



Sri Lanka Institute of Information Technology

Data Warehousing & Business Intelligence

Assignment 2

IT Number: IT20142964

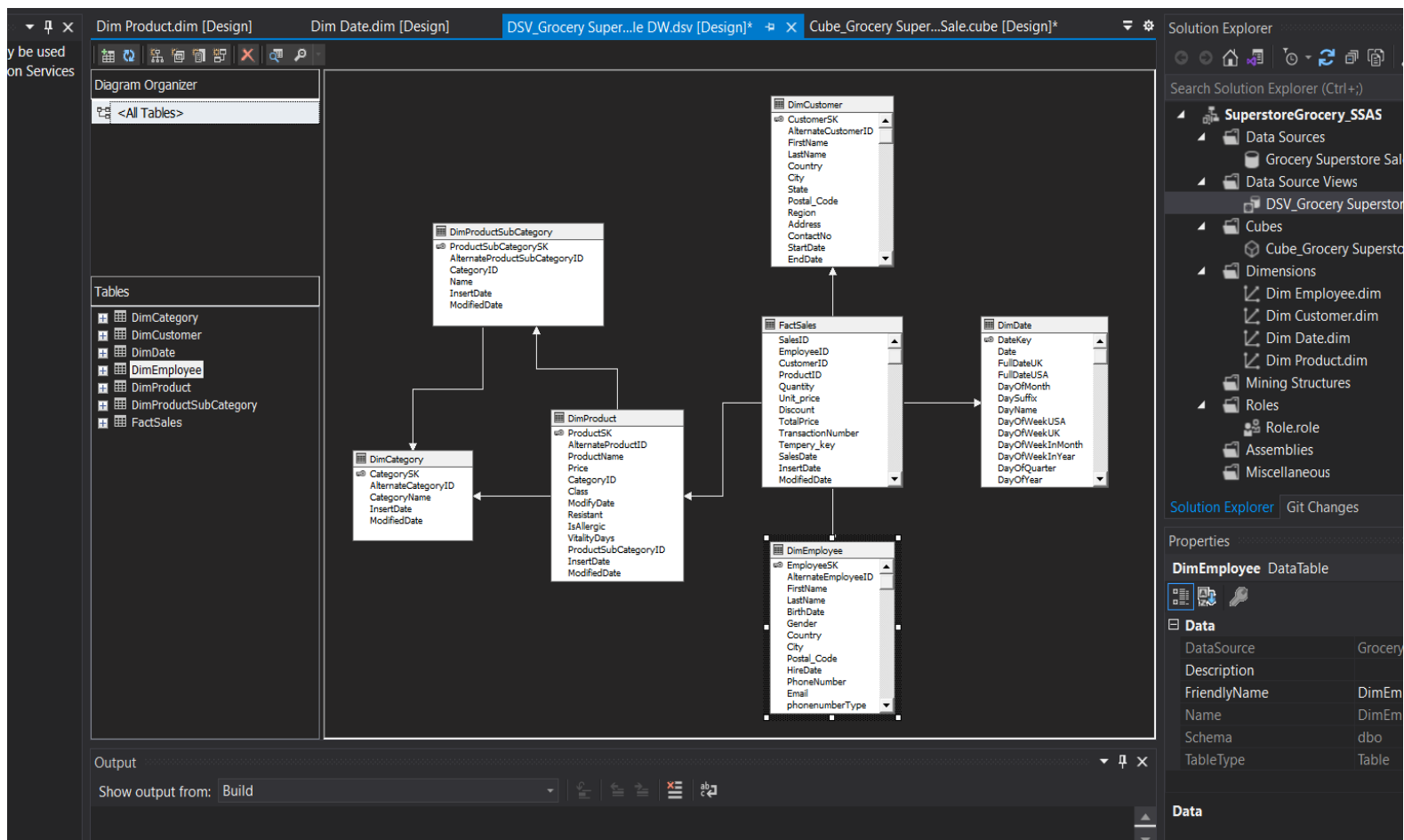
Submitted by: Dulakshi Hansini R.M

Data Source

- I used Grocery market data set which used in assignment
- In this assignment Grocery_Market_DW database used as my data source(For this purpose use Liquor_sales_DW as Data warehouse which implemented in last Assignment.)

SSAS Cube Implementation

- created a SSRS project in Microsoft Visual Studio.
- Created a data source called Grocery_Market_DW_DataSource.
- Then created a data source view called Grocery_Market_DW_DataSourceView



- Then created the cube called Grocery_Market_ DW_Cube.

In here I choose Fact Sales as measure group, dimcategory, dimproduct and dimcustomer, dimdate as dimensions

The screenshot displays the SQL Server Data Tools (SSDT) interface for a project named 'SuperstoreGrocery_SSAS'. The main workspace shows the 'Cube_Grocery Super...Sale.cube [Design]*' window. In the center, the 'Data Source View' pane illustrates a star schema. At the center is the 'FactSales' table, which is connected to five dimension tables: 'DimProductSubCategory', 'DimProduct', 'DimCategory', 'DimCustomer', and 'DimDate'. Each connection is represented by a line with an arrow pointing from the fact table to the dimension table. The left-hand pane is divided into 'Measures' and 'Dimensions'. Under 'Measures', 'Fact Sales' is listed. Under 'Dimensions', 'Dim Employee', 'Dim Customer', 'Dim Date', and 'Dim Product' are listed. The right-hand pane shows the 'Solution Explorer' with the project structure, including 'Data Sources', 'Data Source Views', 'Cubes', 'Dimensions', 'Mining Structures', 'Roles', and 'Assemblies'. Below the 'Solution Explorer' is the 'Properties' window for the selected 'DimCustomer' dimension table, showing various properties like 'DataSource', 'Description', 'FriendlyName', 'Name', 'Schema', and 'TableType'.

DimCustomer

The screenshot displays the SQL Server Data Tools (SSDT) interface for the same project. The main workspace shows the 'DimCustomer.dim [Design]*' window. The central 'Data Source View' pane shows the 'DimCustomer' table with its attributes. The left-hand pane is divided into 'Attributes' and 'Hierarchies'. Under 'Attributes', 'Dim Customer' is selected, and its attributes are listed: 'Address', 'Alternate Customer ID', 'City', 'Contact No', 'Country', 'Customer SK', 'End Date', 'First Name', 'Insert Date', 'Last Name', 'Modified Date', 'Postal Code', 'Region', 'Start Date', and 'State'. The right-hand pane shows the 'Solution Explorer' with the project structure. Below the 'Solution Explorer' is the 'Properties' window for the selected 'Dim Customer' dimension table, showing various properties like 'UnknownMember', 'UnknownMemberName', 'WriteEnabled', 'Basic', 'Description', 'ID', 'Name', and 'Type'.

DimEmployee

SSIS Toolbox

This tool window can only be used by a SQL Server Integration Services package document.

Role.role [Design] Dim Customer.dim [Design] Dim Employee.dim [Design] Cube_Grocery Super...Sale.cube [Design]*

Dimension Struct... Attribute Relationships Translations Browser

Attributes

- Dim Employee
- Alternate Employee ID
- Birth Date
- City
- Country
- Email
- Employee SK
- End Date
- First Name
- Gender
- Hire Date
- Insert Date
- Last Name
- Modified Date
- Phone Number
- Phonenumner Type
- Postal Code
- Start Date

Hierarchies

To create a new hierarchy, drag an attribute here.

Data Source View

DimEmployee

- EmployeeSK
- AlternateEmployeeID
- FirstName
- LastName
- BirthDate
- Gender
- Country
- City
- Postal_Code
- HireDate
- PhoneNumber
- Email
- phonenumnerType

Output

Show output from: Build

Solution Explorer

Search Solution Explorer (Ctrl+)

Solution 'SuperstoreGrocery_SSAS' (1 of 1 project)

- SuperstoreGrocery_SSAS
 - Data Sources
 - Grocery Superstore Sale DW.ds
 - Data Source Views
 - DSV_Grocery Superstore Sale DW.dsv
 - Cubes
 - Cube_Grocery Superstore Sale.cube
 - Dimensions
 - Dim Employee.dim
 - Dim Customer.dim
 - Dim Date.dim
 - Dim Product.dim
 - Mining Structures
 - Roles
 - Role.role
 - Assemblies
 - Miscellaneous

Solution Explorer | Git Changes

Properties

Dim Employee Dimension

UnknownMember Visible

UnknownMemberName

WriteEnabled False

Basic

Description

ID Dim Employee

Name Dim Employee

Type Regular

Name

DimProduct

SSIS Toolbox

This tool window can only be used by a SQL Server Integration Services package document.

Dim Customer.dim [Design] Dim Employee.dim [Design] Cube_Grocery Super...Sale.cube [Design]* Dim Product.dim [Design]

Dimension Struct... Attribute Relationships Translations Browser

Attributes

- Dim Product
- Alternate Product Sub Category ID
- Category ID
- Category Name
- Class
- Is Allergic
- Modify Date
- Name
- Price
- Product Name
- Product SK
- Resistant
- Vitality Days

Hierarchies

To create a new hierarchy, drag an attribute here.

Data Source View

DimProduct

- CategorySK
- AlternateCategoryID
- CategoryName
- InsertDate
- ModifiedDate

DimProductSubCategory

- ProductSubCategorySK
- AlternateProductSubCategoryID
- CategoryID
- Name
- InsertDate
- ModifiedDate

Output

Show output from: Build

Solution Explorer

Search Solution Explorer (Ctrl+)

Solution 'SuperstoreGrocery_SSAS' (1 of 1 project)

- SuperstoreGrocery_SSAS
 - Data Sources
 - Grocery Superstore Sale DW.ds
 - Data Source Views
 - DSV_Grocery Superstore Sale DW.dsv
 - Cubes
 - Cube_Grocery Superstore Sale.cube
 - Dimensions
 - Dim Employee.dim
 - Dim Customer.dim
 - Dim Date.dim
 - Dim Product.dim
 - Mining Structures
 - Roles
 - Role.role
 - Assemblies
 - Miscellaneous

Solution Explorer | Git Changes

Properties

Dim Product Dimension

UnknownMember Visible

UnknownMemberName

WriteEnabled False

Basic

Description

ID Dim Product

Name Dim Product

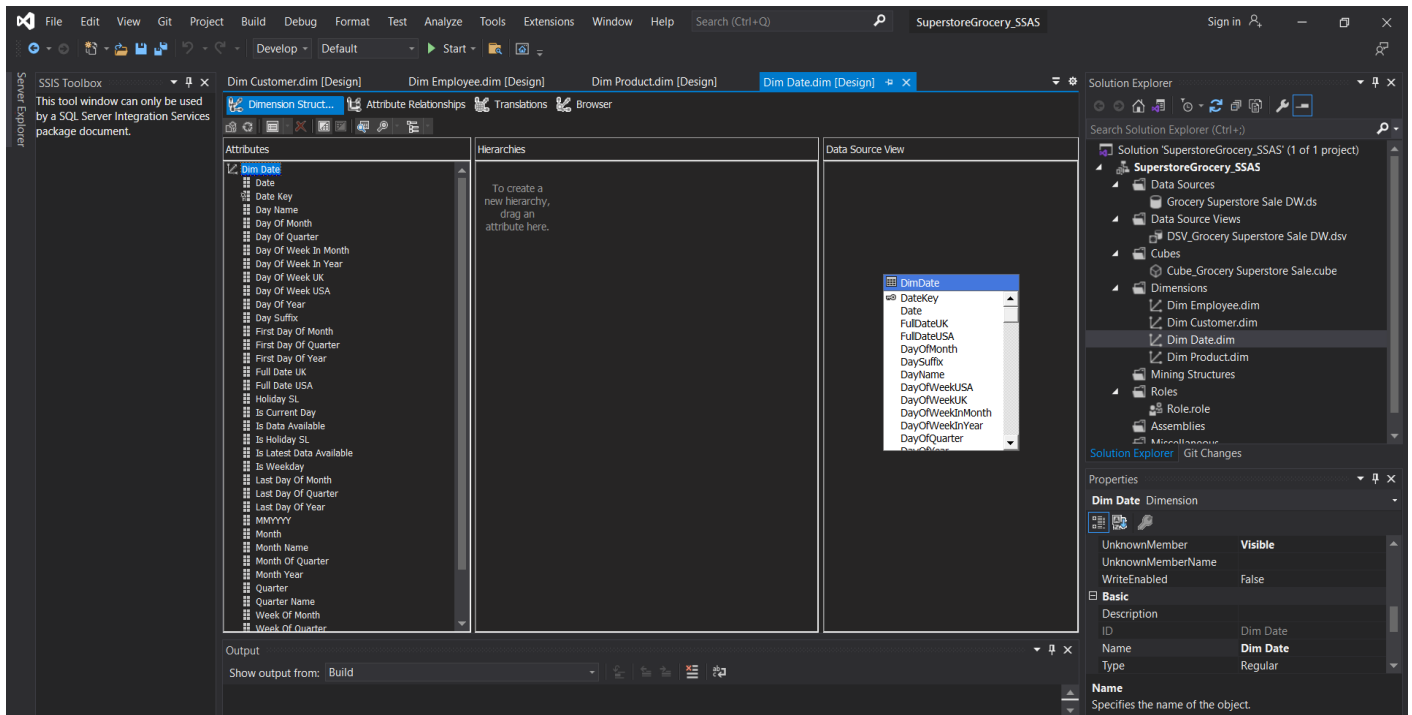
Type Regular

Name

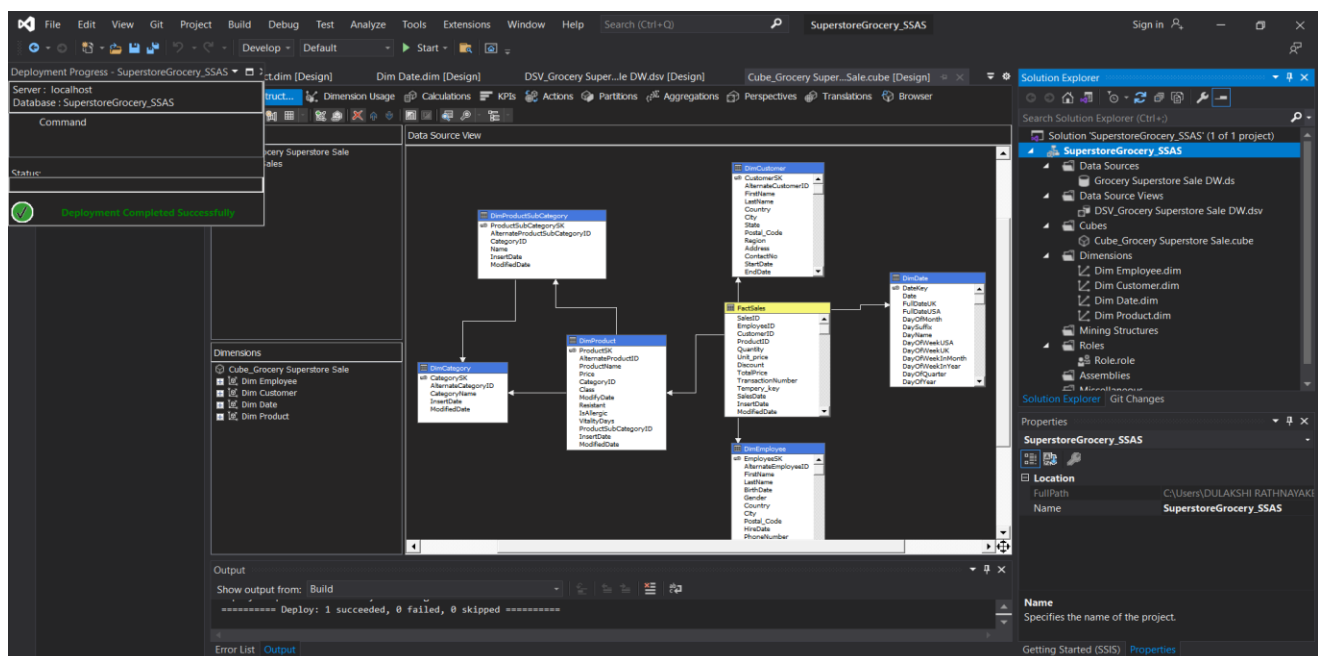
Specifies the name of the object.

Create KPI

DimDate



Deployment successful



In here I create 5 KPI s

The screenshot shows the SSIS Designer interface with the 'Cube_Grocery Super...Sale.cube [Design]' window active. The 'KPIs' tab is selected, and the 'KPI Quantity' KPI is being configured. The configuration includes:

- Name:** KPI Quantity
- Associated measure group:** Fact Sales
- Value Expression:** [Measures].[Quantity]
- Goal Expression:** [Measures].[Quantity]>5
- Status:** Status indicator is set to 'Gauge'.
- Trend:** (Not fully visible)

The 'Solution Explorer' on the right shows the project structure for 'SuperstoreGrocery_SSAS', including Data Sources, Data Source Views, Cubes, Dimensions, Roles, and Assemblies. The 'Properties' window on the right shows the 'KPI Quantity' KPI properties, including 'DisplayFolder', 'Basic' properties (Description, ID, Name, AssociatedMeasureGroupID), and 'Misc' properties.

The screenshot shows the SSIS Designer interface with the 'Cube_Grocery Super...Sale.cube [Design]' window active. The 'MDX' tab is selected, and the MDX query editor is displaying the following query:

```
SELECT [Measures].[Quantity]
FROM [Fact Sales]
WHERE ([Product].[Product Name] = 'Garden Hose')
```

The 'Solution Explorer' on the right shows the project structure for 'SuperstoreGrocery_SSAS'. The 'Properties' window on the right shows the 'KPI Quantity' KPI properties.

OLAP Operation

- **Roll Up**

The roll-up operation performs aggregation on a data cube, either by climbing up a hierarchy or by climbing down a hierarchy

Row Labels

Row Labels	Count of MeasuresKPI Quantity Goal	Sum of MeasuresQuantity
1	1	1645
10	1	1479
11	1	1548
12	1	1454
13	1	971
14	1	936
15	1	1027
16	1	899
17	1	861
18	1	1407
19	1	998
2	1	1428
20	1	1378
21	1	1378
22	1	840
23	1	833
24	1	980
25	1	1163
26	1	403
27	1	390
28	1	920
29	1	382
3	1	1572
30	1	364

- **Drill-Down**

The Drill down operation is the reverse of roll up. It navigates from less detailed data to more detailed data.

Sum of MeasuresQuantity

Column Labels	Grand Total
Aberdeen	
817 Green Fabien St.	3
Abilene	2
Akron	
11 Cowley Blvd.	2
113 Hague Parkway	6
13 South Green Cowley Drive	2
148 Second St.	4
155 West Clarendon St.	2
229 Old Freeway	2
31 Clarendon St.	3
396 White Hague Blvd.	2
419 Nobel Road	3
42 Cowley Avenue	4
454 Oak Blvd.	3
501 South White Nobel Blvd.	5
60 Milton Road	3
707 Green Clarendon St.	2
738 Rocky Hague Avenue	2
75 West Green Hague Drive	4
792 Rocky New Avenue	5
866 North Rocky Fabien Blvd.	3
894 Green Second Avenue	3
90 Hague Drive	3
93 Rocky Cowley St.	2

- **Dice**

The dice operation defines a sub cube by performing a selection on two or more dimensions

Count of Dim ProductPricePrice

Row Labels	Count of Dim ProductPricePrice	Grand Total
Aberdeen	1	1
Abilene	1	1
Akron	12	9
Albuquerque	8	6
Alexandria	9	7
Allen	2	2
Allentown	4	3
Altoona	1	1
Amarillo	7	3
Anaheim	14	13
Andover	1	3
Ann Arbor	2	3
Antioch	1	1
Apopka	5	2
Apple Valley	8	1
Appleton	2	2
Arlington	35	25
Arlington Heights	1	1
Arvada	3	1
Asheville	7	7
Athens	4	4
Atlanta	22	17
Atlantic City	1	1

- **Slicing**

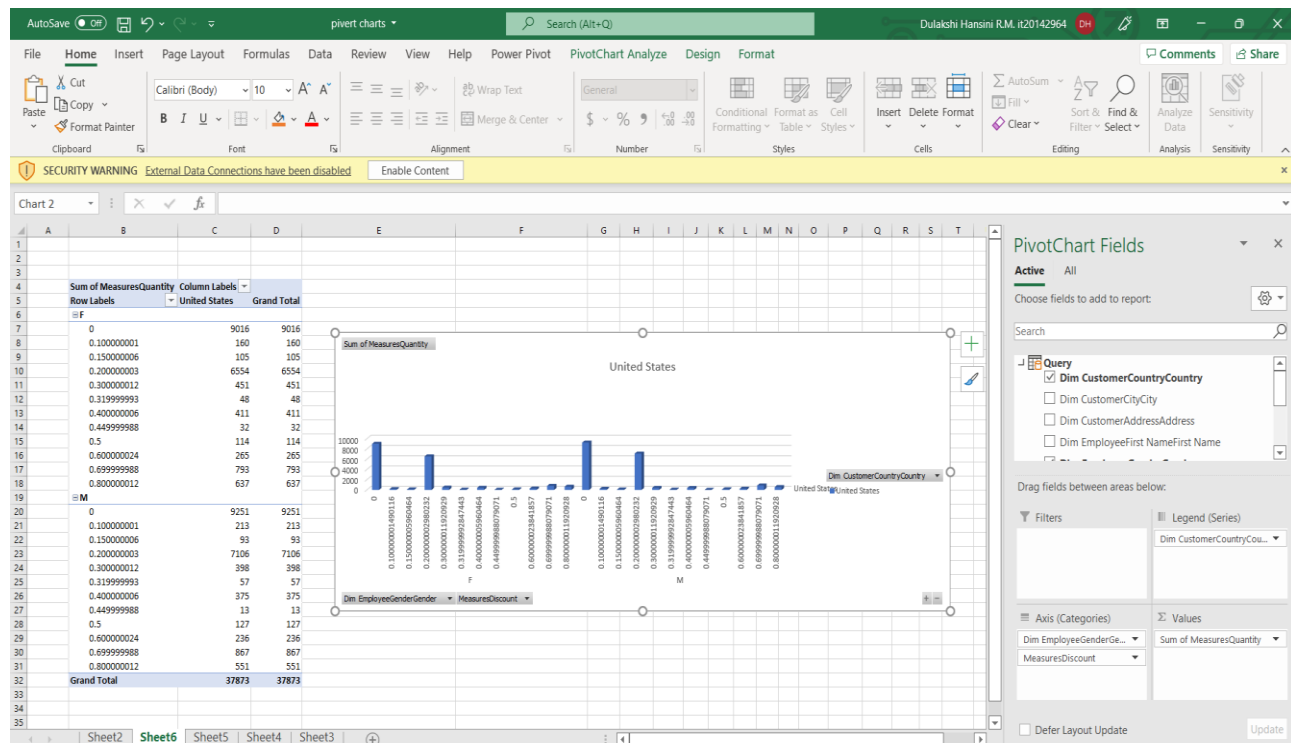
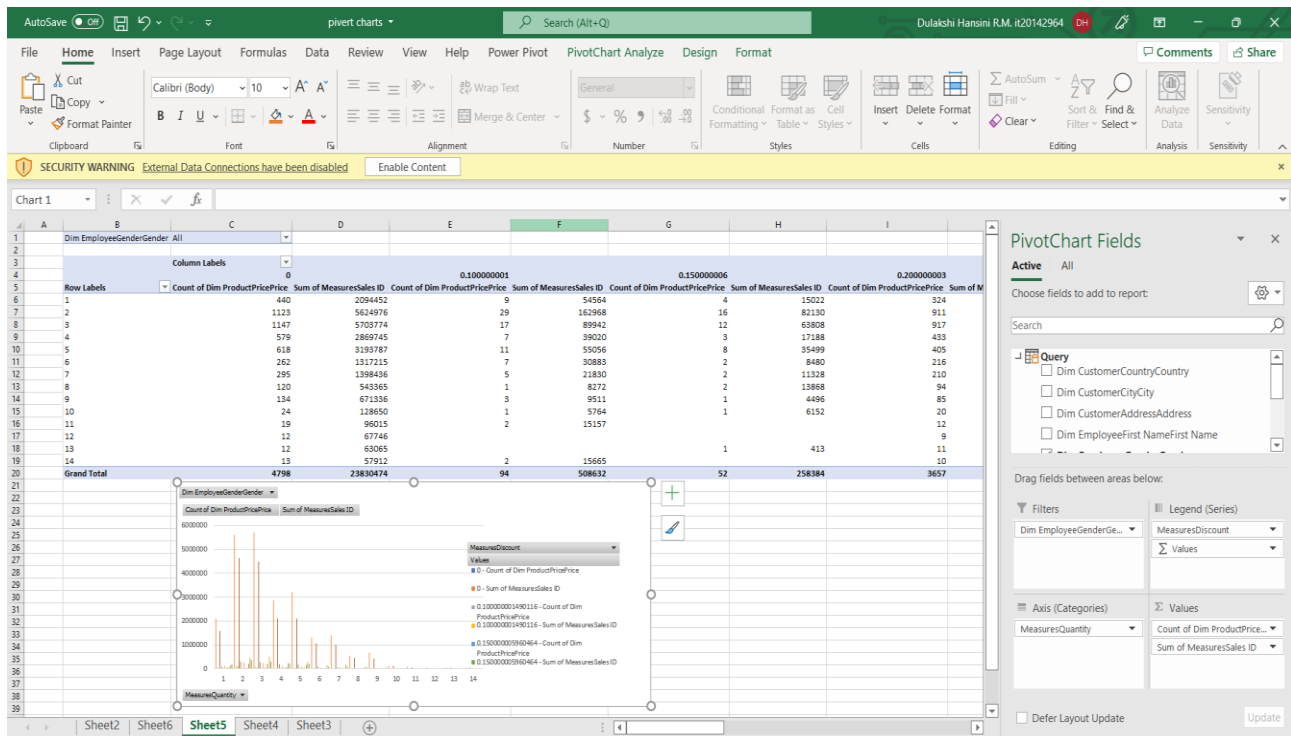
Slice performs a selection on one dimension of the given cube, thus resulting in a sub cube.

this indicate product price and it's discount according to their quantity of the products

Count of Dim ProductPricePrice

Row Labels	Count of Dim ProductPricePrice	Grand Total
0.100000001	1	1
Grand Total	1	1

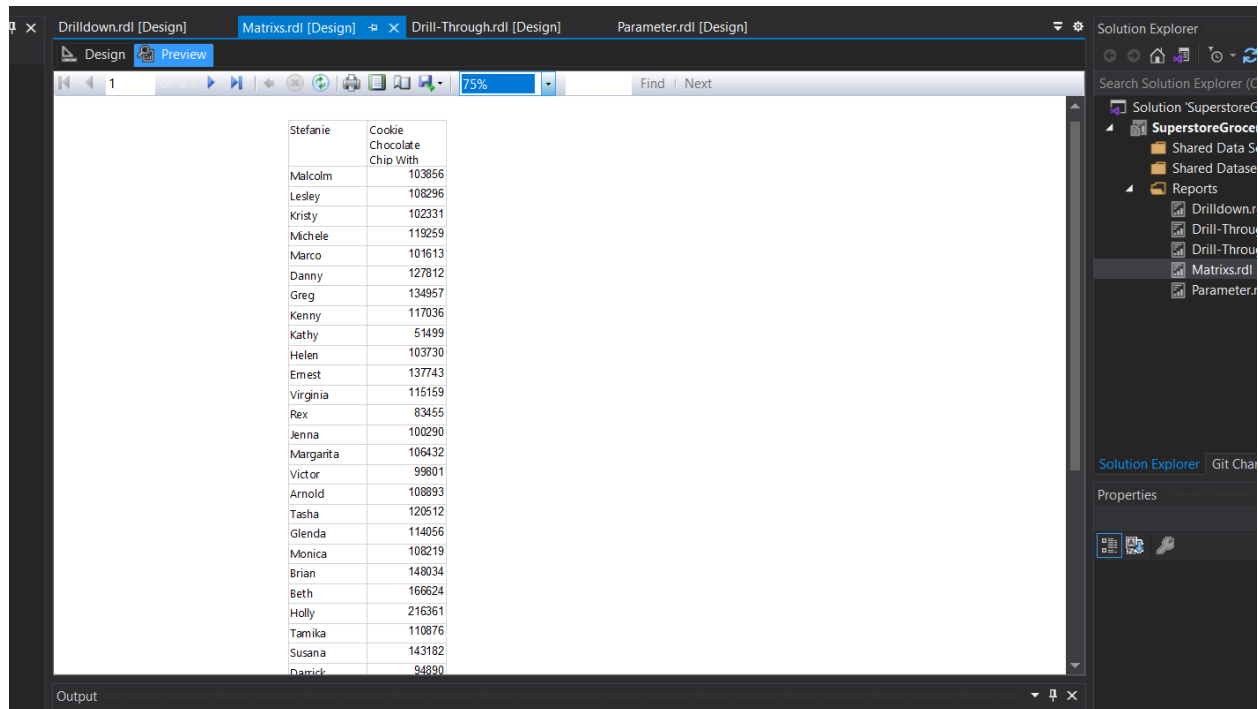
In here indicate sales id and it's product price and quantity which offer by discount and it's filtered by gender



SSRS Reports

Matrix report

Report with Matrix In here yearly sales report customer name vs product name with the price.

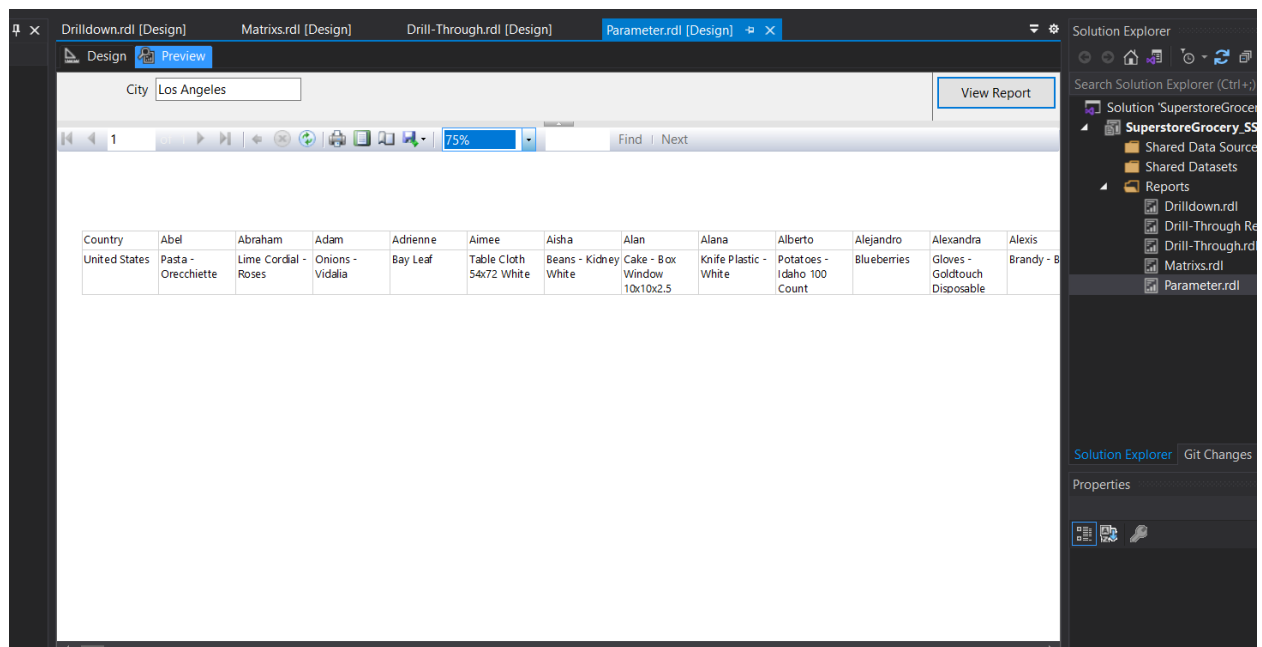


The screenshot shows the SSRS design view for a Matrix report named 'Matrixxs.rdl'. The report is displayed in a grid format with two columns. The first column lists customer names, and the second column lists product names and their corresponding prices. The report is currently in 'Design' mode, and the 'Preview' button is visible. The 'Solution Explorer' on the right shows the project structure, including 'SuperstoreGrocery', 'Shared Data Sources', 'Shared Datasets', and 'Reports'.

Stefanie	Cookie Chocolate Chip With
Malcolm	103856
Lesley	108296
Kristy	102331
Michele	119259
Marco	101613
Danny	127812
Greg	134957
Kenny	117036
Kathy	51499
Helen	103730
Ernest	137743
Virginia	115159
Rex	83455
Jenna	100290
Margarita	106432
Victor	99801
Arnold	108893
Tasha	120512
Glenda	114056
Monica	108219
Brian	148034
Beth	166624
Holly	216361
Tamika	110876
Susana	143182
David	94890

Parameterized report

Parameterized report with sales report customer name vs product name with the country.



The screenshot shows the SSRS design view for a parameterized report named 'Parameter.rdl'. The report is displayed in a grid format with two columns. The first column lists customer names, and the second column lists product names and their corresponding prices. The report is currently in 'Design' mode, and the 'Preview' button is visible. The 'Solution Explorer' on the right shows the project structure, including 'SuperstoreGrocery', 'Shared Data Sources', 'Shared Datasets', and 'Reports'.

Country	Abel	Abraham	Adam	Adrienne	Aimee	Aisha	Alan	Alana	Alberto	Alejandro	Alexandra	Alexis
United States	Pasta - Orecchiette	Lime Cordial - Roses	Onions - Vidalia	Bay Leaf	Table Cloth 54x72 White	Beans - Kidney White	Cake - Box Window 10x10x2.5	Knife Plastic - White	Potatoes - Idaho 100 Count	Blueberries	Gloves - Goldtouch Disposable	Brandy - B

Drill down report

Drill down report with summary of city name and customer name according to their buy products.

Drilldown.rdl [Design] | Matrixs.rdl [Design] | Drill-Through.rdl [Design] | Parameter.rdl [Design]

Design | Preview

1 | 50% | Find | Next

Country	City	Malcolm	Lesley	Kristy	Michele	Marco	Danny	Greg	Kenny	Kathy	Helen	Ernest	Virginia	Rex	Jenna	Margarita	Victor	Arnold
United States	Aberdeen																	
	Abilene																	
	Akron																	
	Albuquerque																	
	Alexandria																	
	Allan																	
	Allenbun																	
	Albora																	
	Amarillo																	
	Anaheim																	
	Andover																	
	Ann Arbor																	
	Arlington																	
	Arlington Heights																	
	Apple Valley																	
	Appleton																	
	Arlington																	
	Arlington Heights																	

Output

Showing 1 of 1 rows

Properties

Solution Explorer

Search Solution Explorer (Ctrl+):

- Solution 'SuperstoreGrocery_SSRS'
- Shared Data Sources
- Shared Datasets
- Reports
 - Drilldown.rdl
 - Drill-Through Report
 - Drill-Through.rdl
 - Matrixs.rdl
 - Parameter.rdl

Solution Explorer | Git Changes