	74	10006	9	Gus Toffwind	gtofwind@dayrep.com	882 W Easton Wy	Los Angeles	CA	90084	gtofwind	Single
8	75	10007	-1	Isabelle Gunnering	igunner@mail.org	Unknown Address	Unknown City	Unknown State	94562	Unknown Username	Unknown Status
9	76	10008	1	Lisa Karforless	lkarforless@supemto.com	1555 W Lane Ave	Columbus	OH	43221	Unknown Username	Unknown Status
10	77	10009	23	Martin Eyezing	meyezing@dayrep.com	627 Aviation Way	Manhattan Beach	CA	90266	meyezing	Married
11	78	10010	-1	Mary Melator	mmelator@mail.org	Unknown Address	Unknown City	Unknown State	33862	Unknown Username	Unknown Status
12	79	10011	-1	Rose Abov-Duresst	rabovdu@mail.org	Unknown Address	Unknown City	Unknown State	13244	Unknown Username	Unknown Status
13	80	10012	-1	Ray Ovlght	rovlght@mail.org	Unknown Address	Unknown City	Unknown State	13607	Unknown Username	Unknown Status
14	81	10013	15	Victor Rhoe	vrhoe@dayrep.com	1099 N Fenout St	Orange	CA	92667	Unknown Username	Unknown Status

Query executed successfully. ist-cs-dw1.ad.syr.edu (12.0... AD\kjthakar (84) ist722_fudge_c7_dw 00:00:00 47 rows

Dim Accounts:

SQLQuery15.sql - is...[AD\kjthakar (85)] x SQLQuery14.sql - is...[AD\kjthakar (84)] SQLQuery13.sql - is...[AD\kjthakar (83)] SQLQuery12.sql - is...[AD\kjthakar (82)]

```

/***** Script for SelectTopNRows command from SSRS *****/
SELECT TOP 1000 [AccountKey]
, [Account_ID]
, [Account_Email]
, [Account_FirstName]
, [Account_LastName]
, [Account_Address]
, [Account_zipcode]
, [Account_Plan_Id]
, [RowIsCurrent]
, [RowStartDate]
, [RowEndDate]
, [RowChangeReason]
FROM [ist722_fudge_c7_dw].[fudgemf].[DimfudgeflixAccounts]

```

100 %

Results Messages

	AccountKey	Account_ID	Account_Email	Account_FirstName	Account_LastName	Account_Address	Account_zipcode	Account_Plan_Id	RowIsCurrent	RowStartDate	RowEndDate
1	1	10001	mmeadows@dayrep.com	Misty	Meadows	60 Madison Ave	10010	4	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
2	2	10002	btail@dayrep.com	Bette	Itall	3250 Spring Grove Ave	45225	4	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
3	3	10003	bbarion@mail.org	Barb	Barion	NULL	85222	2	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
4	4	10004	bdehatchett@dayrep.com	Bary	DeHatchett	9022 E Merchant Wy	52556	3	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
5	5	10005	benareau@superto.com	Bo	Enareau	7833 N Ridge Rd	95887	2	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
6	6	10006	glotwind@dayrep.com	Gus	Toffwind	882 W Easton Wy	90084	1	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
7	7	10007	gunner@mail.org	Isabelle	Gunninger	NULL	94562	1	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
8	8	10008	karforless@superto.com	Lisa	Karforless	1555 W Lane Ave	43221	1	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
9	9	10009	meyezing@dayrep.com	Martin	Eyazing	627 Aviation Way	90266	2	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
10	10	10010	mmelator@mail.org	Mary	Melator	NULL	33862	3	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
11	11	10011	rabovdu@mail.org	Rose	Abov-Duresst	NULL	13244	4	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
12	12	10012	rovlight@mail.org	Ray	Ovlight	NULL	13607	3	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
13	13	10013	vhree@dayrep.com	Victor	Rhee	1099 N Farcourt St	92807	2	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
14	14	10014	tannt@cs.ctr.com	Ty	Anott	789 F Merry Ave	85038	1	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000

Dim Products:

SQLQuery16.sql - is...(AD\kjhakar (86)) X SQLQuery15.sql - is...(AD\kjhakar (85)) SQLQuery14.sql - is...(AD\kjhakar (84)) SQLQuery13.sql - is...(AD\kjhakar (83))

```

/***** Script for SelectTopNRows command from SSRS *****/
SELECT TOP 1000 [ProductKey]
, [ProductID]
, [ProductDepartment]
, [ProductName]
, [Product_vendor_id]
, [Product_vendor_Name]
, [RowIsCurrent]
, [RowStartDate]
, [RowEndDate]
, [RowChangeReason]
FROM [ist722_fudge_c7_dw].[fudgemf].[DimFudgeProduct]

```

100 %

Results Messages

	ProductKey	ProductID	ProductDepartment	ProductName	Product_vendor_id	Product_vendor_Name	RowIsCurrent	RowStartDate	RowEndDate	RowChangeReason
1	-1	-1	Unknown Department	Unknown Name	-1	No Vendor	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	N/A
2	1	1	Hardware	Straight Claw Hammer	3	Stanlee	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
3	2	2	Hardware	Sledge Hammer	3	Stanlee	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
4	3	3	Hardware	Rip Claw Hammer	3	Stanlee	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
5	4	4	Clothing	De-Fit Tee	2	Mkey	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
6	5	5	Clothing	Running Pants	2	Mkey	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
7	6	6	Clothing	Wool Socks	2	Mkey	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
8	7	7	Clothing	Squeaky Sneaks	2	Mkey	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
9	8	8	Clothing	Cool Jeans	7	Leaveeyes	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
10	9	9	Clothing	Denim Jacket	7	Leaveeyes	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
11	10	10	Clothing	Leather Jacket	7	Leaveeyes	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
12	11	11	Clothing	Courtory Pants	7	Leaveeyes	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
13	12	12	Clothing	Work Pants	3	Stanlee	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
14	13	13	Clothing	Work Gloves	3	Stanlee	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL
15	14	14	Clothing	Comfort Tee	8	Washwork	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000	NULL

Query executed successfully. ist-cs-dw1.ad.syr.edu (12.0... AD\kjhakar (86) ist722_fudge_c7_dw 00:00:00 54 rows

Dim Titles:

SQLQuery17.sql - is...(AD\kjhakar (87)) SQLQuery16.sql - is...(AD\kjhakar (86)) SQLQuery15.sql - is...(AD\kjhakar (85)) SQLQuery14.sql - is...(AD\kjhakar (84))

```

/***** Script for SelectTop#Rows command from SSRS *****/
SELECT TOP 1000 [TitleKey]
, [TitleID]
, [TitleName]
, [TitleType]
, [TitleAvgRating]
, [TitleReleaseYear]
, [TitleRuntime]
, [TitleRating]
, [MovieGenre]
, [RowIsCurrent]
, [RowStartDate]
, [RowEndDate]
, [RowChangeReason]
FROM [ist722_fudge_c7_dwr].[fudgenf].[DimFudgeTitles]

```

100 %

Results Messages

	TitleKey	TitleID	TitleName	TitleType	TitleAvgRating	TitleReleaseYear	TitleRuntime	TitleRating	MovieGenre	RowIsCurrent	RowStartDate	RowEndDate
1	-1	No Title ID	No Title Name	No Type	-1.00	-1	-1	No rating	No Genre	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
2	1	13kag	Meet Joe Black	Movie	3.60	1998	10860	PG-13	Drama	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
3	2	13kal	Vampires	Movie	3.30	1998	6420	R	Dramas Based on the Book	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
4	3	13kaw	Eyes Wide Shut	Movie	2.90	1999	9540	R	Drama	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
5	4	13kb8	U.S. Marshals	Movie	3.70	1998	7860	PG-13	Action & Adventure	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
6	5	13kbn	The Mighty	Movie	3.80	1998	6000	PG-13	Drama	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
7	6	13kbQ	Dark City	Movie	3.60	1998	6000	R	Mystery	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
8	7	13kbW	B Monkey	Movie	2.90	1999	5520	R	Thrillers	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
9	8	13kcD	The Horse Whisperer	Movie	3.60	1998	10080	PG-13	Drama	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
10	9	13kZ3	Armageddon	Movie	3.70	1998	9180	PG-13	Action & Adventure	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
11	10	13kZA	Pleasantville	Movie	3.50	1998	7440	PG-13	Drama	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
12	11	13kZd	The Red Violin	Movie	3.80	1998	7800	R	Drama	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
13	12	13kZs	Apt Pupil	Movie	3.20	1998	6660	R	Drama	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000
14	13	13kZv	Velvet Goldmine	Movie	3.30	1998	7620	R	Drama	1	1899-12-31 00:00:00.000	9999-12-31 00:00:00.000

Fact Delivery Efficiency:

SQLQuery18.sql - is...(AD\kjthakar (88)) SQLQuery17.sql - is...(AD\kjthakar (87)) SQLQuery16.sql - is...(AD\kjthakar (86)) SQLQuery15.sql - is...(AD\kjthakar (85))

```

/***** Script for SelectTopNRows command from SSMS *****/
SELECT TOP 1000 [AccountKey]
, [TitleKey]
, [AccountTitleID]
, [QueueDateKey]
, [ShippedDateKey]
, [ReturnedDateKey]
, [OrderCount]
, [ShippedCount]
, [ReturnedCount]
, [ShipLag]
, [ReturnLag]
FROM [ist722_fudge_c7_dw].[fudgemf].[FactDeliveryEfficiency]

```

100 %

Results Messages

	AccountKey	TitleKey	AccountTitleID	QueueDateKey	ShippedDateKey	ReturnedDateKey	OrderCount	ShippedCount	ReturnedCount	ShipLag	ReturnLag
1	6	4390	10006	20100202	20100204	20100204	1	1	1	2	0
2	31	1173	10031	20100408	20100414	20100414	1	1	1	6	0
3	28	7095	10028	20100611	20100615	20100615	1	1	1	4	0
4	23	6316	10023	20100828	20100830	20100830	1	1	1	2	0
5	10	1917	10010	20101022	20101024	20101024	1	1	1	2	0
6	13	3407	10013	20110102	20110103	20110103	1	1	1	1	0
7	10	882	10010	20110313	20110314	20110314	1	1	1	1	0
8	19	2816	10019	20110523	20110526	20110526	1	1	1	3	0
9	30	1513	10030	20110808	20110809	20110809	1	1	1	1	0
10	25	6093	10025	20111012	20111014	20111014	1	1	1	2	0
11	4	5273	10004	20111229	20120103	20120103	1	1	1	5	0
12	7	844	10007	20120308	20120309	20120309	1	1	1	1	0
13	28	3752	10028	20120524	20120529	20120529	1	1	1	5	0
14	7	2116	10007	20120722	20120725	20120725	1	1	1	3	0
15	30	5622	10030	20120926	20120929	20120929	1	1	1	3	0

Query executed successfully. ist-cs-dw1.ad.syr.edu (12.0... AD\kjthakar (88) ist7

Fact Shopping Behaviours:

SQLQuery19.sql - is...(AD\k\thakar (89)) SQLQuery18.sql - is...(AD\k\thakar (88)) SQLQuery17.sql - is...(AD\k\thakar (87)) SQLQuery16.sql - is...(AD\k\thakar (86))

```

/***** Script for SelectTopNRows command from SSMS *****/
SELECT TOP 1000 [ShoppingKey]
, [CustomerKey]
, [ProductKey]
, [TitleKey]
, [AccountTitleID]
, [OrderID]
, [ProductID]
, [Email ID]
, [Customer_Source]
, [OrderQuantity]
, [ProductPrice]
, [EstimatedTitleCost]
, [FlixTotalBill]
, [TotalViewcount]
, [ProductCost]
, [OrderDateKey]
FROM [ist722_fudge_c7_dw].[fudgemf].[FactShoppingBehaviors]

```

100 %

Results Messages

	ShoppingKey	CustomerKey	ProductKey	TitleKey	AccountTitleID	OrderID	ProductID	Email ID	Customer_Source	OrderQuantity	ProductPrice	EstimatedTitleCost	FlixTotalBill	TotalViewcount
1	33325	106	12	-1	-1	1	12	otyme@dayrep.com	Fudgemart	1	38.00	-1.00	-1.00	-1
2	33326	106	14	-1	-1	1	14	otyme@dayrep.com	Fudgemart	2	12.00	-1.00	-1.00	-1
3	33327	106	16	-1	-1	3401	16	otyme@dayrep.com	Fudgemart	1	75.00	-1.00	-1.00	-1
4	33328	106	49	-1	-1	3415	49	otyme@dayrep.com	Fudgemart	1	10.00	-1.00	-1.00	-1
5	33329	103	50	-1	-1	2	50	sbeeches@dayrep.com	Both	1	255.00	-1.00	-1.00	-1
6	33330	82	12	-1	-1	3	12	tanott@gustr.com	Both	5	38.00	-1.00	-1.00	-1
7	33331	82	43	-1	-1	3	43	tanott@gustr.com	Both	2	8.00	-1.00	-1.00	-1
8	33332	76	41	-1	-1	4	41	ikaforless@superto.com	Both	4	20.00	-1.00	-1.00	-1
9	33333	84	1	-1	-1	3345	1	gmoss@gustr.com	Both	1	15.95	-1.00	-1.00	-1
10	33334	84	4	-1	-1	5	4	gmoss@gustr.com	Both	2	20.00	-1.00	-1.00	-1
11	33335	84	18	-1	-1	3396	18	gmoss@gustr.com	Both	1	45.00	-1.00	-1.00	-1
12	33336	84	31	-1	-1	3508	31	gmoss@gustr.com	Both	4	200.00	-1.00	-1.00	-1
13	33337	84	40	-1	-1	3508	40	gmoss@gustr.com	Both	4	20.00	-1.00	-1.00	-1
14	33338	110	15	-1	-1	6	15	otyme@dayrep.com	Fudgemart	1	20.00	-1.00	-1.00	-1

Query executed successfully.

ist-cs-dw1.ad.syr.edu (12.0... AD\k\thakar (89) ist722_fudge_c7_dw 00:00:00 1000 rows

Data Governance:

- If the zip code and the state do not match, we then use zip code to generate the state data.
- For all the cell phone numbers, we should clean all the symbols, such as +, (), and -.
- We should establish hierarchies of department - product, so end users can analyze data more easily.

Data Quality Rules:

- DQ rule #1 accurate: OrderDateKey and ShippedDateKey should not later than today's date. (reject)
- DQ rule #2 completeness: SourceSystem should not contain missing values. (warn)
- DQ rule #3 accurate: SalesPrice and Quantity should be greater than or equal to 0. (reject)
- DQ rule #4 precision: ClientState can only have two letters. (fix by using zipcode)
- DQ rule #5 completeness: ClientFirstName and ClientLastName must not be null. (reject)
- DQ rule #6 consistency: OrderDateKey, ShippedDateKey, and ExpiryDate should have consistency, such as 20090101. (fix)
- DQ rule #7 timeliness: ShippedDateKey can only show up after OrderDateKey exists. (reject)

SQL SERVER ANALYSIS SERVICES

We use the SSAS for building a multidimensional database (MOLAP) from our dimensional database (Data Warehouse). The Final end result will be a user facing data structure called as a cube. This cube has different decided dimensions along the edges, which can be used to drill across data for analytical tasks.

The properties of the dimensions can be changed to display something more simpler to the end user and also we can create the hierarchies of data so that it is organized in meaningful sequences and pre-calculate data for performance improvements. The attributes and hierarchies are as follows:

Dimension Dates:

The screenshot displays the SQL Server Analysis Services (SSAS) Dimension Designer interface for the 'Dim Dates' dimension. The interface is divided into three main panes:

- Attributes:** Lists the attributes available for the dimension: Date, Day, Day Of Week, Is Weekday, Month, Quarter, and Year.
- Hierarchies:** Shows two hierarchies defined for the dimension:
 - Year.Quarter.Month:** A hierarchy with levels: Year, Quarter, Month, and Date (marked as a leaf node).
 - Weekday.Day of Week:** A hierarchy with levels: Is Weekday, Day Of Week, and Date (marked as a leaf node).
- Data Source View:** Displays the data source view for the dimension, showing a list of attributes: DateKey, Date, FullDateUSA, DayOfWeek, DayName, DayOfMonth, DayOfYear, WeekOfYear, MonthName, and MonthOfYear.

Dimension Customer:

The screenshot displays the configuration interface for the 'Dim Fudge Customer' dimension, organized into three main panels:



- Attributes:** Lists the attributes for the dimension:
 - Address
 - City
 - Customer
 - Email ID
 - Income
 - Marital Status
 - State
 - Twitter User Name
 - Zipcode
- Hierarchies:** Shows a hierarchy for 'State-City' with the following levels:
 - State
 - City
 - Zipcode
 - Address
 - <new level>A note states: "To create a new hierarchy, drag an attribute here."
- Data Source View:** Displays a list of attributes for the 'DimFudgeCustomer' dimension:
 - CustomerKey
 - Account ID
 - Customer ID
 - CustomerName
 - Email ID
 - Address
 - City
 - State
 - Zipcode
 - Twitter UserName

Dimension Accounts:

The screenshot displays a data modeling tool interface with three main panes:

- Attributes:** A list of attributes for the dimension 'Dimfudgefix Accounts'. The attributes are: Account, Address, Email, First Name, Last Name, Plan Id, and Zipcode.
- Hierarchies:** A hierarchy is defined for the attribute 'Plan.Zipcode'. The hierarchy structure is:
 - Plan Id
 - Zipcode
 - <new level>A tooltip message states: "To create a new hierarchy, drag an attribute here."
- Data Source View:** A list of attributes from the data source, including: AccountKey, Account_ID, Account_Email, Account_FirstName, Account_LastName, Account_Address, Account_zipcode, Account_Plan_Id, RowIsCurrent, and RowStartDate.

Dimension Product:

Attributes	Hierarchies	Data Source View
 Dim Fudge Product <ul style="list-style-type: none">DepartmentProductVendor Name	To create a new hierarchy, drag an attribute here.	 DimFudgeProduct <ul style="list-style-type: none">ProductKeyProductIDProductDepartmentProductNameProduct_vendor_idProduct_vendor_NameRowIsCurrentRowStartDateRowEndDateRowChangeReason

Dimension Titles:

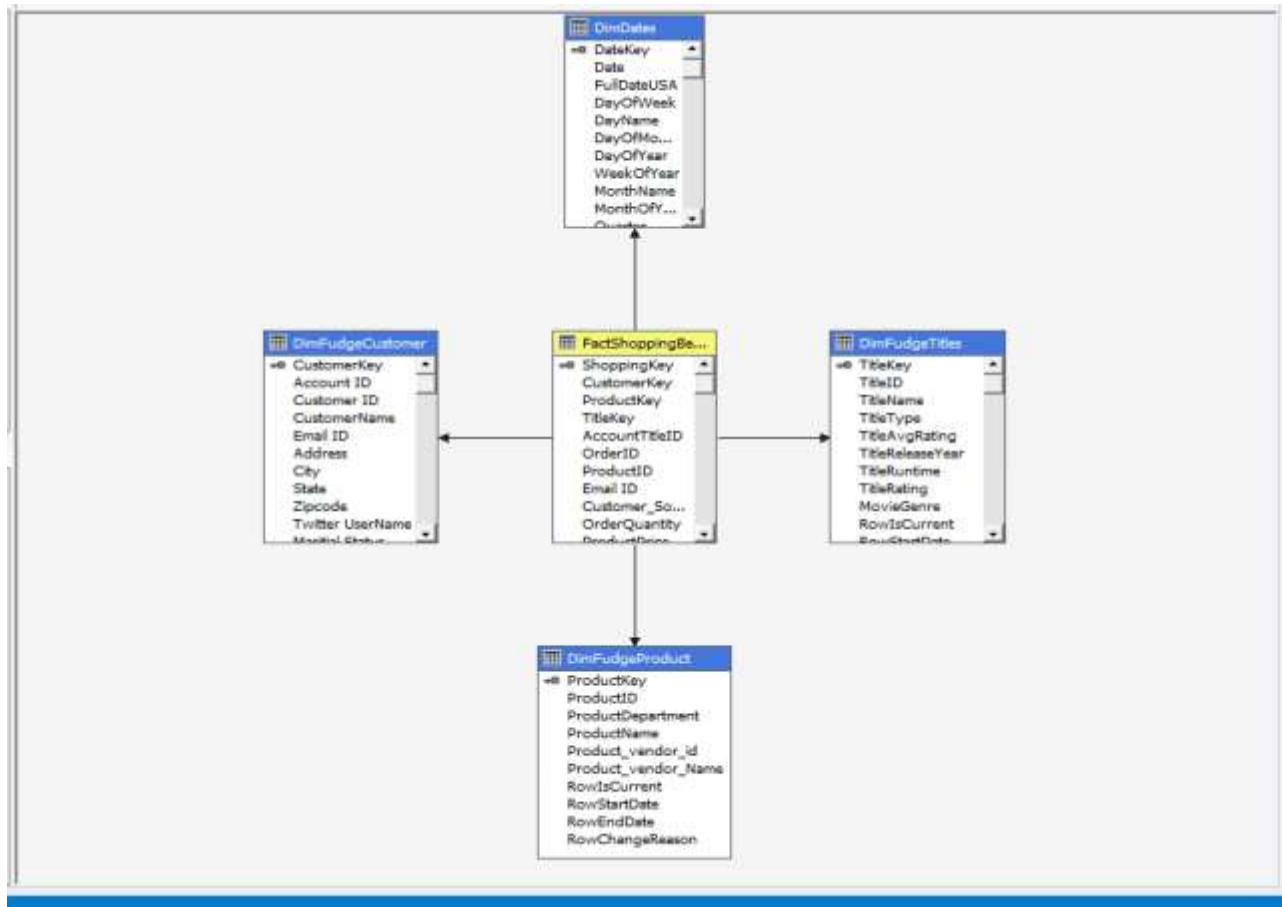
The screenshot displays a BI tool interface with three main panels: Attributes, Hierarchies, and Data Source View.

Attributes Panel: Shows a tree structure for the dimension 'Dim Fudge Titles'. The root is 'Dim Fudge Titles', which has two children: 'Movie Genre' and 'Title'. 'Title' is expanded, showing its attributes: 'Title Avg Rating', 'Title Rating', 'Title Release Year', 'Title Runtime', and 'Title Type'.

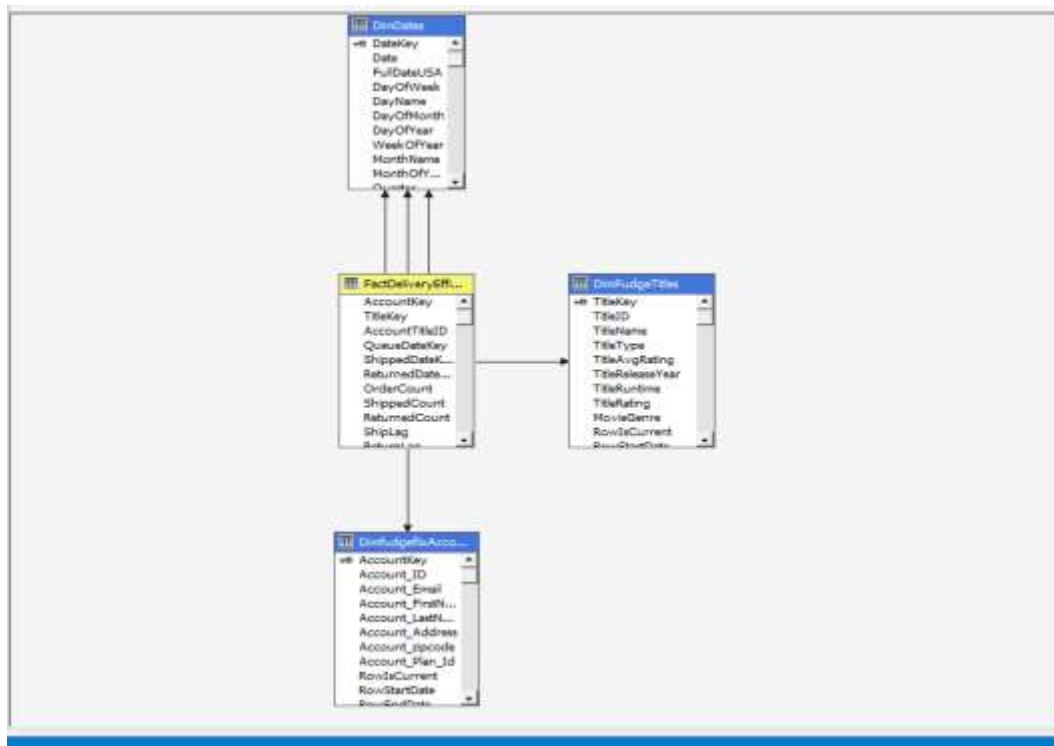
Hierarchies Panel: Shows a hierarchy for 'Movie Genre' with a child 'Title'. Below this is a '<new level>' button. A tooltip message states: 'To create a new hierarchy, drag an attribute here.'

Data Source View Panel: Shows a list of attributes for the dimension 'DimFudgeTitles'. The attributes are: 'TitleKey', 'TitleID', 'TitleName', 'TitleType', 'TitleAvgRating', 'TitleReleaseYear', 'TitleRuntime', 'TitleRating', 'MovieGenre', and 'RowIsCurrent'.

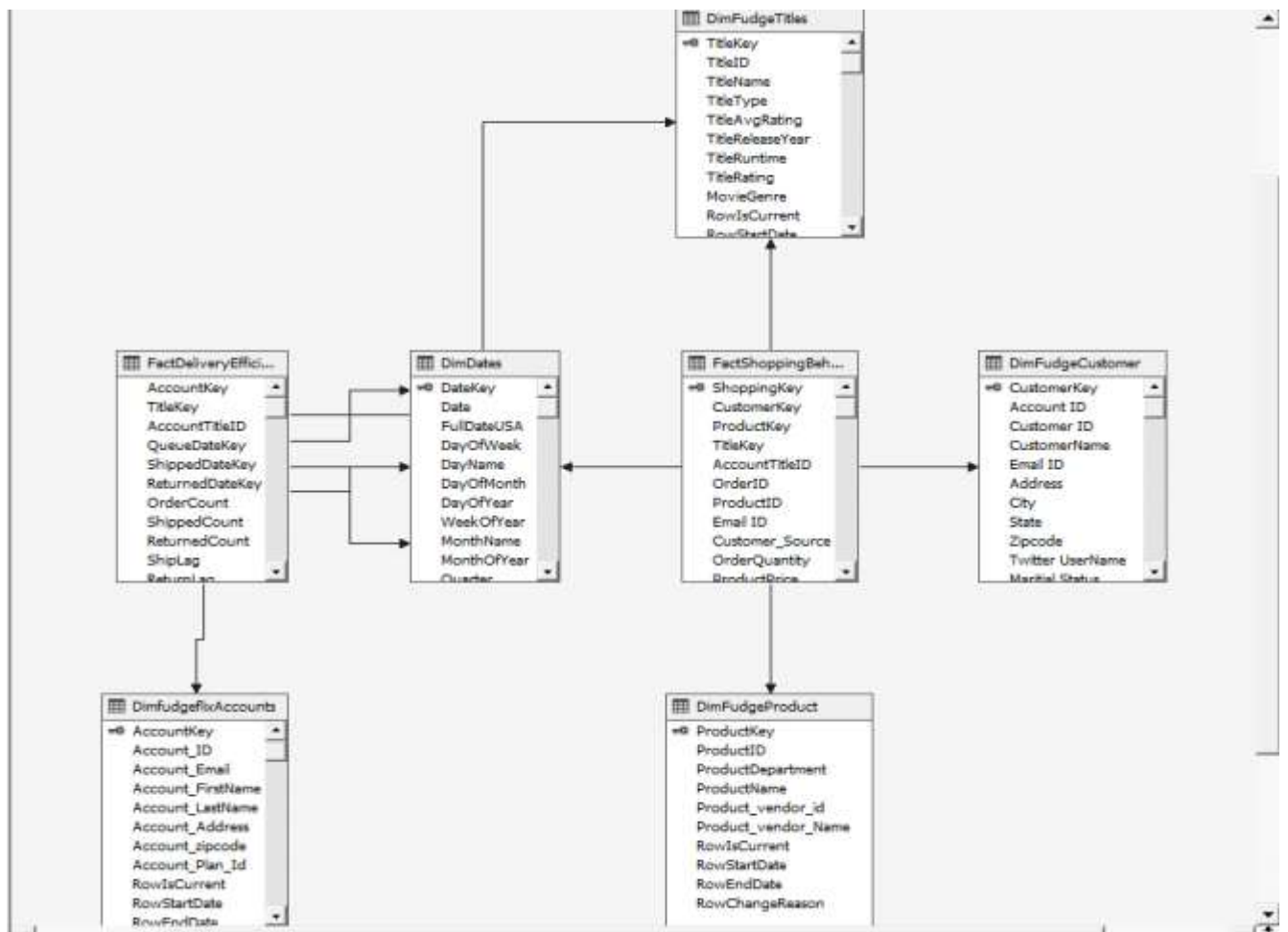
Fact Shopping Behavior:



Fact Delivery Efficiency:



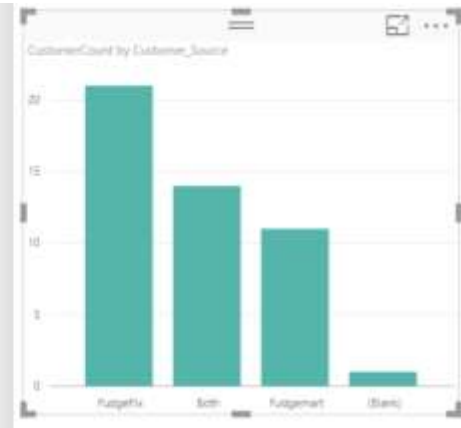
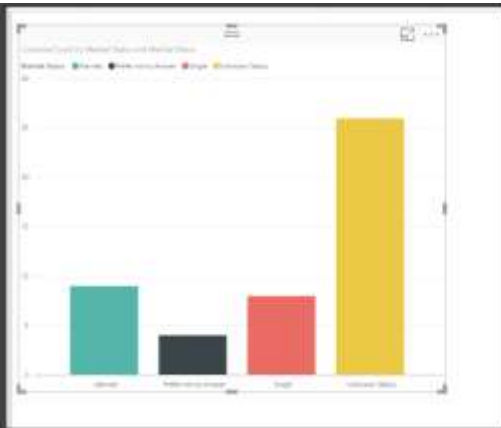
SSAS Diagram



BUSINESS INTELLIGENCE

Business intelligence tools, such as Power BI and Excel, allow users to do interactive visualizations with self-service business intelligence capabilities. Our goal is to allow end users to create reports and dashboards, without having to depend on information technology staff. We loaded data from the data warehouse and used visualization charts, such as card, donut chart, stacked bar chart, gauge, line chart, and tree map, to answer the business questions. The sample questions and solutions are as follows:

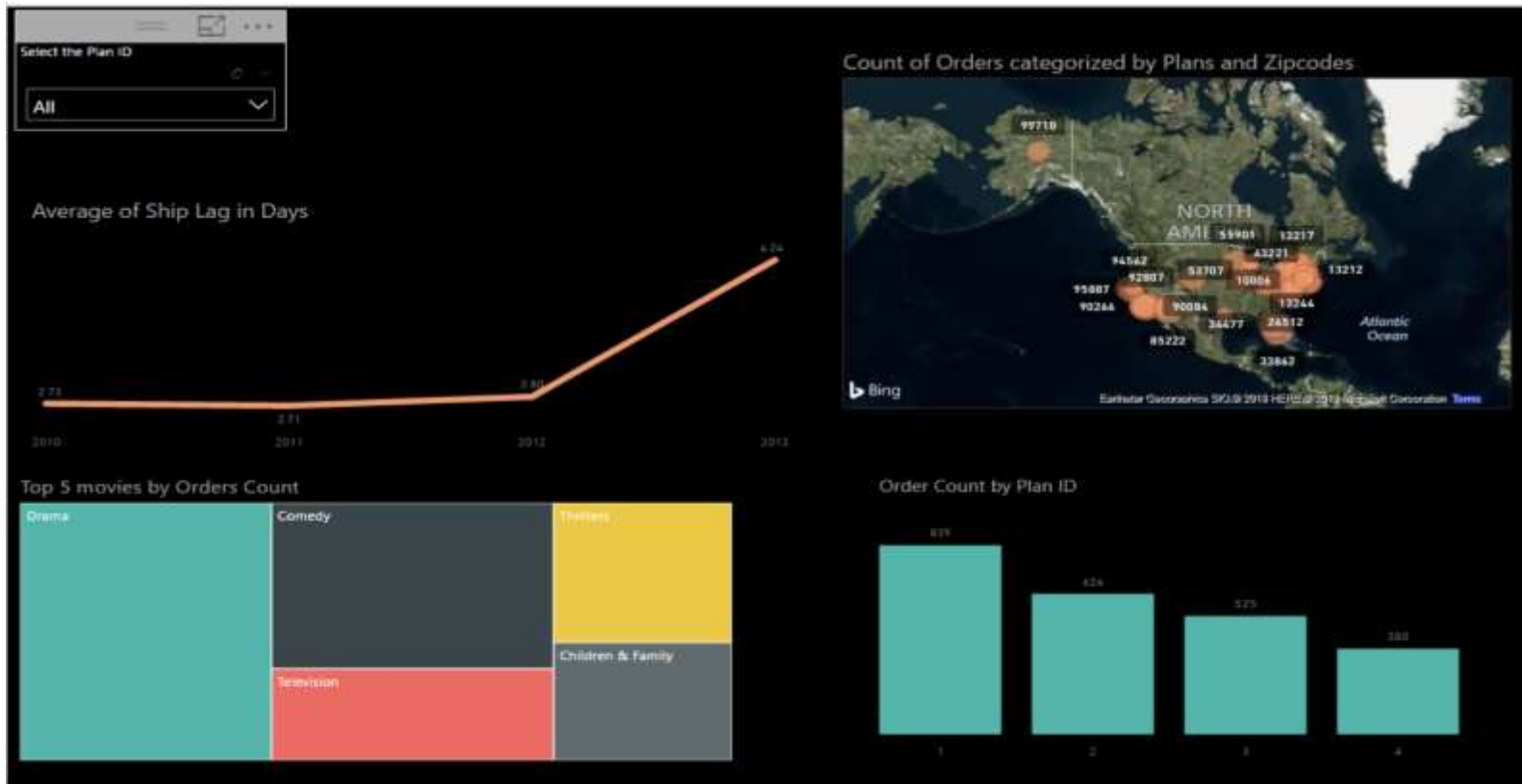
Knowing your Customers:



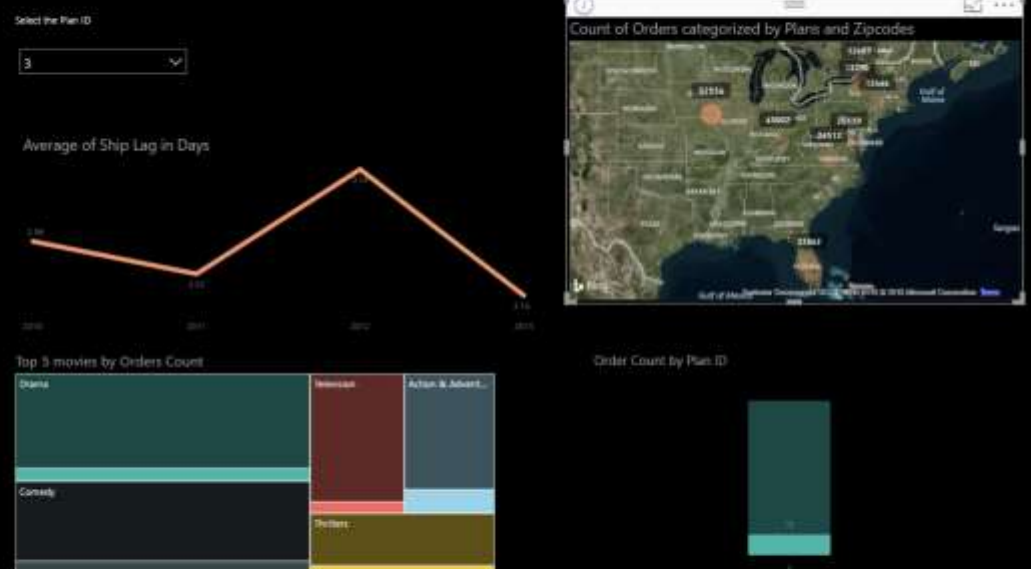
Shopping Behavior:



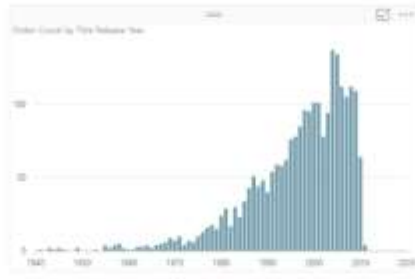
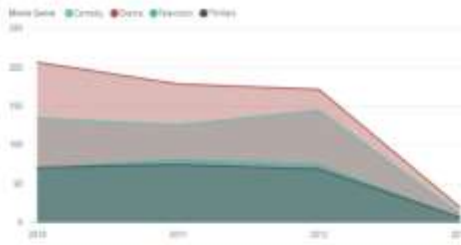
Delivery Efficiency:



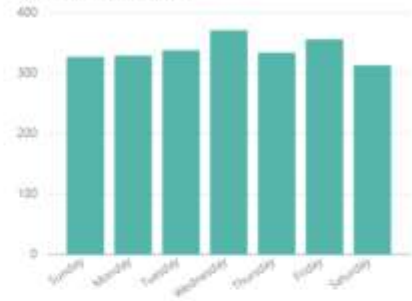
Premium Rental (Plan 3) is one of the best when delivery efficiency taken into consideration



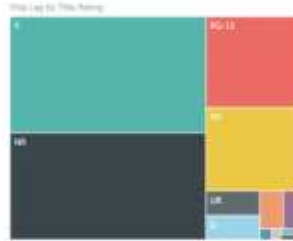
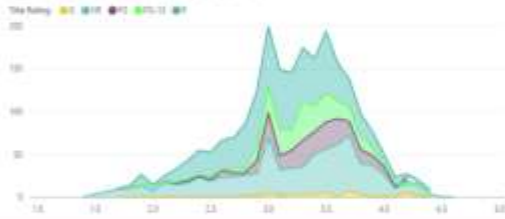
Order Count by Year and Movie Genre



Order Count by Day Of Week



Run Delivery Efficiency Count by Title Avg Rating and Title Rating



DELIVERY EFFICIENCY

- Movies under the Drama genre have been ordered the most over the years, followed by Comedy, Television and Thrillers
- Ship Lag for Drama has been highest over the years, so we need to understand if this is influenced by Order count, or another external factor
- Order count has reduced drastically since 2014, due to other stiff competitors
- We also see that the highest orders are received on Wednesdays, and are ordered comparatively lesser on weekends
- Order count of television series is comparatively lesser than movies, hence they need to look at ways to improve television series

SUMMARY

In the beginning, we determined the functional requirements and business processes, and documented all the dimensions and facts in the high-level and detail-level dimensional sheets. We then built the data warehouse on SQL Server and followed the source to target map integrating the data from OLTP sources, including Fudgemart, Fudgeflix, and external sources, to the data warehouse. Moreover, we created cubes in SSAS for further analysis. Finally, we extracted the data from the data warehouse and imported it to Power BI, allowing end users to answer business questions by themselves, which will improve the performance of analysis and save time.

REFERENCE

Fudgemart Data_Profiling.xlsx

High-level Dimensional Modeling.xlsx

Detail-level Dimensional Modeling.xlsm

SSIS (part1)\Fudge Inc\Fudge Inc.sln

SSIS (part2)\Integration Services Project1\Integration Services Project1.sln

SSAS\ist722_fudge_c7(IST-CS-DW1).sln

Power BI\IST722 Final Project.pbix

IST722 Final Project PowerPoint (Group 7).pptx