NEW YORK CENSUS EMPLOYMENT IN TECHNOLOGY TRENDS

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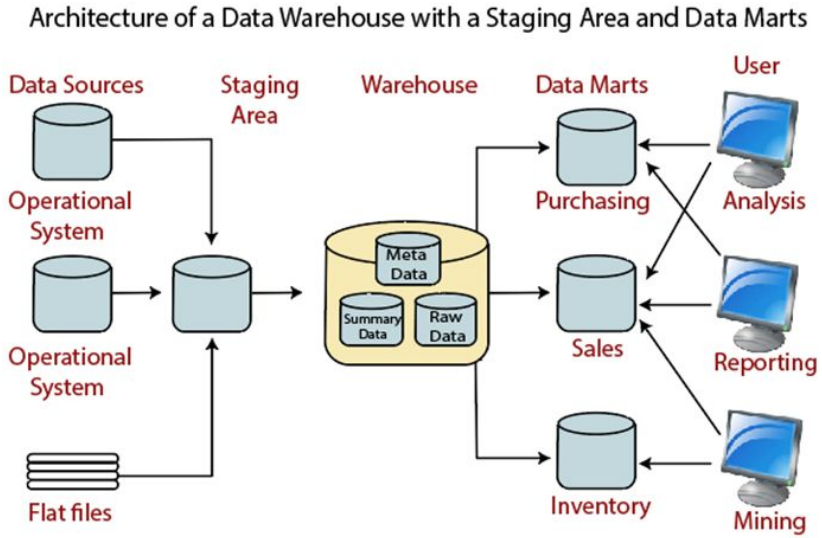
CST 4704 OL54

Introduction

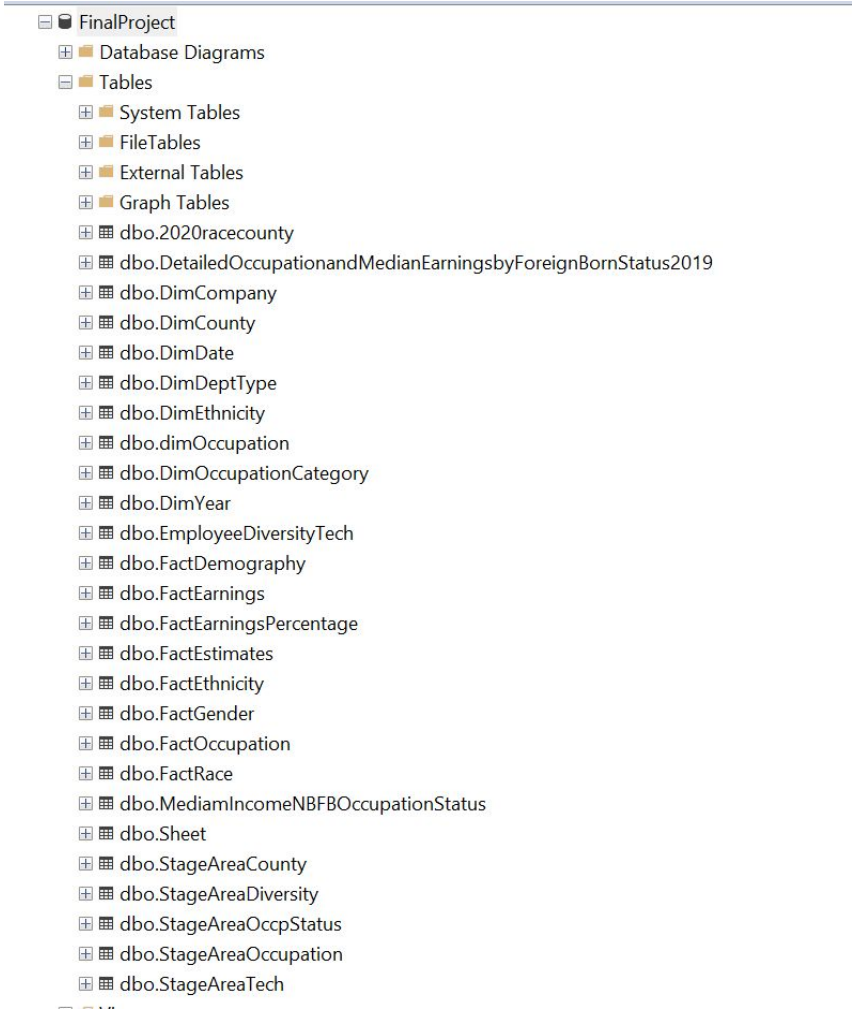
- This project has an objective to cross references the past census employment in technology, in New York.
- This data analysis modeled the future trends of employment in technology in New York.
- The data of the past census in employment in the areas of technology in New York are age, ethnicity, and gender. These databases were cross referenced to predict future trends in employment.
- This was objective and analysis was executed through ETL, SSIS, SSAS, and SSRS Reports.

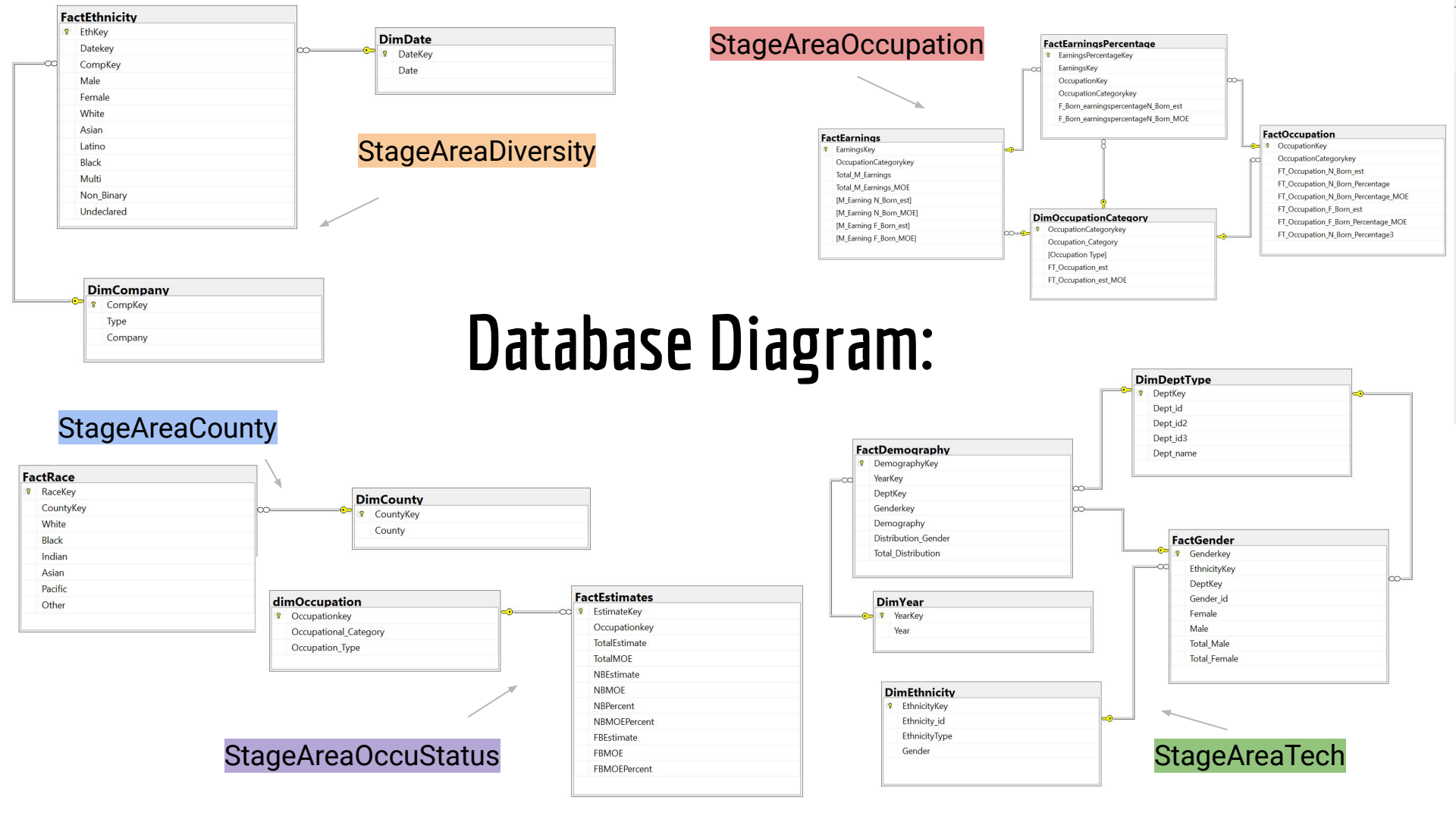
Data Warehouse Architecture:



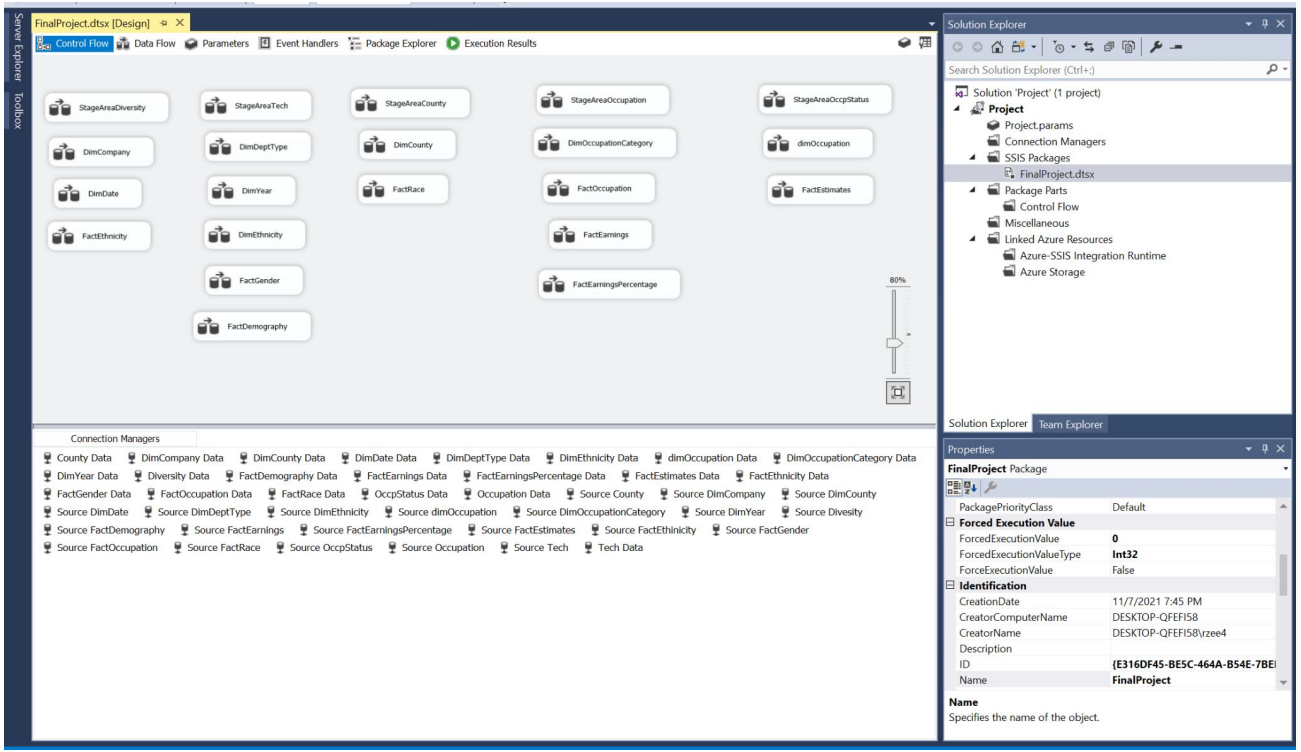
Data Warehouse with a Staging Area and Data Marts

Database Warehouse:

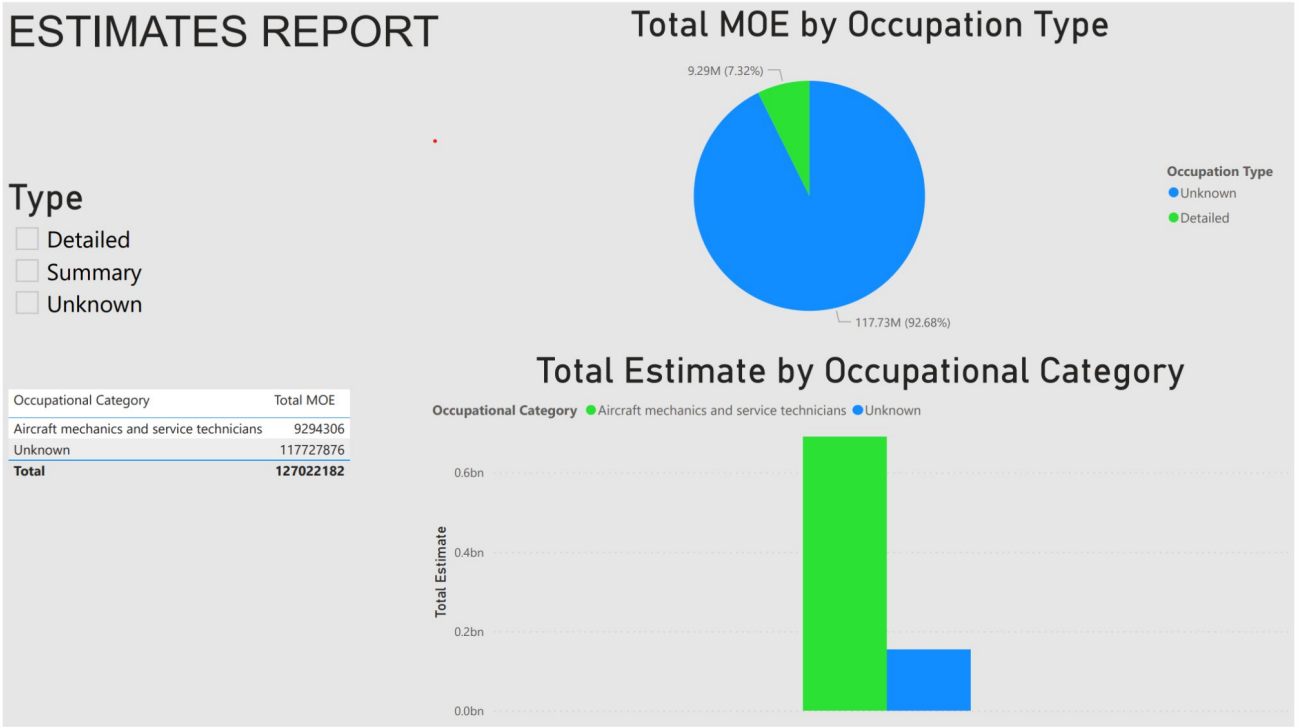



FactEthnicity
EthKey
Datekey
CompKey
Male
Female
White
Asian
Latino
Black
Multi
Non_Binary
Undeclared
DimDate
DateKey
Date
StageAreaDiversity
DimCompany
CompKey
Type
Company
StageAreaOccupation
FactEarningsPercentage
EarningsPercentageKey
EarningsKey
OccupationKey
OccupationCategorykey
F_Born_earningspercentageN_Born_est
F_Born_earningspercentageN_Born_MOE
FactEarnings
EarningsKey
OccupationCategorykey
Total_M_Earnings
Total_M_Earnings_MOE
[M_Earning N_Born_est]
[M_Earning N_Born_MOE]
[M_Earning F_Born_est]
[M_Earning F_Born_MOE]
DimOccupationCategory
OccupationCategorykey
Occupation_Category
[Occupation Type]
FT_Occupation_est
FT_Occupation_est_MOE
FactOccupation
OccupationKey
OccupationCategorykey
FT_Occupation_N_Born_est
FT_Occupation_N_Born_Percentage
FT_Occupation_N_Born_Percentage_MOE
FT_Occupation_F_Born_est
FT_Occupation_F_Born_Percentage_MOE
FT_Occupation_N_Born_Percentage3
Database Diagram:
StageAreaCounty
FactRace
RaceKey
CountyKey
White
Black
Indian
Asian
Pacific
Other
DimCounty
CountyKey
County
dimOccupation
Occupationkey
Occupational_Category
Occupation_Type
FactEstimates
EstimateKey
Occupationkey
TotalEstimate
TotalMOE
NBEstimate
NBMOE
NBPercent
NBMOEPercent
FBEstimate
FBMOE
FBMOEPercent
StageAreaOccuStatus
DimDeptType
DeptKey
Dept_id
Dept_id2
Dept_id3
Dept_name
FactDemography
DemographyKey
YearKey
DeptKey
Genderkey
Demography
Distribution_Gender
Total_Distribution
DimYear
YearKey
Year
FactGender
Genderkey
EthnicityKey
DeptKey
Gender_id
Female
Male
Total_Male
Total_Female
DimEthnicity
EthnicityKey
Ethnicity_id
EthnicityType
Gender
StageAreaTech

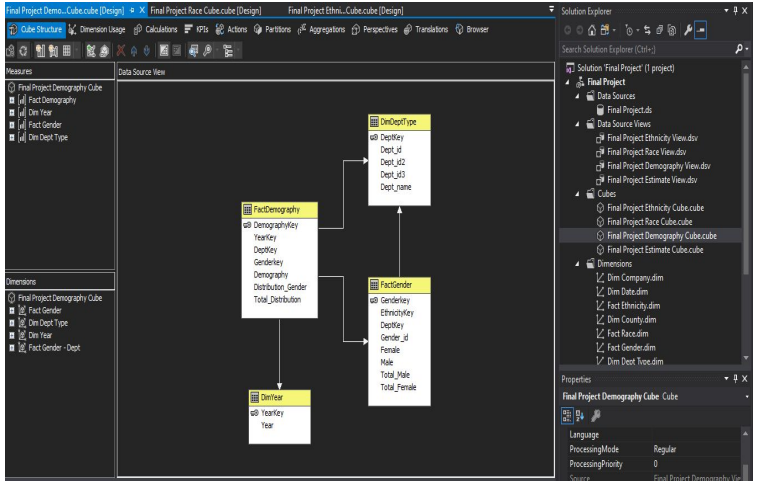
SSIS Design:

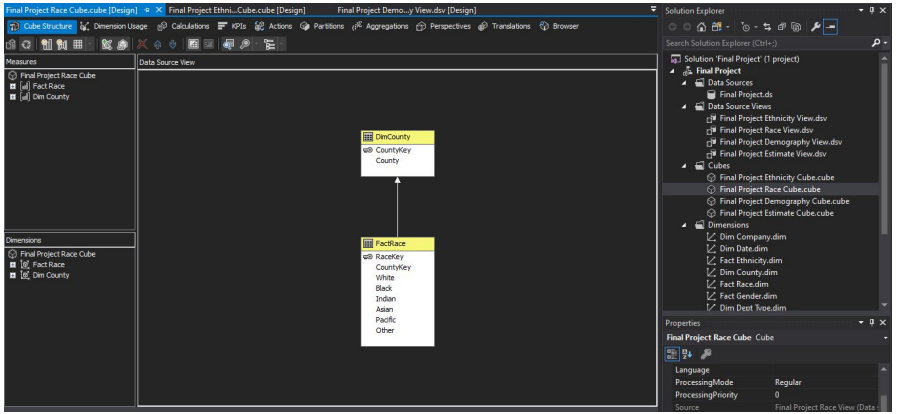

FinalProject.dtsx [Design]
Control Flow
Data Flow
Parameters
Event Handlers
Package Explorer
Execution Results
StageAreaDiversity
StageAreaTech
StageAreaCounty
StageAreaOccupation
StageAreaOccpStatus
DimCompany
DimDeptType
DimCounty
DimOccupationCategory
dimOccupation
DimDate
DimYear
FactRace
FactOccupation
FactEstimates
FactEthnicity
DimEthnicity
FactEarnings
FactGender
FactEarningsPercentage
FactDemography
80%
Connection Managers
County Data
DimCompany Data
DimCounty Data
DimDate Data
DimDeptType Data
DimEthnicity Data
dimOccupation Data
DimOccupationCategory Data
DimYear Data
Diversity Data
FactDemography Data
FactEarnings Data
FactEarningsPercentage Data
FactEstimates Data
FactEthnicity Data
FactGender Data
FactOccupation Data
FactRace Data
OccpStatus Data
Occupation Data
Source County
Source DimCompany
Source DimCounty
Source DimDate
Source DimDeptType
Source DimEthnicity
Source dimOccupation
Source DimOccupationCategory
Source DimYear
Source Divesity
Source FactDemography
Source FactEarnings
Source FactEarningsPercentage
Source FactEstimates
Source FactEthinicity
Source FactGender
Source FactOccupation
Source FactRace
Source OccpStatus
Source Occupation
Source Tech
Tech Data
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'Project' (1 project)
Project
Project.params
Connection Managers
SSIS Packages
FinalProject.dtsx
Package Parts
Control Flow
Miscellaneous
Linked Azure Resources
Azure-SSIS Integration Runtime
Azure Storage
Solution Explorer
Team Explorer
Properties
FinalProject Package
PackagePriorityClass
Default
Forced Execution Value
ForcedExecutionValue
0
ForcedExecutionValueType
Int32
ForceExecutionValue
False
Identification
CreationDate
11/7/2021 7:45 PM
CreatorComputerName
DESKTOP-QFEFI58
CreatorName
DESKTOP-QFEFI58\rzee4
Description
ID
{E316DF45-BE5C-464A-B54E-7BE
Name
FinalProject
Name
Specifies the name of the object.

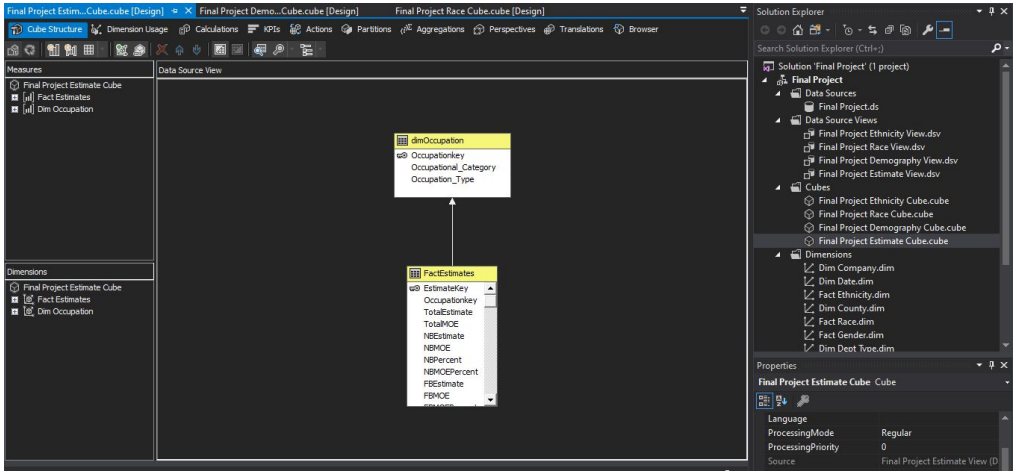
SSAS Design:


ESTIMATES REPORT
Total MOE by Occupation Type
9.29M (7.32%)
117.73M (92.68%)
Occupation Type
Unknown
Detailed
Type
Detailed
Summary
Unknown
Occupational Category
Total MOE
Aircraft mechanics and service technicians
9294306
Unknown
117727876
Total
127022182
Total Estimate by Occupational Category
Occupational Category
Aircraft mechanics and service technicians
Unknown
Total Estimate
0.6bn
0.4bn
0.2bn
0.0bn

Cube:







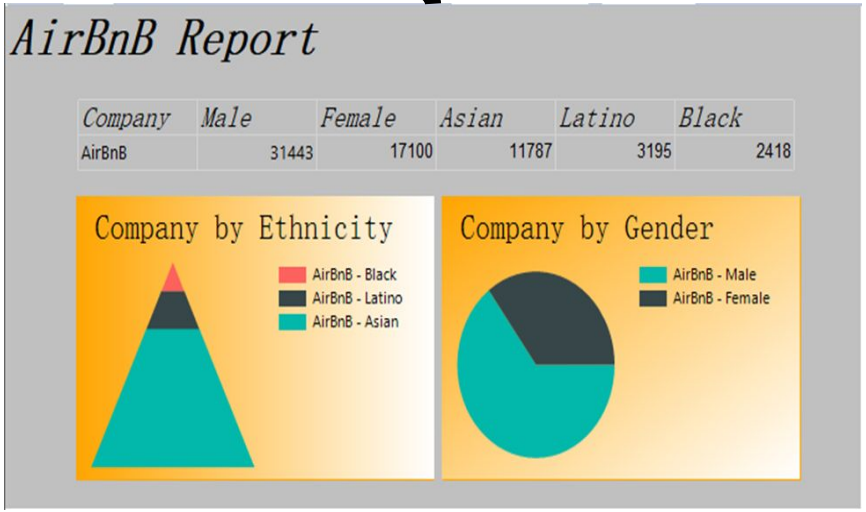
Ethnicity, Race, Demography Cubes

SQL Server Reporting Services SSRS

Ethnicity SSRS Report

Building the report

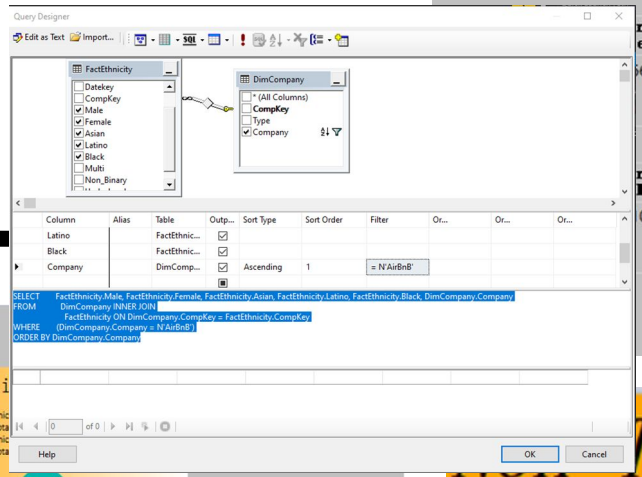
Script

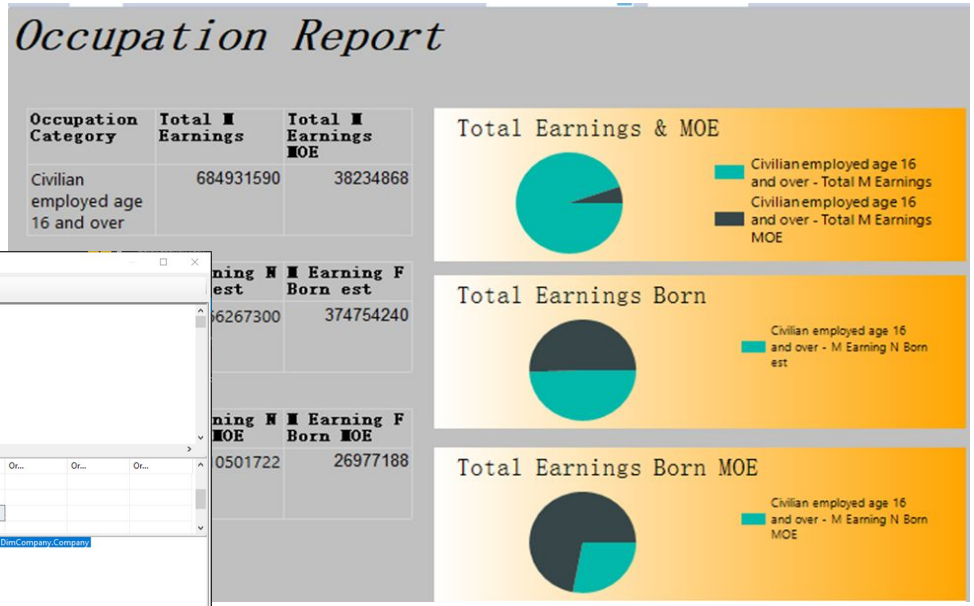


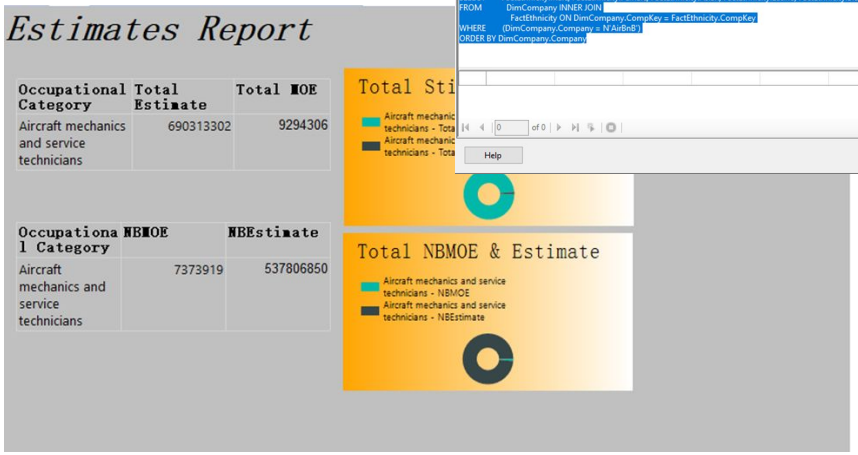

```
SELECT factethnicity.male,

       factethnicity.female,

       factethnicity.asian,

       factethnicity.latino,

       factethnicity.black,

       dimcompany.company

FROM   dimcompany

       INNER JOIN factethnicity

               ON dimcompany.compkey = factethnicity.compkey

WHERE  ( dimcompany.company = N'AirBnB' )

ORDER  BY dimcompany.company
```

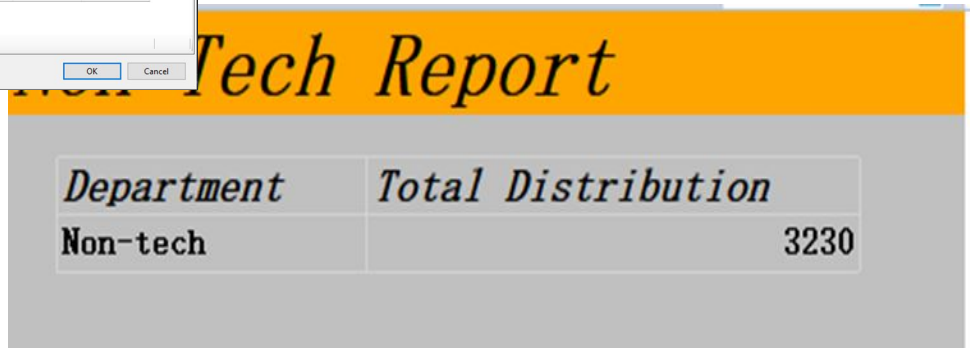
More Reports...

- ➔ Creating the Script
- ➔ Better performance
- ➔ Friendly user
- ➔ Advance Options





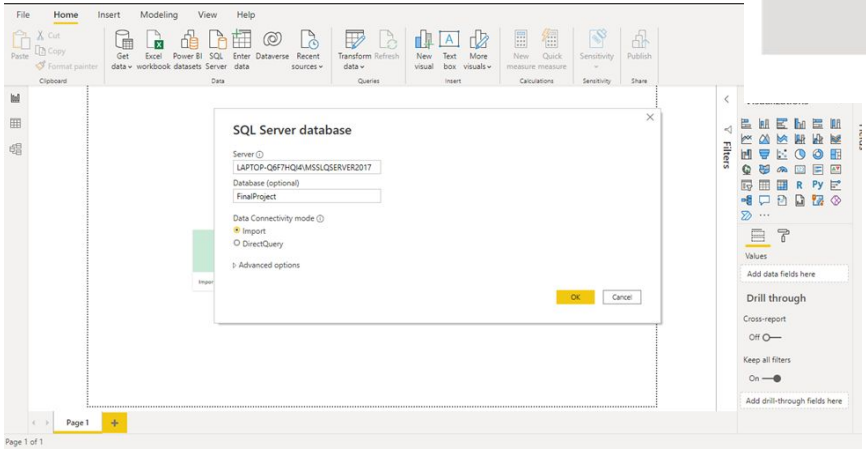




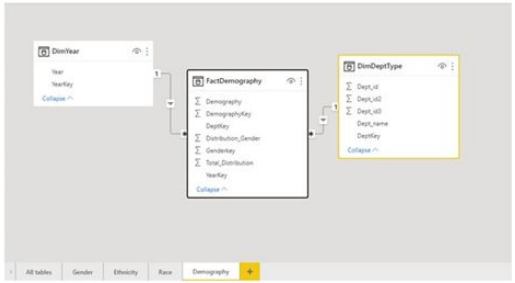
Power BI Reporting

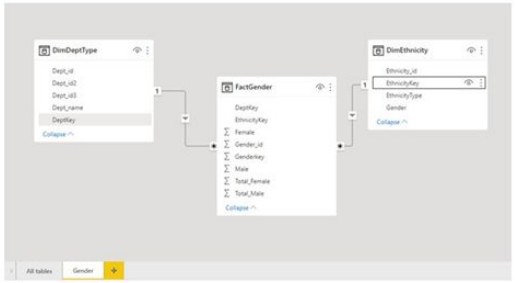
- Friendly Software
- Low Cost
- AI visualization
- New feature every month

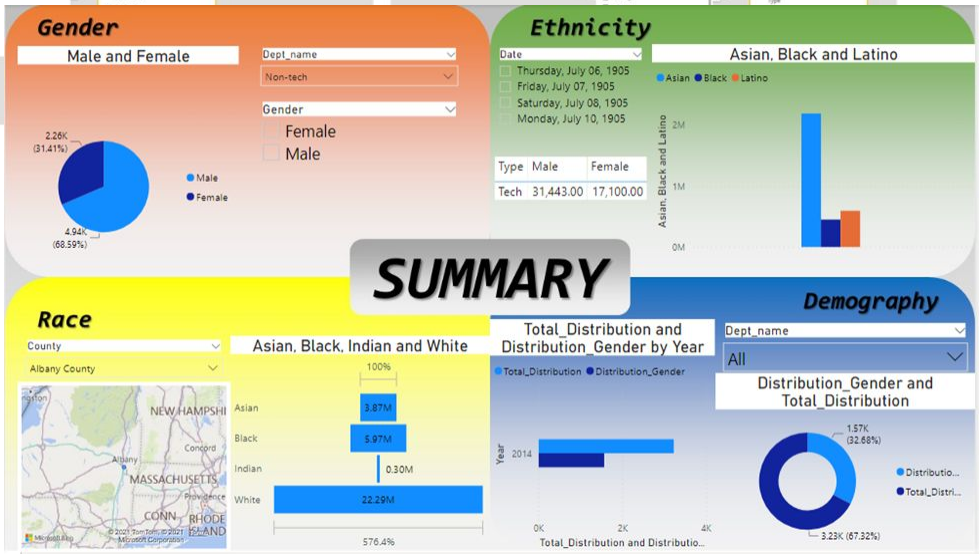
Connecting SQL Database



Building the Relations







Conclusion:

- In conclusion, this project has projected the future employment trends with the past census data in employment in the areas of technology.
- This project had helped cross reference and analyze the census data through ETL, SSIS, SSAS, and SSRS Reports.
- Using the technical analysis made in this project it can help the future employment seekers in technology in New York from the minority in age, ethnicity, and gender.

References:

- Microsoft (Ed.). (n.d.). *What is SQL Server Reporting Services - SQL Server Reporting Services (SSRS).* What is SQL Server Reporting Services - SQL Server Reporting Services (SSRS) | Microsoft Docs. Retrieved December 14, 2021, from https://docs.microsoft.com/en-us/sql/reporting-services/create-deploy-and-manage-mobile-and-paginated-reports?view=sql-server-ver15.
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- Jaiswal, Sonoo. *Data Warehouse Architecture.* JavaPoint, from https://www.javatpoint.com/data-warehouse-architecture
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Thank you