

495-Database Project 4

Question 1:

a)

SQL-query (code) :

```
(select
    country as Country,isnull(education,'All_Customers') as Education,
    (GE.Male+GE.Female) as All_Customers,Female,Male

    from
    (
    select
        sum(case C.gender when 'M' then 1 else 0 end) as Male,
        sum(case C.gender when 'F' then 1 else 0 end) as Female,
        G.EnglishCountryRegionName as country,
        C.EnglishEducation as education
    from dbo.DimCustomer as C inner join DimGeography as G
        on C.GeographyKey=G.GeographyKey
    where G.EnglishCountryRegionName='France'
    group by G.EnglishCountryRegionName,
    rollup(C.Gender,C.EnglishEducation)) as GE

where GE.Male!=0 and GE.Female!=0)

union

(select
    country as Country,isnull(education,'All_Customers') as Education,
    (GE.Male+GE.Female) as All_Customers,Female,Male

    from
    (
    select
        sum(case C.gender when 'M' then 1 else 0 end) as Male,
        sum(case C.gender when 'F' then 1 else 0 end) as Female,
        G.EnglishCountryRegionName as country,
        C.EnglishEducation as education
    from dbo.DimCustomer as C inner join DimGeography as G
        on C.GeographyKey=G.GeographyKey
    where G.EnglishCountryRegionName='GERMANY'
    group by G.EnglishCountryRegionName,
    rollup(C.Gender,C.EnglishEducation)) as GE

where GE.Male!=0 and GE.Female!=0)
```

```

union
  (select country as Country,education as Education,
    (c.Male+c.Female) as AllCustomers,Female,Male

from(
  select G.EnglishCountryRegionName as country,
    D.EnglishEducation as education,
    sum(case D.gender when 'M' then 1 else 0 end) as Male,
    sum(case D.gender when 'F' then 1 else 0 end) as Female
  from DimCustomer as D inner join DimGeography as G
    on D.GeographyKey=G.GeographyKey
  where G.EnglishCountryRegionName='France'
  group by G.EnglishCountryRegionName,D.EnglishEducation,
    rollup(D.Gender)) as c
where c.Male!=0 and c.Female!=0)

```

```

union
( select country as Country,education as Education,
  (c.Male+c.Female) as AllCustomers,Female,Male

from(
  select G.EnglishCountryRegionName as country,
    D.EnglishEducation as education,
    sum(case D.gender when 'M' then 1 else 0 end) as Male,
    sum(case D.gender when 'F' then 1 else 0 end) as Female
  from DimCustomer as D inner join DimGeography as G
    on D.GeographyKey=G.GeographyKey
  where G.EnglishCountryRegionName='GERMANY'
  group by G.EnglishCountryRegionName,D.EnglishEducation,
    rollup(D.Gender)) as c
where c.Male!=0 and c.Female!=0)

```

Output cross-table (screen shots):

100 %

Results Messages

	Country	Education	All_Customers	Female	Male
1	France	All_Customers	1810	893	917
2	France	Bachelors	336	156	180
3	France	Graduate Degree	160	83	77
4	France	High School	502	256	246
5	France	Partial College	566	277	289
6	France	Partial High School	246	121	125
7	Germany	All_Customers	1780	874	906
8	Germany	Bachelors	430	222	208
9	Germany	Graduate Degree	172	85	87
10	Germany	High School	314	137	177
11	Germany	Partial College	642	320	322
12	Germany	Partial High School	222	110	112

Object Explorer

Connect > WIN-QPEVBV88SST (SQL Server 11.0.5058)

Databases

- System Databases
- Database Snapshots
- AdventureWorksDW2012
- ReportServer
- ReportServerTempDB
- Security
- Server Objects
- Replication
- AlwaysOn High Availability
- Management
- Integration Services Catalogs
- SQL Server Agent
- WIN-QPEVBV88SST (Microsoft Analysis Services)
- Databases
 - AdventureWorksDW2012Multidimensional
 - Data Sources
 - Data Source Views
 - Cubes
 - Dimensions
 - Mining Structures
 - Roles
 - Assemblies
 - MultidimensionalProject1

SQLQuery1.sql -...VBV88SST(何添 (59))

```

D.EnglishEducation as education,
sum(case D.gender when 'M' then 1 else 0 end) as Male,
sum(case D.gender when 'F' then 1 else 0 end) as Female
from DimCustomer as D inner join DimGeography as G
on D.GeographyKey=G.GeographyKey
where G.EnglishCountryRegionName='France'
group by G.EnglishCountryRegionName,D.EnglishEducation,
rollup(D.Gender)) as c
where c.Male!=0 and c.Female!=0)

union
( select country as Country,education as Education,
(c.Male+c.Female) as AllCustomers,Female,Male

from(
select G.EnglishCountryRegionName as country,
D.EnglishEducation as education,
sum(case D.gender when 'M' then 1 else 0 end) as Male,
sum(case D.gender when 'F' then 1 else 0 end) as Female
from DimCustomer as D inner join DimGeography as G
on D.GeographyKey=G.GeographyKey
where G.EnglishCountryRegionName='GERMANY'
group by G.EnglishCountryRegionName,D.EnglishEducation,
rollup(D.Gender)) as c
where c.Male!=0 and c.Female!=0)

```

100 %

Results Messages

	Country	Education	All_Customers	Female	Male
1	France	All_Customers	1810	893	917
2	France	Bachelors	336	156	180
3	France	Graduate Degree	160	83	77
4	France	High School	502	256	246
5	France	Partial College	566	277	289
6	France	Partial High School	246	121	125
7	Germany	All_Customers	1780	874	906
8	Germany	Bachelors	430	222	208
9	Germany	Graduate Degree	172	85	87
10	Germany	High School	314	137	177
11	Germany	Partial College	642	320	322
12	Germany	Partial High School	222	110	112

Query executed successfully.

WIN-QPEVBV88SST (11.0 SP2) WIN-QPE

b) Create the cross-tabulation using the cube browser (screen shots):

Dimension	Hierarchy	Operator	Filter Expression
Customer	Country	Equal	{ France, Germany }
<Select dimension>			

Country	Education	All Customers	Female	Male
France	Bachelors	336	156	180
France	Graduate Degree	160	83	77
France	High School	502	256	246
France	Partial College	566	277	289
France	Partial High School	246	121	125
Germany	Bachelors	430	222	208
Germany	Graduate Degree	172	85	87
Germany	High School	314	137	177
Germany	Partial College	642	320	322
Germany	Partial High School	222	110	112

Adventure Works [Browse] X SQLQuery2.sql -...VBV88SST\何添 (57) SQLQuery1.sql -...VBV88SST\何添 (53) MDXQuery6.mdx MDXQuery5.mdx MDXQuery4.mdx

Language: Default

Edit as Text Import...

Adventure Works

Metadata

Measure Group:

<All>

Adventure Works

- Measures
 - Exchange Rates
 - Financial Reporting
 - Internet Customers
 - Internet Orders
 - Internet Sales
 - Reseller Orders
 - Reseller Sales
 - Sales Orders
 - Sales Summary
 - Sales Targets
- KPIs
- Account
- Customer
 - Demographic
 - Commute Distance
 - Education
 - Gender
 - Home Owner
 - Marital Status
 - Number of Cars Owned
 - Number of Children At Home
 - Occupation
 - Total Children
 - Yearly Income
 - Location
 - City
 - Country
 - Postal Code
 - State-Province
 - Sets
 - Customer
 - Members
 - Customer

Dimension	Hierarchy	Operator	Filter Expression
Customer	Country	Equal	{ France, Germany }
<Select dimension>			

Country	Education	All Customers	Female	Male
France	Bachelors	336	156	180
France	Graduate Degree	160	83	77
France	High School	502	256	246
France	Partial College	566	277	289
France	Partial High School	246	121	125
Germany	Bachelors	430	222	208
Germany	Graduate Degree	172	85	87
Germany	High School	314	137	177
Germany	Partial College	642	320	322
Germany	Partial High School	222	110	112

Calculated Members

- Male
- Female
- All Customers

Question 2:

MDX-query (code) :

```
SELECT  
[Customer].[Gender].[Gender].members on columns,  
( { [France], [Germany] }, Customer.education.education.members ) on rows  
FROM [Adventure Works]  
WHERE [Measures].[Customer Count]
```

Cross-table (screen shots) :

The screenshot displays the SQL Server Enterprise Manager interface. The top pane shows the 'Messages' and 'Results' tabs. The 'Results' tab is active, displaying a cross-table of data. The table has four columns: Country, Education, Gender, and Count. The data is filtered by Country (France and Germany) and Education (Bachelors, Graduate Degree, High School, Partial College, Partial High School). The 'Gender' column is split into 'Female' and 'Male' sub-columns. The 'Count' column represents the 'Customer Count' measure.

		Female	Male
France	Bachelors	156	180
France	Graduate Degree	83	77
France	High School	256	246
France	Partial College	277	289
France	Partial High School	121	125
Germany	Bachelors	222	208
Germany	Graduate Degree	85	87
Germany	High School	137	177
Germany	Partial College	320	322
Germany	Partial High School	110	112

The bottom pane shows the 'Cube Explorer' on the left and the 'SQL Query' editor on the right. The 'Cube Explorer' lists the 'Adventure Works' cube and its dimensions: Measures, KPIs, Account, Customer, Date, Delivery Date, Department, Destination Currency, Employee, Geography, Internet Sales Order De, Organization, Product, Promotion, Reseller, Reseller Sales Order De, Sales Channel, Sales Reason, Sales Summary Order C, Sales Territory, Scenario, Ship Date, and Source Currency. The 'SQL Query' editor contains the following MDX query:

```
SELECT  
[Customer].[Gender].[Gender].members on columns,  
( { [France], [Germany] }, Customer.education.education.members ) on rows  
FROM [Adventure Works]  
WHERE [Measures].[Customer Count]
```

Question 3:

MDX-query (code):

```
SELECT  
[Customer].[Gender].[Gender].[Male] on columns,  
([Country].[Country],[education].[education].members) on rows  
FROM [Adventure Works]  
WHERE [Measures].[Customer Count]
```

Output Cross-table:

Messages		Results
		Male
Australia	Bachelors	843
Australia	Graduate Degree	152
Australia	High School	302
Australia	Partial College	373
Australia	Partial High School	144
Canada	Bachelors	187
Canada	Graduate Degree	171
Canada	High School	160
Canada	Partial College	187
Canada	Partial High School	99
France	Bachelors	180
France	Graduate Degree	77
France	High School	246
France	Partial College	289
France	Partial High School	125
Germany	Bachelors	208
Germany	Graduate Degree	87
Germany	High School	177
Germany	Partial College	322
Germany	Partial High School	112
United Kingdom	Bachelors	292
United Kingdom	Graduate Degree	131
United Kingdom	High School	187
United Kingdom	Partial College	254
United Kingdom	Partial High School	115
United States	Bachelors	1,018
United States	Graduate Degree	960
United States	High School	627
United States	Partial College	1,097
United States	Partial High School	229

- Cube: Adventure Works
- Metadata Functions
- Measure Group: <All>
- Adventure Works
 - Measures
 - KPIs
 - Account
 - Customer
 - Date
 - Delivery Date
 - Department
 - Destination Currency
 - Employee
 - Geography
 - Internet Sales Order De
 - Organization
 - Product
 - Promotion
 - Reseller
 - Reseller Sales Order De
 - Sales Channel
 - Sales Reason
 - Sales Summary Order D
 - Sales Territory
 - Scenario
 - Ship Date
 - Source Currency

```
SELECT
[Customer].[Gender].[Gender].[Male] on columns,
([Country].[Country],[education].[education].members) on rows
FROM [Adventure Works]
WHERE [Measures].[Customer Count]
```

100 %

Messages Results		
		Male
Australia	Bachelors	843
Australia	Graduate Degree	152
Australia	High School	302
Australia	Partial College	373
Australia	Partial High School	144
Canada	Bachelors	187
Canada	Graduate Degree	171
Canada	High School	160
Canada	Partial College	187
Canada	Partial High School	99
France	Bachelors	180
France	Graduate Degree	77
France	High School	246
France	Partial College	289
France	Partial High School	125
Germany	Bachelors	208
Germany	Graduate Degree	87
Germany	High School	177
Germany	Partial College	322
Germany	Partial High School	112
United Kingdom	Bachelors	292
United Kingdom	Graduate Degree	131
United Kingdom	High School	187
United Kingdom	Partial College	254
United Kingdom	Partial High School	115
United States	Bachelors	1,018
United States	Graduate Degree	960
United States	High School	627
United States	Partial College	1,097
United States	Partial High School	229

Question 4:

MDX-query (code) :

WITH

MEMBER [Measures].[MalePercent] AS

(([Customer].[Gender].[Gender].[Male],[Measures].[Customer Count])/

(([Customer].[Gender].[Gender].[Female],[Measures].[Customer Count])+([Customer].[Gender].[Gender].[Male],[Measures].[Customer Count])),

FORMAT_STRING = '#.00%'

SELECT [Date].[Calendar Year].[Calendar Year].MEMBERS ON COLUMNS,

[Country].[Country].MEMBERS ON ROWS

FROM [Adventure Works]

Where [Measures].[MalePercent]

Output Cross-table:

(the percentage of males in the customer counts per country and year)

	CY 2005	CY 2006	CY 2007	CY 2008	CY 2009	CY 2010
Australia	50.25%	47.73%	50.75%	49.92%	(null)	(null)
Canada	38.30%	49.12%	53.13%	49.85%	(null)	(null)
France	50.85%	51.50%	52.25%	49.17%	(null)	(null)
Germany	55.26%	44.21%	50.62%	50.49%	(null)	(null)
United Kingdom	53.13%	53.21%	49.56%	52.56%	(null)	(null)
United States	51.03%	48.55%	49.17%	50.75%	(null)	(null)

MDXQuery2.mdx...QPEVBV88SST\何添)* MDXQuery5.mdx...QPEVBV88SST\何添)* MDXQuery4.mdx...QPEVBV88SST\何添)* x SQLQuery3.sql -...VBV88SST\何添 (58))*

Cube: Adventure Works

Metadata Functions

Measure Group: <All>

Internet Sales

Reseller Orders

Reseller Sales

Sales Orders

Sales Summary

Sales Targets

KPIs

Account

Customer

Demographic

Commute Distance

Education

Gender

Members

Gender

Home Owner

Marital Status

Number of Children

Number of Children

Occupation

Total Children

Yearly Income

Location

Sets

Customer

Members

Customer

Customer Geographic

Date

Calendar

Date Calendar

Date Calendar

Date Calendar

Date Calendar

```
WITH
MEMBER [Measures].[MalePercent] AS
(([Customer].[Gender].[Gender].[Male],[Measures].[Customer Count])/
(([Customer].[Gender].[Gender].[Female],[Measures].[Customer Count])
+([Customer].[Gender].[Gender].[Male],[Measures].[Customer Count])),
FORMAT_STRING = '#.00%'

SELECT [Date].[Calendar Year].[Calendar Year].MEMBERS ON COLUMNS,
[Country].[Country].MEMBERS ON ROWS
FROM [Adventure Works]
Where [Measures].[MalePercent]
```

100 %

Messages Results

	CY 2005	CY 2006	CY 2007	CY 2008	CY 2009	CY 2010
Australia	50.25%	47.73%	50.75%	49.92%	(null)	(null)
Canada	38.30%	49.12%	53.13%	49.85%	(null)	(null)
France	50.85%	51.50%	52.25%	49.17%	(null)	(null)
Germany	55.26%	44.21%	50.62%	50.49%	(null)	(null)
United Kingdom	53.13%	53.21%	49.56%	52.56%	(null)	(null)
United States	51.03%	48.55%	49.17%	50.75%	(null)	(null)

Question 5:

MDX-query:

```
SELECT [Measures].[Internet Sales Amount] ON COLUMNS,  
NON EMPTY ({ [France], [Germany] }, [city]. [city].members ) on rows  
FROM [Adventure Works]
```

Output Cross-table:

(a list of the internet sales amount in all cities of France and Germany)

		Internet Sales Amount
France	Bobigny	\$90,204.45
France	Boulogne-Billancourt	\$14,289.24
France	Boulogne-sur-Mer	\$11,342.92
France	Cergy	\$46,755.90
France	Chatou	\$89,830.20
France	Colombes	\$90,268.51
France	Colomiers	\$54,641.72
France	Courbevoie	\$38,809.63
France	Croix	\$36,781.93
France	Drancy	\$56,031.38
France	Dunkerque	\$75,474.38
France	Les Ulis	\$181,244.73
France	Lieusaint	\$57,094.80
France	Lille	\$65,419.93
France	Metz	\$94,046.23
France	Morangis	\$56,432.84
France	Orleans	\$91,562.91
France	Orly	\$28,478.12
France	Pantin	\$77,603.76
France	Paris	\$539,725.80
France	Paris La Defense	\$45,350.86
France	Roissy en Brie	\$52,640.44
France	Roncq	\$38,304.87
France	Roubaix	\$86,282.63
France	Saint Germain en Laye	\$76,177.34
France	Saint Ouen	\$34,441.73
France	Saint Ouen	\$21,473.74
France	Saint Ouen	\$29,555.28

		Internet Sales Amount
France	Saint Ouen	\$21,473.74
France	Saint Ouen	\$29,555.28
France	Saint-Denis	\$63,782.59
France	Sèvres	\$39,598.20
France	Suresnes	\$35,099.73
France	Tremblay-en-France	\$91,857.57
France	Verrieres Le Buisson	\$41,619.61
France	Versailles	\$102,657.25
France	Villeneuve-d'Ascq	\$89,136.45
Germany	Berlin	\$102,668.50
Germany	Berlin	\$32,596.49
Germany	Berlin	\$49,670.21
Germany	Berlin	\$75,995.42
Germany	Bonn	\$20,637.05
Germany	Bonn	\$22,068.18
Germany	Bottrop	\$72,895.55
Germany	Braunschweig	\$28,705.00
Germany	Darmstadt	\$76,433.25
Germany	Dresden	\$57,590.01
Germany	Duesseldorf	\$59,787.49
Germany	Eilenburg	\$57,919.21
Germany	Erlangen	\$77,585.52
Germany	Essen	\$55,349.62
Germany	Frankfurt	\$67,852.63
Germany	Frankfurt	\$116,439.96
Germany	Frankfurt am Main	\$67,207.18
Germany	Frankfurt am Main	\$42,914.35

		Internet Sales Amount
Germany	Frankfurt am Main	\$42,914.35
Germany	Grevenbroich	\$53,576.08
Germany	Hamburg	\$47,116.49
Germany	Hamburg	\$148,555.78
Germany	Hannover	\$28,792.22
Germany	Hof	\$91,915.14
Germany	Ingolstadt	\$109,037.41
Germany	Kassel	\$84,798.32
Germany	Kiel	\$67,554.62
Germany	Leipzig	\$60,193.26
Germany	Mühlheim	\$52,821.22
Germany	München	\$59,916.04
Germany	München	\$62,085.04
Germany	München	\$38,080.35
Germany	München	\$162.99
Germany	Münster	\$49,718.86
Germany	Neunkirchen	\$93,896.67
Germany	Offenbach	\$84,521.13
Germany	Paderborn	\$39,873.50
Germany	Paderborn	\$98,366.72
Germany	Poing	\$40,132.90
Germany	Saarbrücken	\$50,324.34
Germany	Saarlouis	\$76,614.39
Germany	Salzgitter	\$57,353.24
Germany	Solingen	\$100,217.24
Germany	Stuttgart	\$80,507.46
Germany	Sulzbach Taunus	\$66,739.77
Germany	Werne	\$67,125.55

MDXQuery6.mdx...QPEVBV88SST\何添) × MDXQuery2.mdx...QPEVBV88SST\何添)* MDXQuery5.mdx...QPEVBV88SST\何添) MDXQuery4.mdx.

Cube: Adventure Works

Metadata Functions

Measure Group: <All>

Adventure Works

- Measures
- KPIs
- Account
- Customer
- Date
- Delivery Date
- Department
- Destination Currency
- Employee
- Geography
- Internet Sales Order De
- Organization
- Product
- Promotion
- Reseller
- Reseller Sales Order De
- Sales Channel
- Sales Reason
- Sales Summary Order D
- Sales Territory
- Scenario
- Ship Date
- Source Currency

```
SELECT [Measures].[Internet Sales Amount] ON COLUMNS,
NON EMPTY ({ [France], [Germany] }, [city].[city].members ) on rows
FROM [Adventure Works]
```

100 %

Messages Results

		Internet Sales Amount
France	Bobigny	\$90,204.45
France	Boulogne-Billancourt	\$14,289.24
France	Boulogne-sur-Mer	\$11,342.92
France	Cergy	\$46,755.90
France	Chatou	\$89,830.20
France	Colombes	\$90,268.51
France	Colomiers	\$54,641.72
France	Courbevoie	\$38,809.63
France	Croix	\$36,781.93
France	Drancy	\$56,031.38
France	Dunkerque	\$75,474.38
France	Les Ulis	\$181,244.73
France	Lieusaint	\$57,094.80
France	Lille	\$65,419.93
France	Metz	\$94,046.23
France	Morangis	\$56,432.84
France	Orleans	\$91,562.91
France	Orly	\$28,478.12
France	Pantin	\$77,603.76
France	Paris	\$539,725.80
France	Paris La Defense	\$45,350.86
France	Roissy en Brie	\$52,640.44
France	Roncq	\$38,304.87
France	Roubaix	\$86,282.63
France	Saint Germain en Laye	\$76,177.34
France	Saint Ouen	\$34,441.73
France	Saint Ouen	\$21,473.74
France	Saint Ouen	\$29,555.28