School of Science, Engineering & Environment

Advanced Databases Assignment

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1 Table of Contents

Task1: Child Poverty in Developing Countries

1Abstract :

In this project, severe and absolute child poverty is assessed for children who participated in the Young Life project. The methodology that is used to measure child poverty is the Bristol Approach. In the Bristol Approach, seven dimensions are used to define poverty, but only five are covered by Young Life. These are food, education, health, water and sanitation, which are the indicators of basic human needs. In the context of this project, five dimensions of child poverty are analyzed. For measuring each dimension, various conditions for different age groups have been used. For example, to measure Severe Food Deprivation, anthropometric information for children under five years of age is used. For Severe Education Deprivation, children's school attendance has been examined for children between seven and eighteen years old. And also, Severe Health Deprivation is considered for children younger than five who have not been vaccinated against any disease. It is also the number of young children who have a serious illness that puts them at risk of death. Last but not least, the number of children of all ages who do not have safe drinking water and sanitation facilities is measured through the Severe Water Deprivation and Severe Sanitation Deprivation indicators.

By measuring these five dimensions of poverty, nine reports have been created to measure the severe and absolute poverty among four countries in the Young Life dataset. The first five reports describe the percentage of severe deprivation in the five dimensions of poverty in each country. In the other reports, the percentage of children who are deprived of at least one deprivation is reported by gender in each country. Moreover, children who suffer from more than two deprivation are considered to live in absolute poverty. So, the percentage of absolute poverty is shown by gender in each country. And the last report describes the proportion of children who experience severe deprivation in each dimension. This report helps us to determine which deprivation is the most severe.

2 Introduction:

In recent years, the world has made remarkable strides advancing development. Yet, more than 700 million people still live in extreme poverty. Children are disproportionately affected. Despite comprising one third of the global population, they represent half of those struggling to survive on less than $1.90 a day. Children who grow up impoverished often lack the food, sanitation, shelter, health care and education they need to survive and thrive. Across the world, about 1 billion children are multidimensionally poor, meaning they lack necessities as basic as nutrition or clean water. Some 100 million additional children have been plunged into multidimensional poverty due to COVID-19. [1]

The three key methodologies used most often outside of high-income countries are:
a) **The Bristol Approach** (used in UNICEF's Global Study on Child Poverty). Developed by the University of Bristol, the approach builds a set of dimensions based on the Convention on the Rights of the Child. [2]
b) **MODA** - or Multiple Overlapping Deprivations Analysis. It was developed in 2012 by UNICEF, building on the Bristol Approach and MPI. The same approach could be applied for country-specific analysis (N-MODA) or cross-country analysis (CC-MODA). As the name indicates, analysis focuses on how different dimensions overlap with each other, providing important information for cross-sectoral interventions. [2]
c) **The MPI** - developed by OPHI and UNDP's Human Development report. It has captured multidimensional poverty in over 100 countries. As with national poverty lines, national MPIs can be readily disaggregated to highlight children living in multidimensionally poor households. Among the indicators are some that focus on the situation of children, namely school attendance and nutrition. Work

is also underway to develop a child-specific MPI that focuses solely on children (rather than others in the household) and adds a child specific dimension for additional indicators (see Bhutan case in this milestone). [2]

In this project, The Bristol Approach is used to measure child poverty in four countries, including Ethiopia, India, Peru and Vietnam. In The Bristol Approach, child poverty is measured in seven dimensions, including Education, Health, Nutrition, Water, Sanitation, Shelter, and Information. According to the [3] ("David Gordon, Shailen Nandy, Christina Pantazis, Simon Pemberton. Child poverty in the developing world," 2003.) the definition of severe deprivation in each dimension is as follow:

1)Severe Food Deprivation: children whose heights and weights for their age were more than -3 standard deviations below the median of the international reference population, i.e., severe anthropometric failure.

2) Severe Water Deprivation: children who only had access to surface water (e.g., rivers) for drinking or who lived in households where the nearest source of water was more than 15 minutes away (indicators of severe deprivation of water quality or quantity).

3) Severe Deprivation of Sanitation Facilities: children who had no access to a toilet of any kind in the vicinity of their dwelling, including communal toilets or latrines.

4) Severe Health Deprivation: children who had not been immunized against any diseases or young children who had a recent illness involving diarrhea and had not received any medical advice or treatment.

5) Severe Shelter Deprivation: children living in dwellings with more than five people per room (severe overcrowding) or with no flooring material (e.g., a mud floor).

6) Severe Education Deprivation: children aged between 7 and 18 who had never been to school and were not currently attending school (no professional education of any kind).

7) Severe Information Deprivation: children aged between 3 and 18 with no possession of and access to radio, television, telephone or newspapers at home. [3]

Using the Bristol methodology and the definition of severe deprivation based on five dimensions, including education, health, nutrition, water and sanitation the severity of deprivation has been measured in the Young Life dataset. Since in this dataset, the data about Shelter and Information have not been covered, in this project, severe poverty is computed on five dimensions.

3 Design Rationale

In This section, a database has been designed that consists of the following objects:

- Four tables for Young Lives: An International Study of Childhood Poverty: Rounds 1-5 Constructed Files, 2002-2016
- Four views with selected columns from Constructed tables
- One view consists of all four countries
- Five views for selecting children with Severe Deprivation in five dimensions, Including food, education, health, sanitation and water
- One view to show the status of poverty in five dimensions of child poverty
- Five stored procedures to measure the number and the percentage of severe child poverty in five dimensions by gender and country
- Five tables to store the output of stored procedures

- A stored procedure to measure the number and percentage of children who experience one or more deprivation (Severe Poverty) by gender and country
- A table to store the number and percentage of Severe Poverty
- A stored procedure to the total percentage of Severe Poverty by dimensions
- A table to store total percentage of Severe Poverty by dimensions
- A stored procedure to measure the percentage of children who experience two or more severe deprivation (Absolute Poverty) by gender and country
- A table to store the percentage of Absolute Poverty

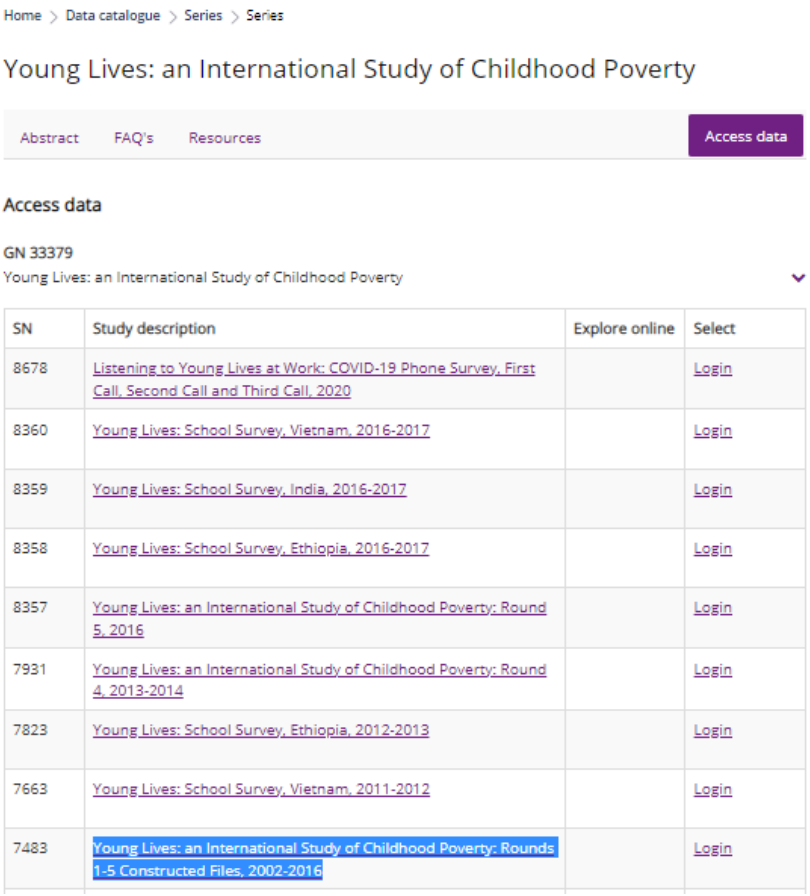
4 Design Considerations

4.1 Downloading Young Life Dataset and creating tables

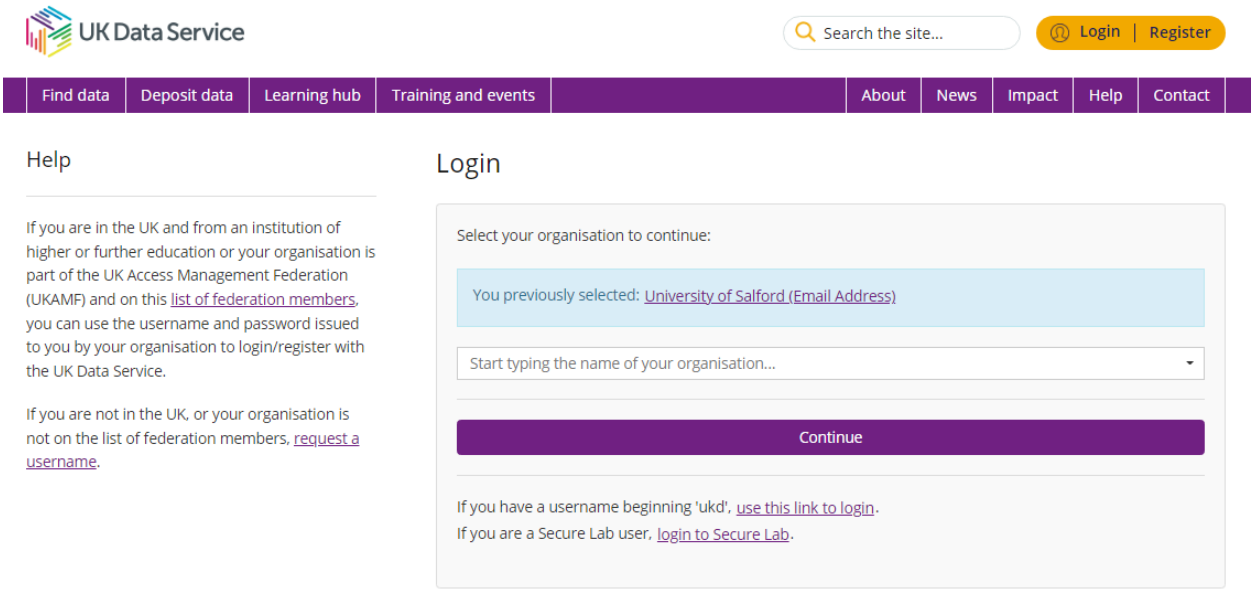
The data used in this publication come from Young Lives, a 20-year study of childhood poverty and transitions to adulthood in Ethiopia, India, Peru and Vietnam (www.younglives.org.uk). Young Lives is funded by UK aid from the Foreign, Commonwealth & Development Office and a number of further funders. The views expressed here are those of the author(s). They are not necessarily those of Young Lives, the University of Oxford, FCDO or other funders. [4] Task 1 is based on Young Lives: International Study of Childhood Poverty: Rounds 1-5 Constructed Files, 2002-2016. The dataset is accessible from the link below:

https://beta.ukdataservice.ac.uk/datacatalogue/series/series?id=2000060#!/access [5]

By clicking on the Access Data bottom, we will redirect to this page.

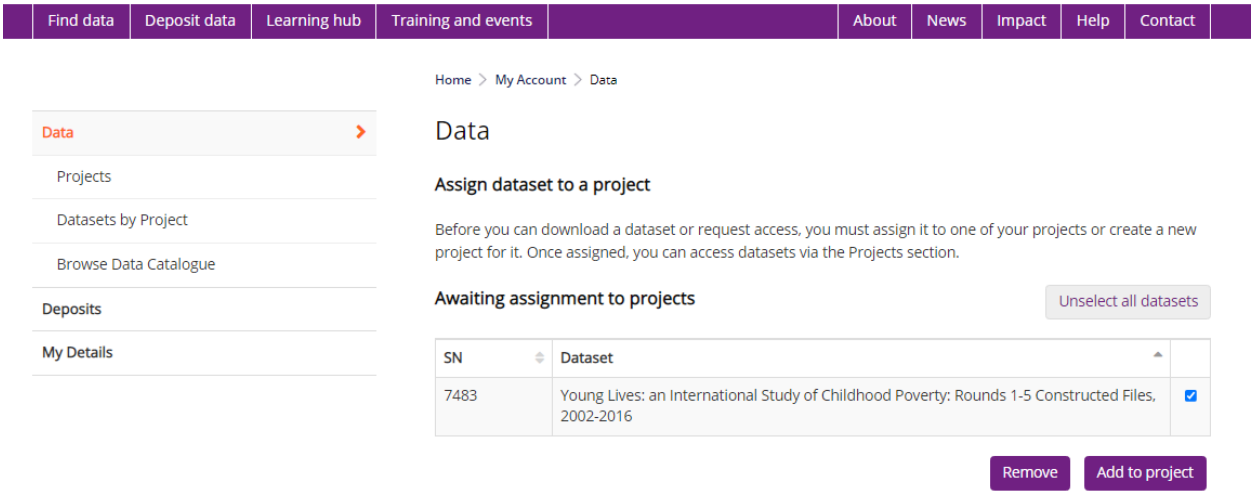


The dataset with serial number 7483 includes all five rounds of the Yong Lives Research. After clicking the Login link, we are redirected to this page.

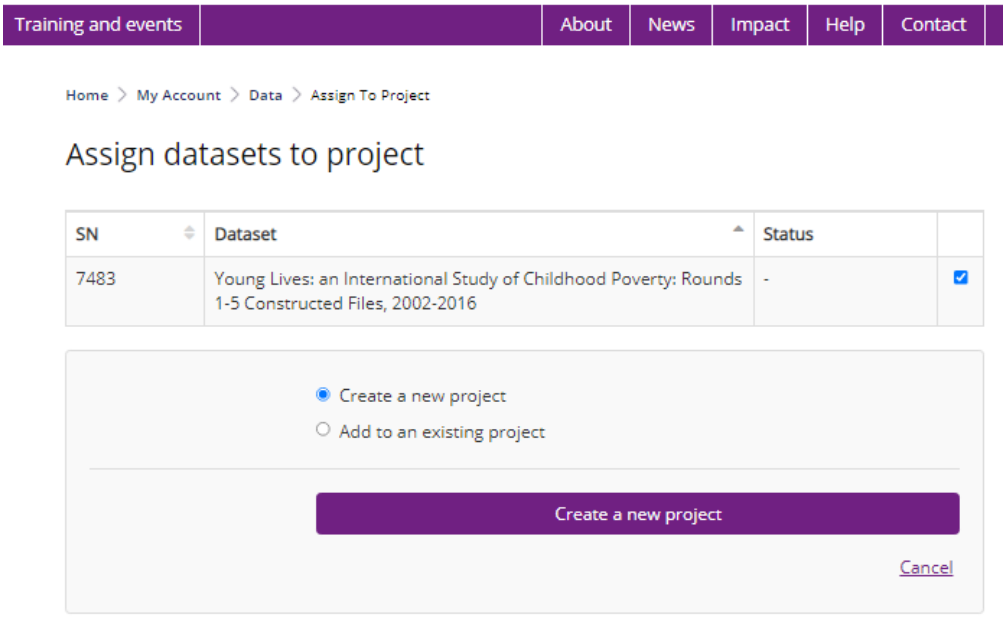


To access the Yong Lives dataset it is needed to register on the UK Data Service website. After

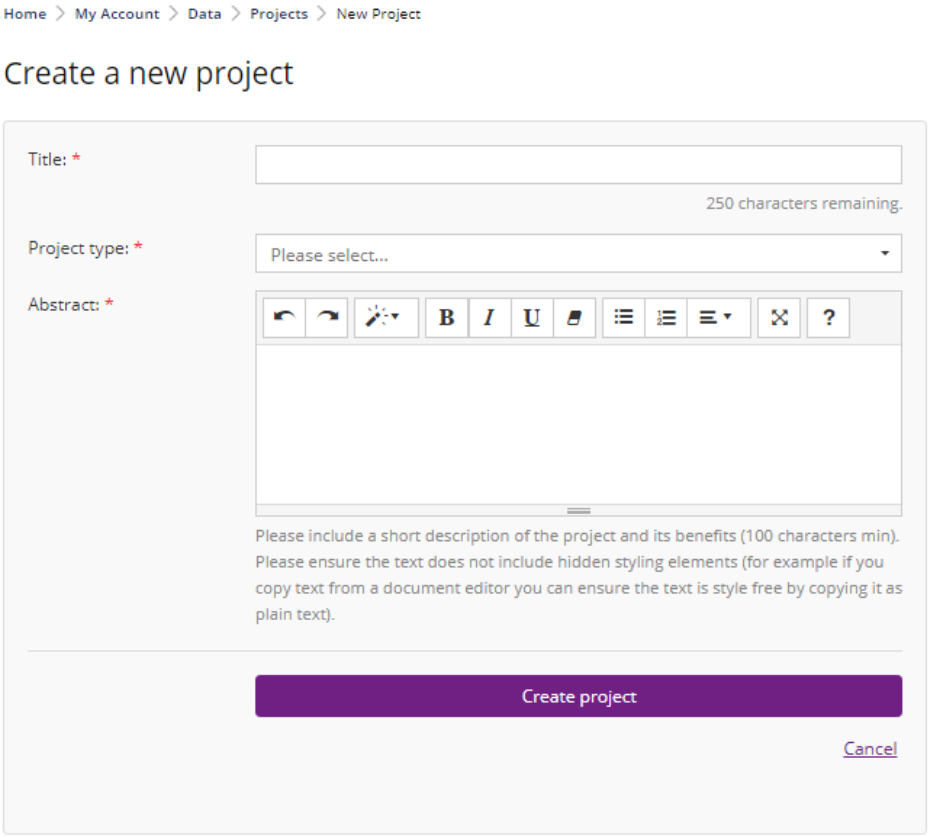
registering on the UK Data Service website, it is needed to add Young Lives: an International Study of Childhood Poverty: Rounds 1-5 Constructed Files, 2002-2016 into our account and add the dataset to a project.



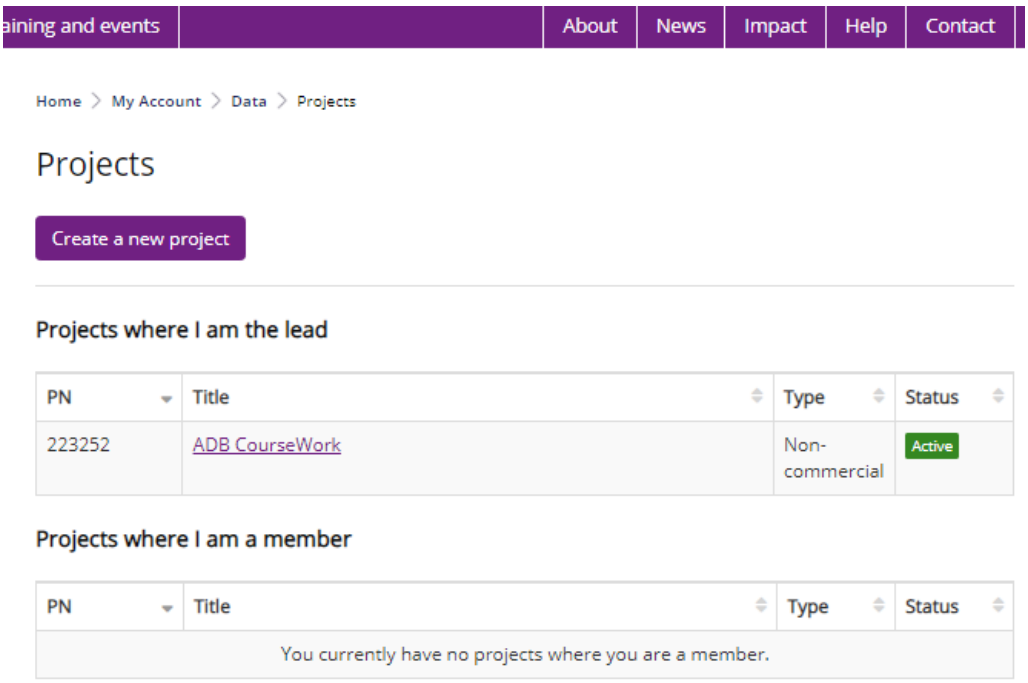
On this page, you create a project to assign the dataset to it.



After completing the new Project form including the Title, Project Type and Abstract a project will be created.

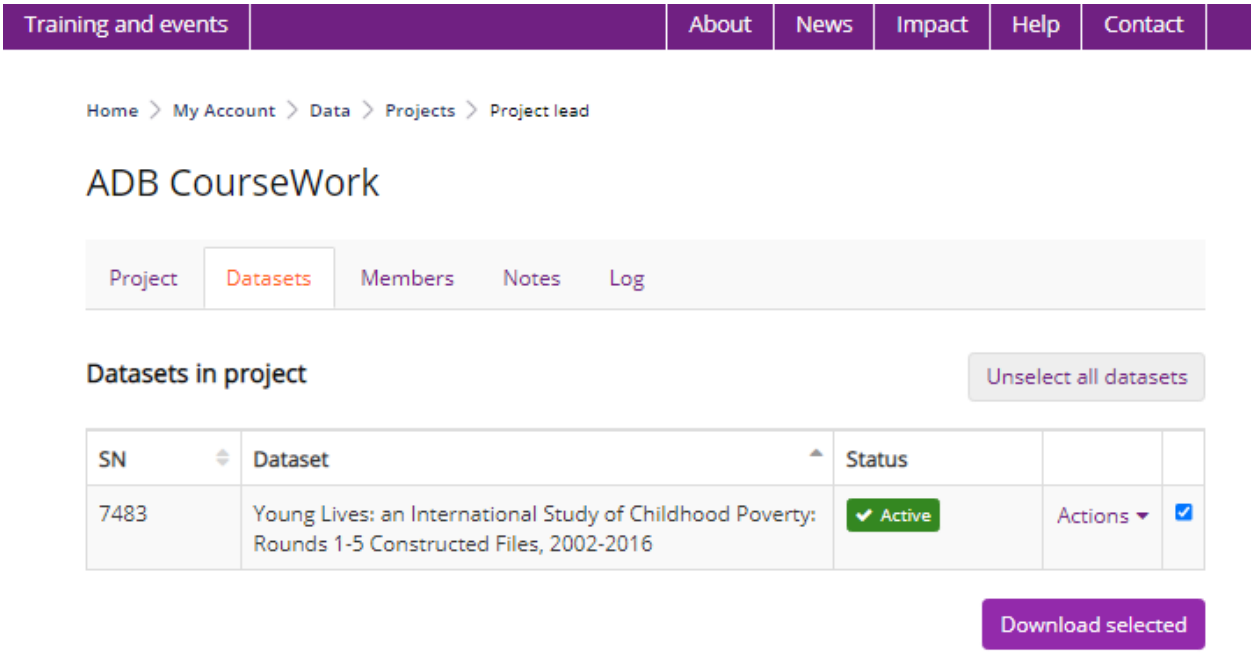


In this step the dataset is assigned to the project and we can access the dataset.

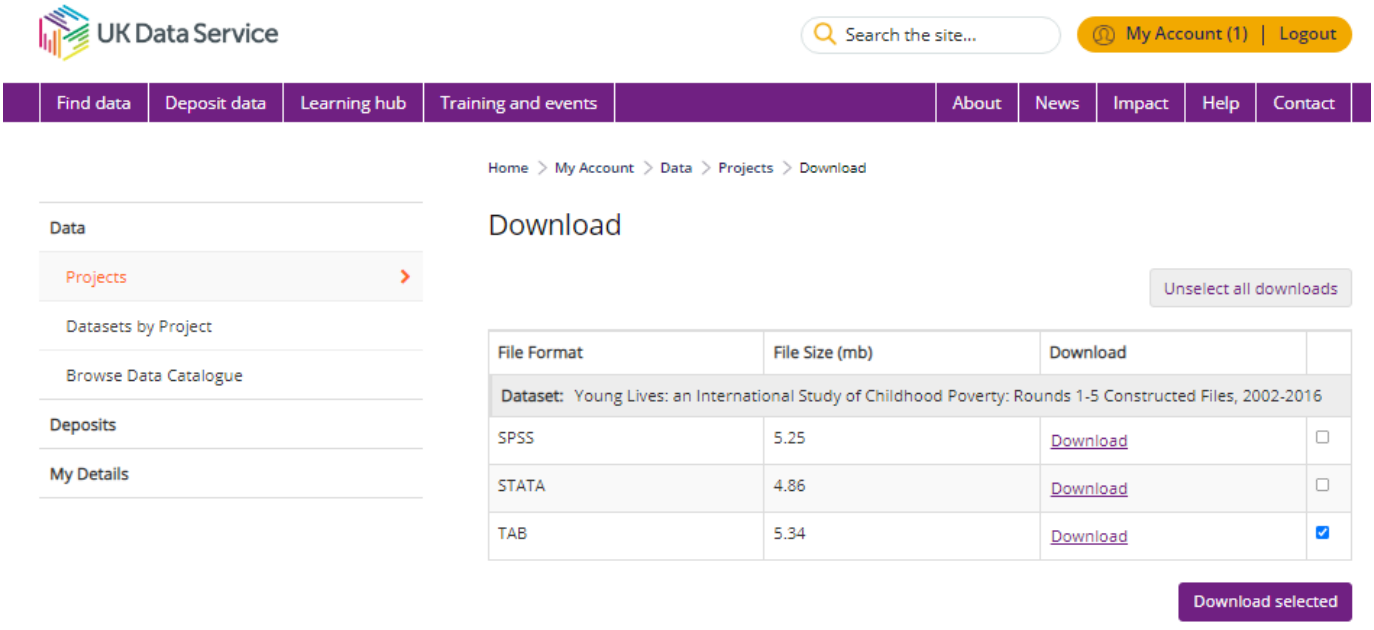


By clicking on the title of the project that has been created and selecting the “Datasets” tab, it is

possible to download the Young Lives dataset.



There are three different file formats to download. Only TAB file format is needed.



4.2 Converting Tab Files into CSV Files

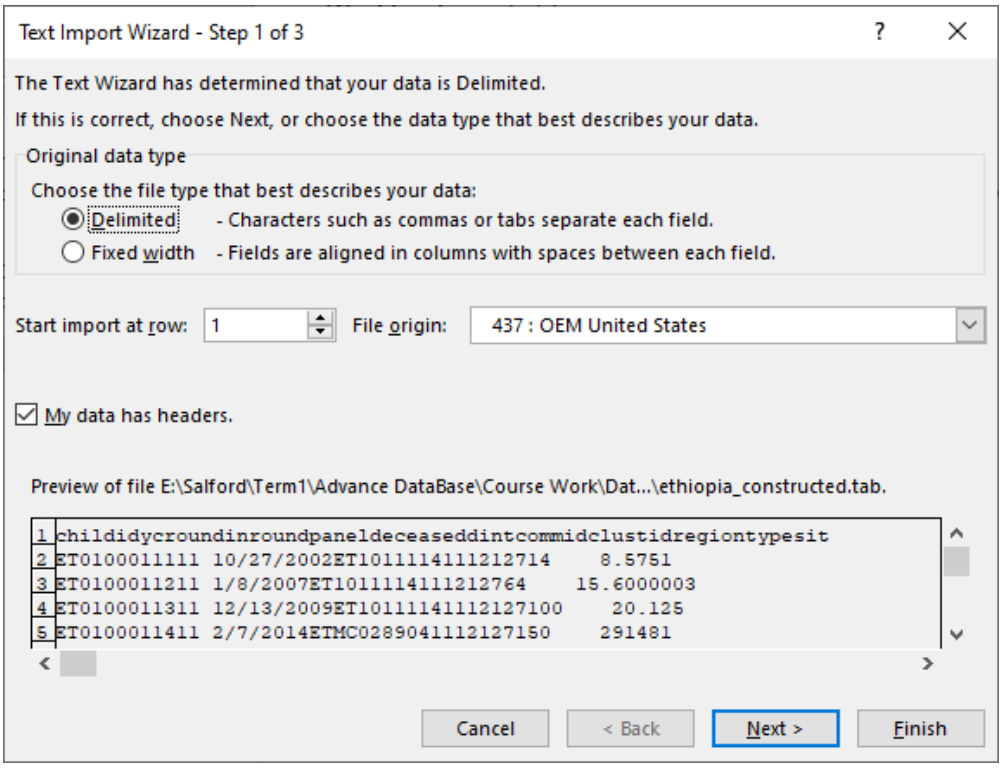
After downloading the TAB file format, we have a zip file that needs to extract. After extracting that zip file, we have got a folder named “UKDA-7483-tab” in which there is another folder named “tab”.

Name	Date modified	Type	Size
code	3/15/2022 5:46 PM	File folder	
mrdoc	3/15/2022 5:46 PM	File folder	
tab	3/15/2022 5:46 PM	File folder	
7483_file_information.rtf	8/25/2021 10:06 AM	Rich Text Format	61 KB
read7483.htm	8/25/2021 10:06 AM	Microsoft Edge H...	3 KB

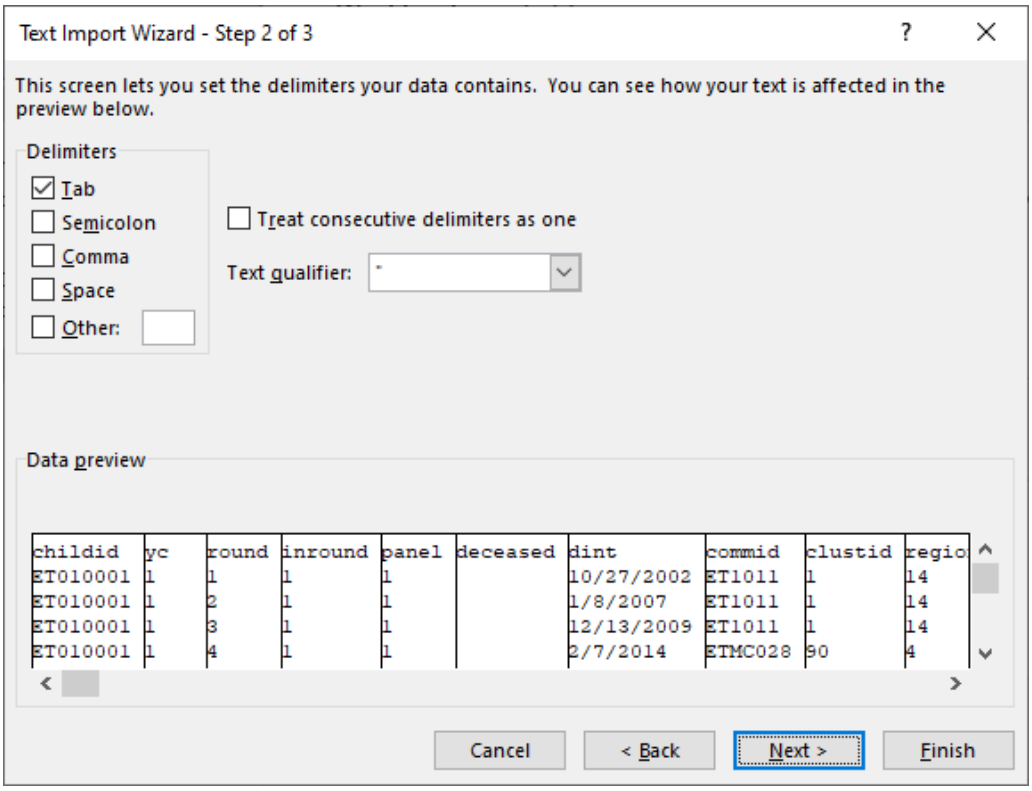
In the “tab” folder, there are four-tab files which are the data for Ethiopia, India, Peru and Vietnam.

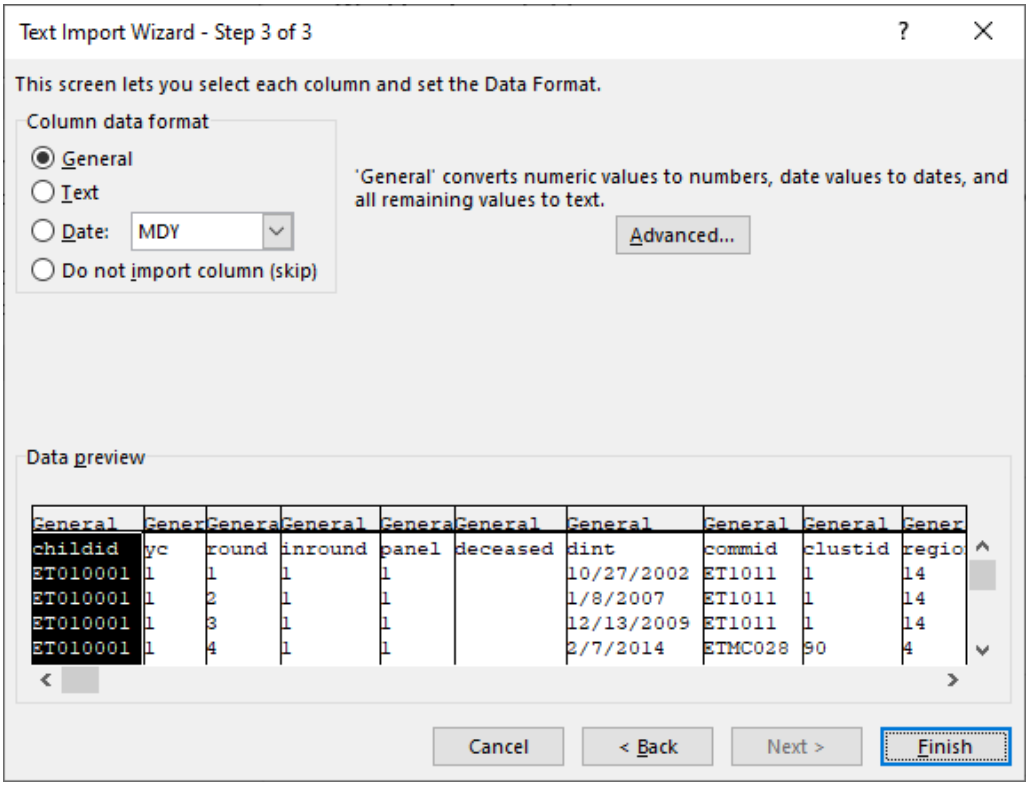
Name	Date modified	Type	Size
ethiopia_constructed.tab	8/25/2021 10:06 AM	TAB File	7,800 KB
india_constructed.tab	8/25/2021 10:06 AM	TAB File	8,373 KB
peru_constructed.tab	8/25/2021 10:06 AM	TAB File	7,251 KB
vietnam_constructed.tab	8/25/2021 10:06 AM	TAB File	8,228 KB

All these files have to be imported into the SQL SERVER database. It is not possible to import tab files into SQL Server. Due to this, they have to be saved as CSV files to be able to import them as Flat files.
To save the tab files as a CSV file the following steps have been done.
After opening an excel file and selecting a tab file, the Delimited file with a header have to be selected.

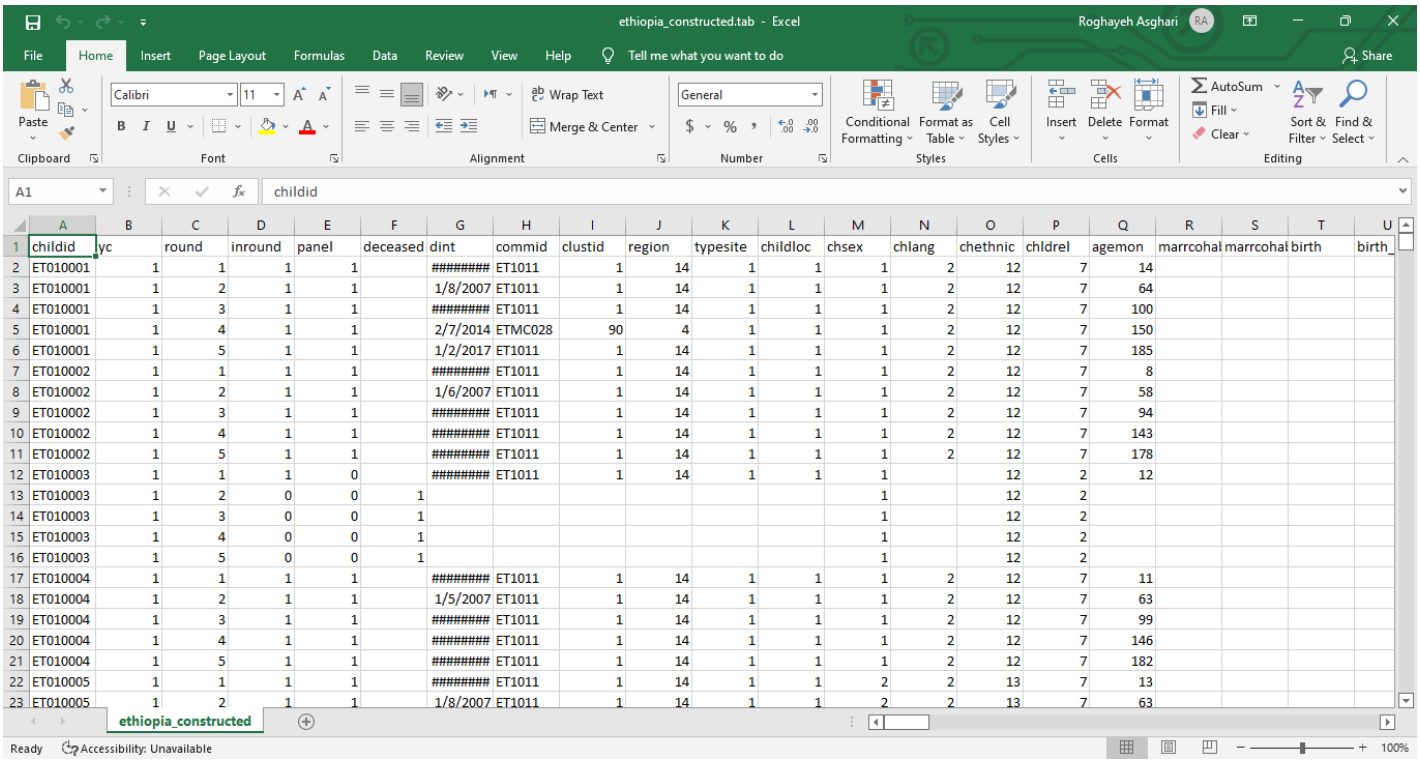


Since Delimiters of the file are Tab the Tab option is selected.

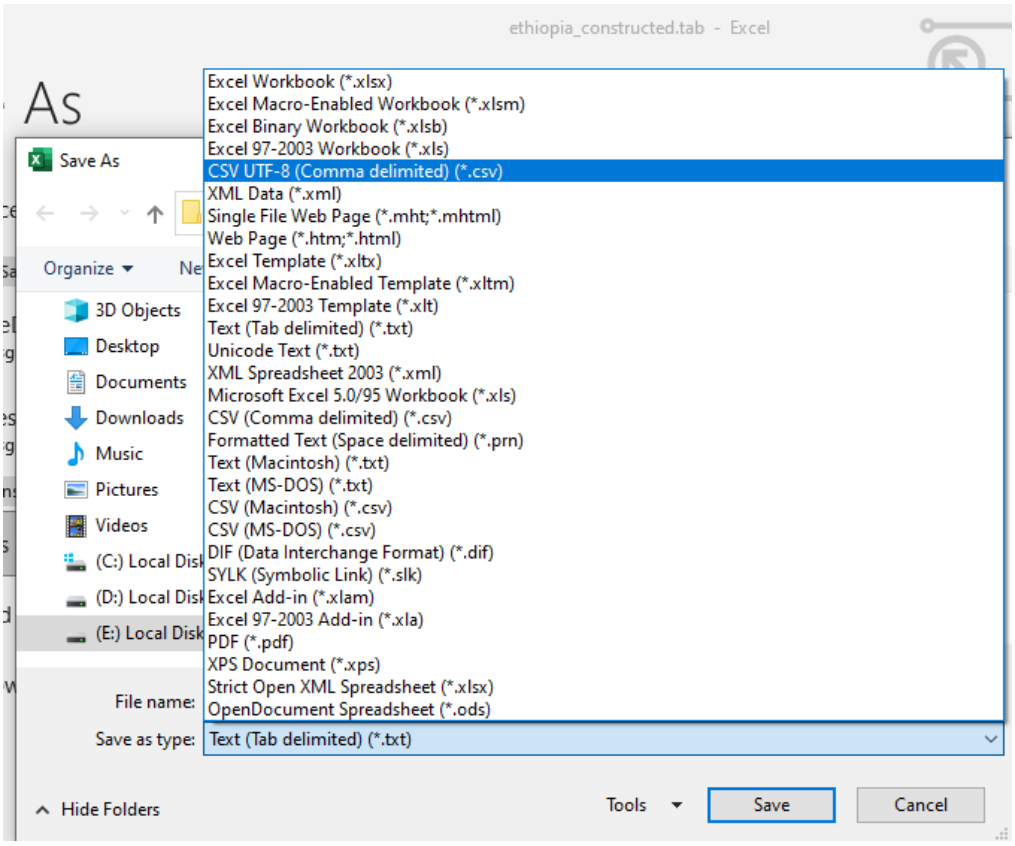




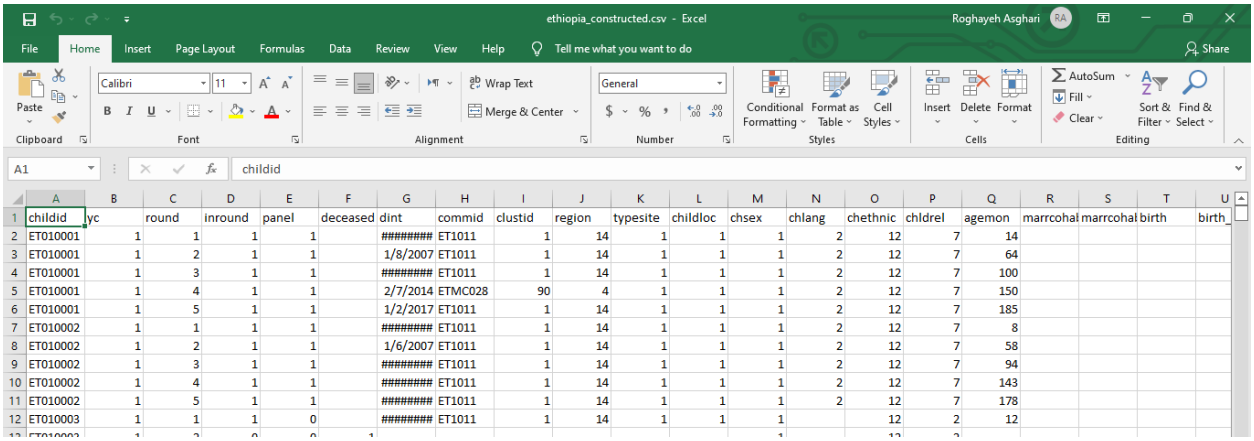
Now the tab file has been opened.



To convert it to CSV format. Select Save As option in the File Menu. Then select CSV format in the Save as type dropdown list.

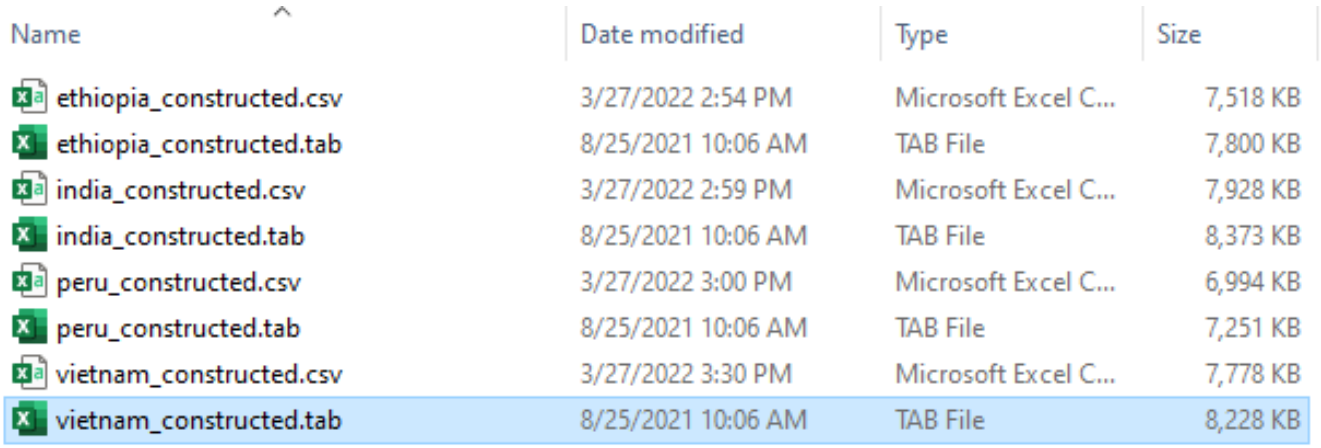


And then choose a file name. Now we have a CSV file.



childid	yc	round	inround	panel	deceased	dint	commid	clustid	region	typesite	childloc	chsex	chlang	chethnic	chldrel	agemon	marrcohal	marrcohal	birth	birth_
ET010001	1	1	1	1		########	ET1011	1	14	1	1	1	2	12	7	14				
ET010001	1	2	1	1		1/8/2007	ET1011	1	14	1	1	1	2	12	7	64				
ET010001	1	3	1	1		########	ET1011	1	14	1	1	1	2	12	7	100				
ET010001	1	4	1	1		2/7/2014	ETMC028	90	4	1	1	1	2	12	7	150				
ET010001	1	5	1	1		1/2/2017	ET1011	1	14	1	1	1	2	12	7	185				
ET010002	1	1	1	1		########	ET1011	1	14	1	1	1	2	12	7	8				
ET010002	1	2	1	1		1/6/2007	ET1011	1	14	1	1	1	2	12	7	58				
ET010002	1	3	1	1		########	ET1011	1	14	1	1	1	2	12	7	94				
ET010002	1	4	1	1		########	ET1011	1	14	1	1	1	2	12	7	143				
ET010002	1	5	1	1		########	ET1011	1	14	1	1	1	2	12	7	178				
ET010003	1	1	1	0		########	ET1011	1	14	1	1	1		12	2	12				

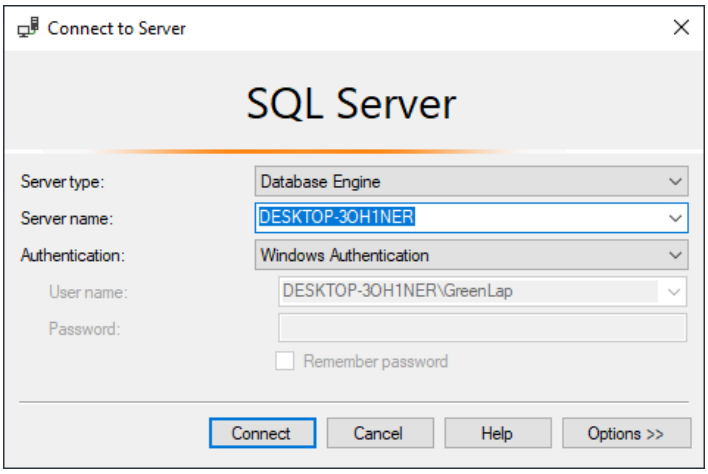
B Repeating these steps for the other three files and save them as CSV files, we will have three CSV file.



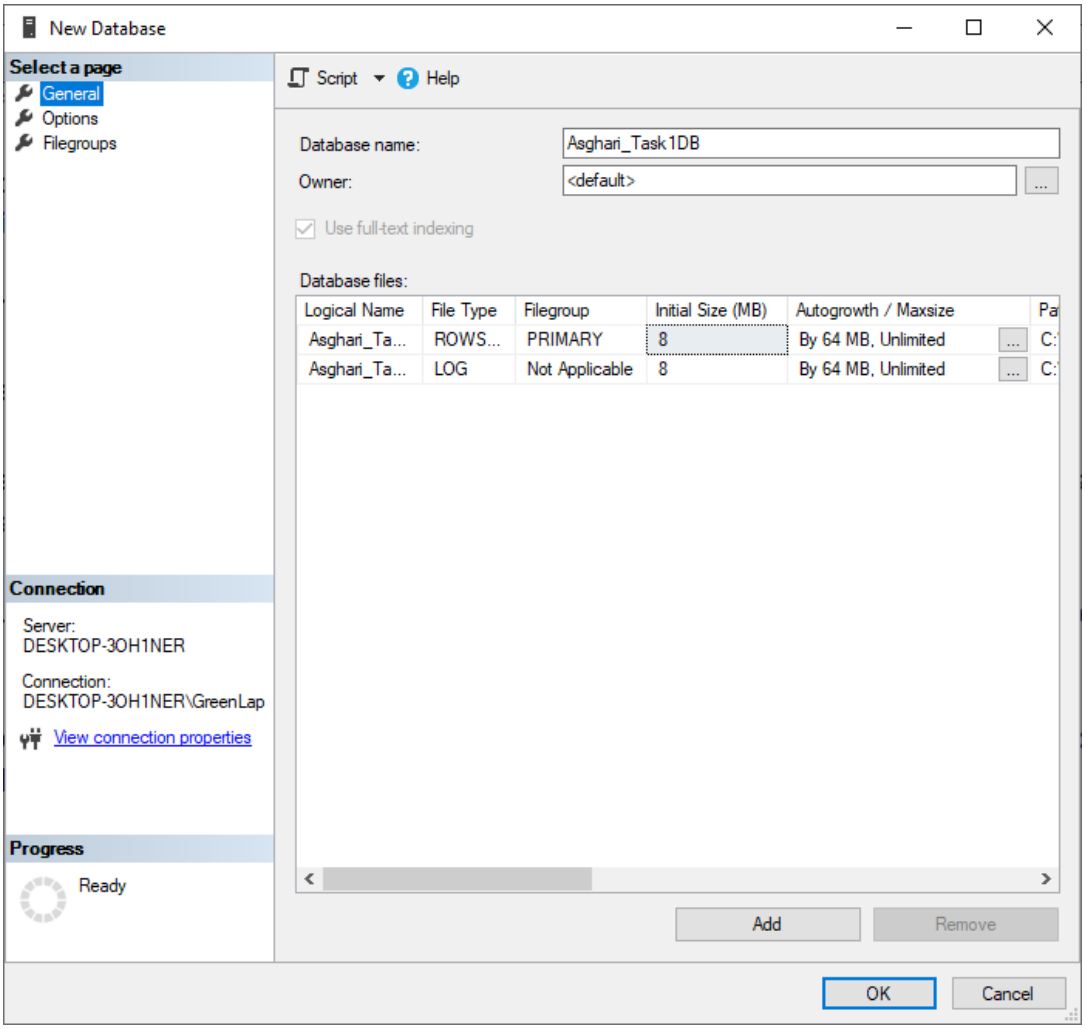
Name	Date modified	Type	Size
ethiopia_constructed.csv	3/27/2022 2:54 PM	Microsoft Excel C...	7,518 KB
ethiopia_constructed.tab	8/25/2021 10:06 AM	TAB File	7,800 KB
india_constructed.csv	3/27/2022 2:59 PM	Microsoft Excel C...	7,928 KB
india_constructed.tab	8/25/2021 10:06 AM	TAB File	8,373 KB
peru_constructed.csv	3/27/2022 3:00 PM	Microsoft Excel C...	6,994 KB
peru_constructed.tab	8/25/2021 10:06 AM	TAB File	7,251 KB
vietnam_constructed.csv	3/27/2022 3:30 PM	Microsoft Excel C...	7,778 KB
vietnam_constructed.tab	8/25/2021 10:06 AM	TAB File	8,228 KB

4.3 Creating a SQL Server Database

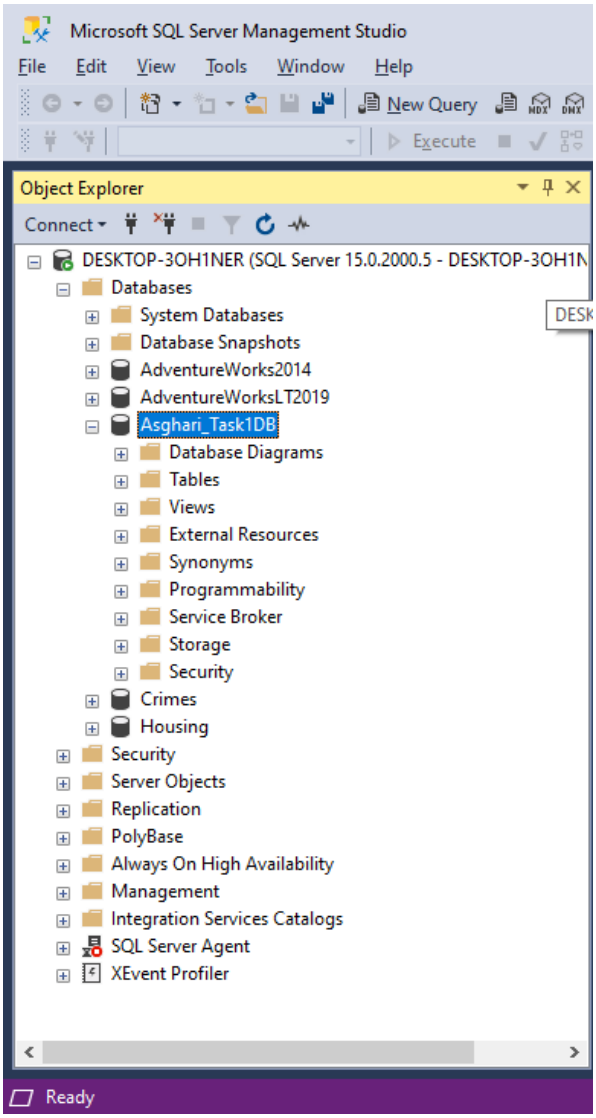
To Import data into SQL SERVER, we need a database. The following steps describe creating a database in SQL SERVER. At first, connect to Microsoft SQL Server Management Studio.



Then in Object Explorer, right-click on Databases and choose New Database. Choose a name for the database and click on the OK button.

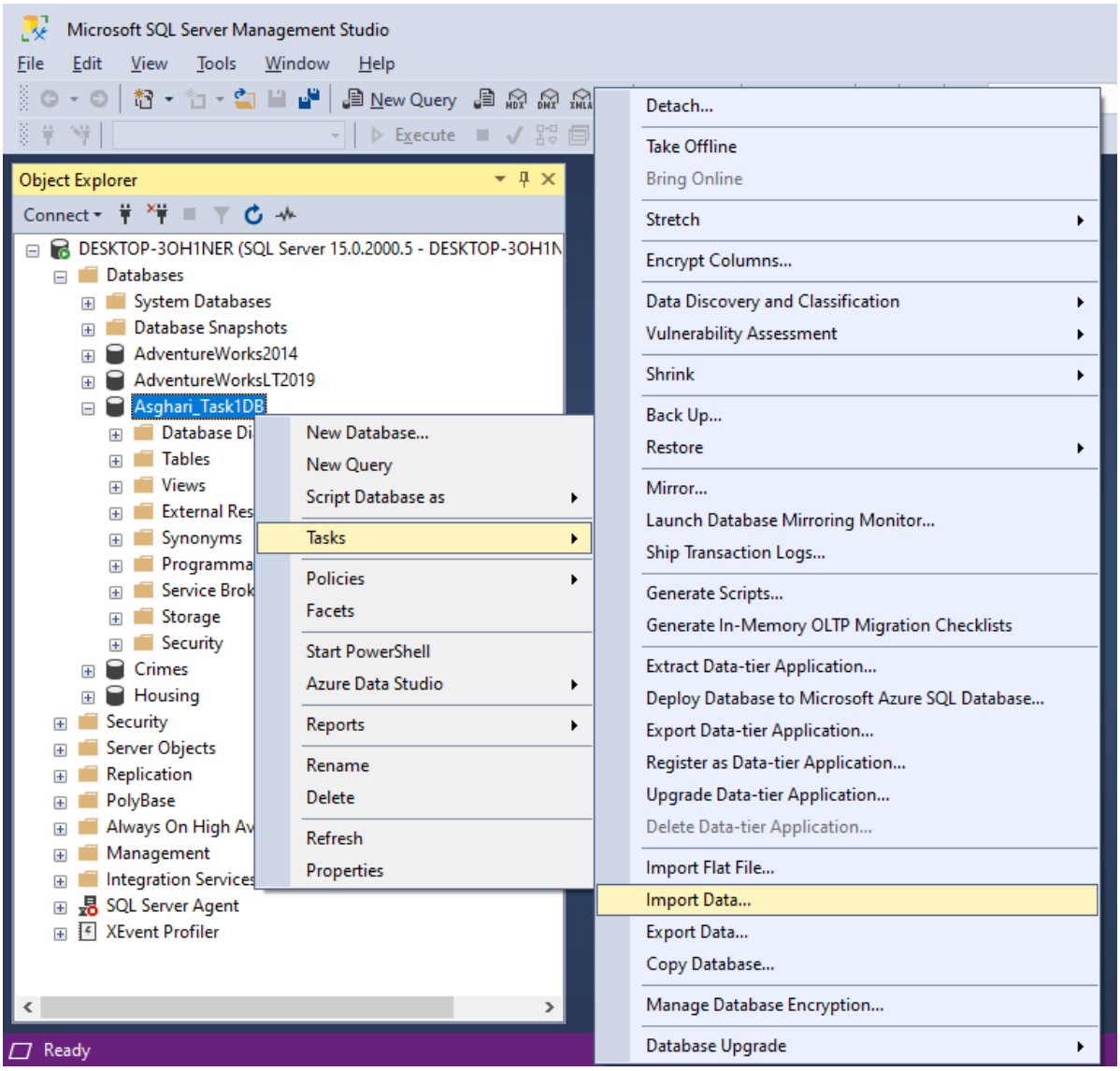


In the object explorer, we can see the created database now.

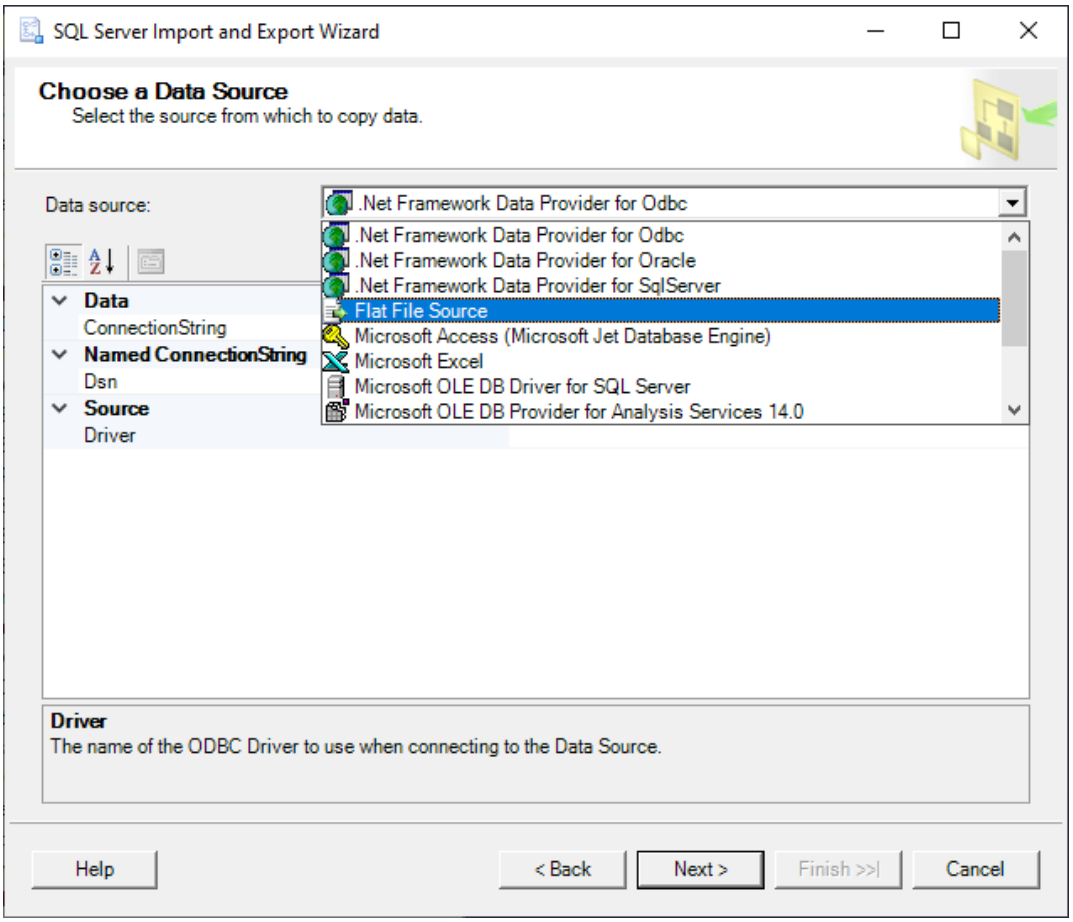


4.4 Importing CSV files to the database

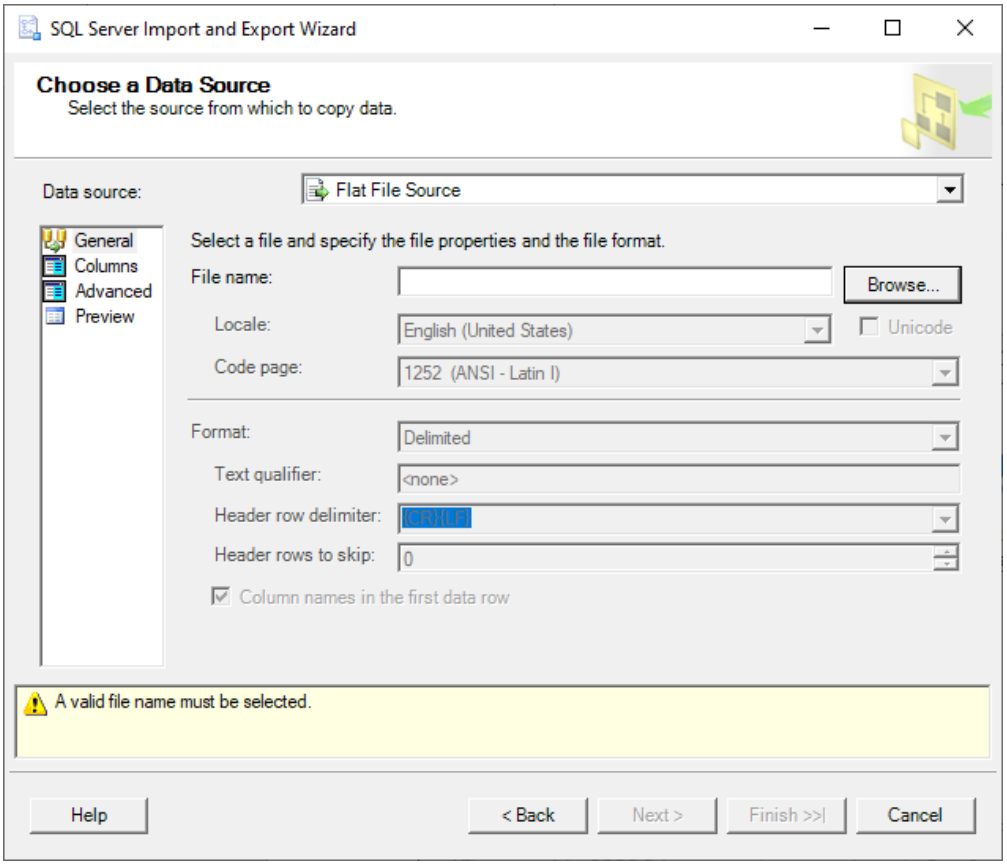
The following steps explain importing CSV files to the database:
Right-click on the database, select Tasks and then Import data.

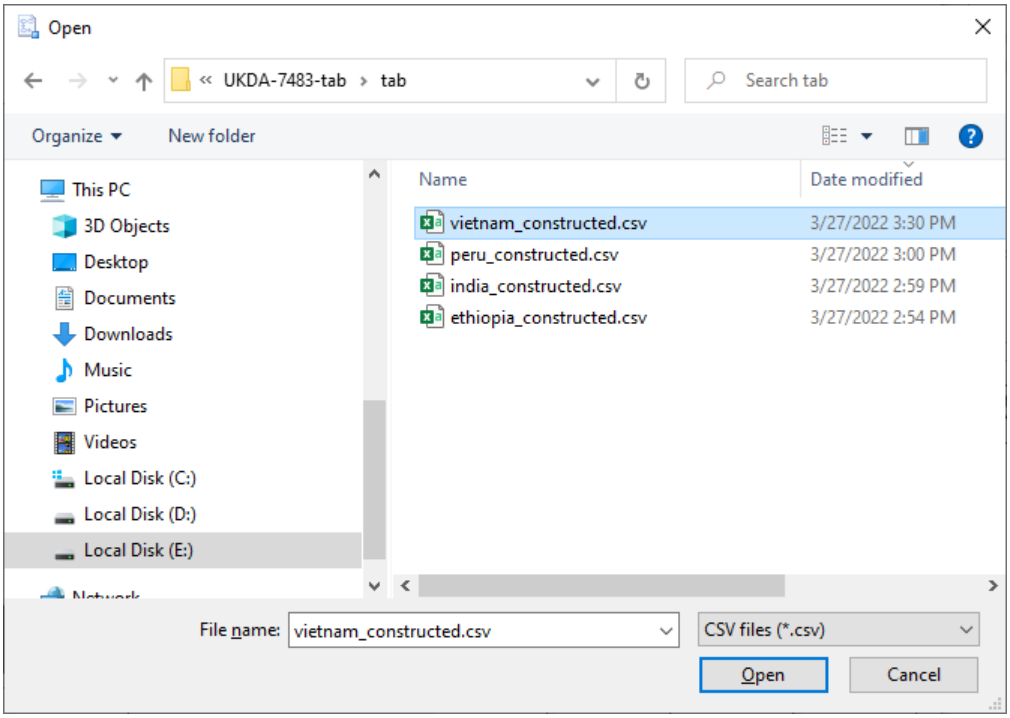


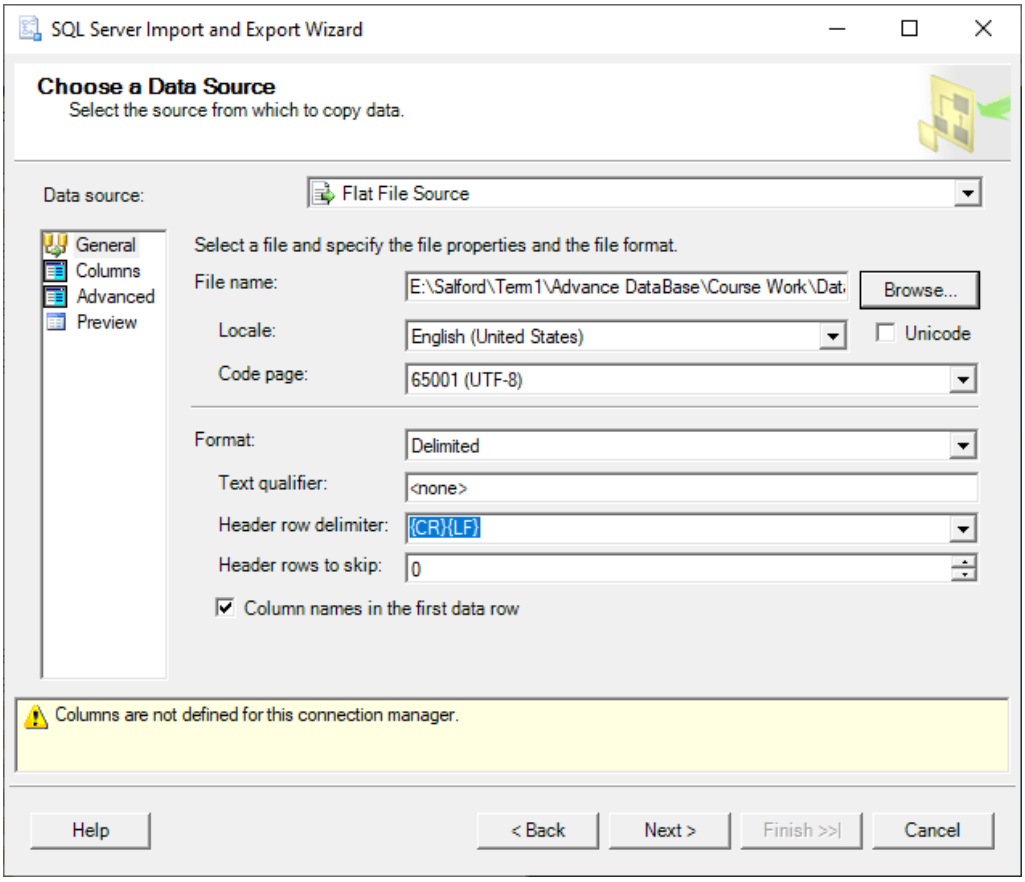
Choose Flat File Source as a Data Source.



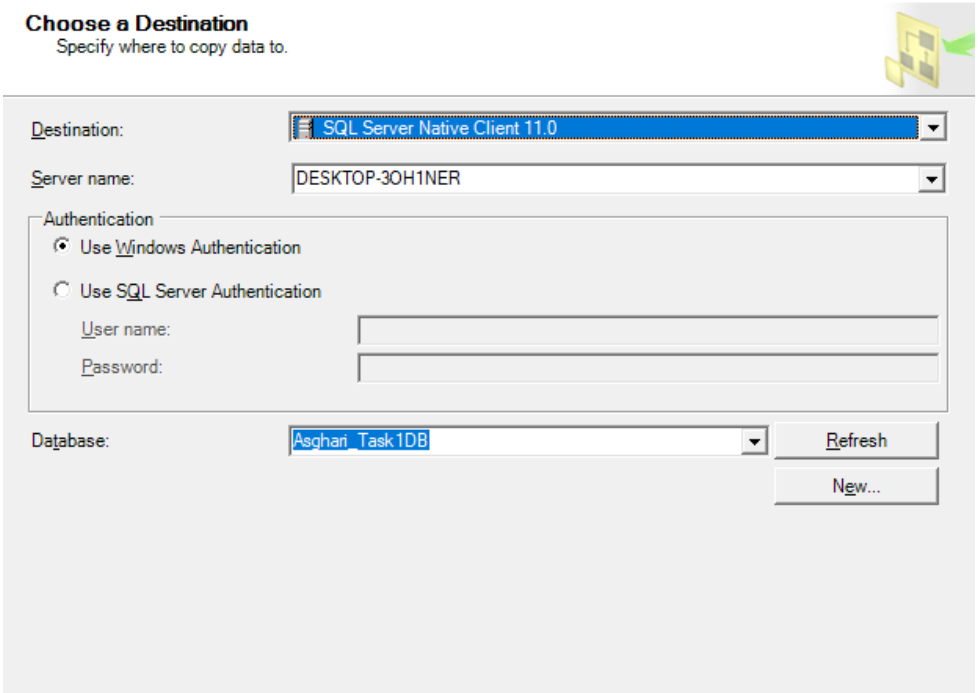
Click on the Browse button and select a CSV file.


SQL Server Import and Export Wizard
Choose a Data Source
Select the source from which to copy data.
Data source:
Flat File Source
General
Columns
Advanced
Preview
Select a file and specify the file properties and the file format.
File name:
Browse...
Locale:
English (United States)
Unicode
Code page:
1252 (ANSI - Latin I)
Format:
Delimited
Text qualifier:
<none>
Header row delimiter:
{CR}{LF}
Header rows to skip:
0
Column names in the first data row
A valid file name must be selected.
Help
< Back
Next >
Finish >>|
Cancel

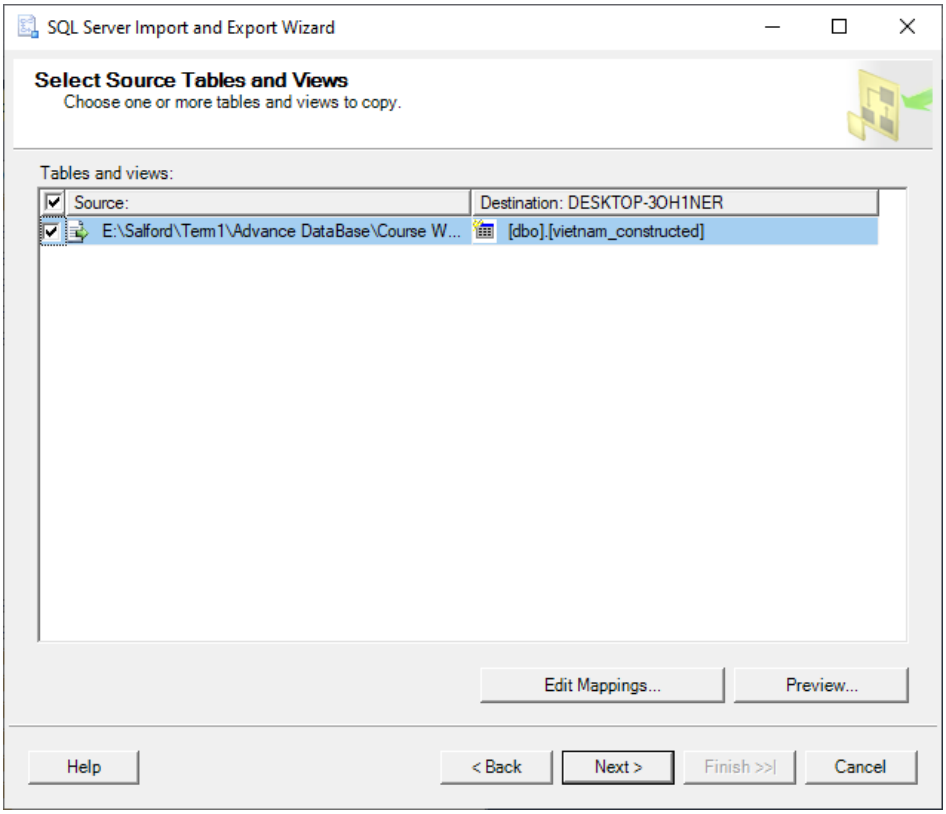

Open
« UKDA-7483-tab › tab
Search tab
Organize
New folder
This PC
3D Objects
Desktop
Documents
Downloads
Music
Pictures
Videos
Local Disk (C:)
Local Disk (D:)
Local Disk (E:)
Name
Date modified
vietnam_constructed.csv
3/27/2022 3:30 PM
peru_constructed.csv
3/27/2022 3:00 PM
india_constructed.csv
3/27/2022 2:59 PM
ethiopia_constructed.csv
3/27/2022 2:54 PM
File name:
vietnam_constructed.csv
CSV files (*.csv)
Open
Cancel



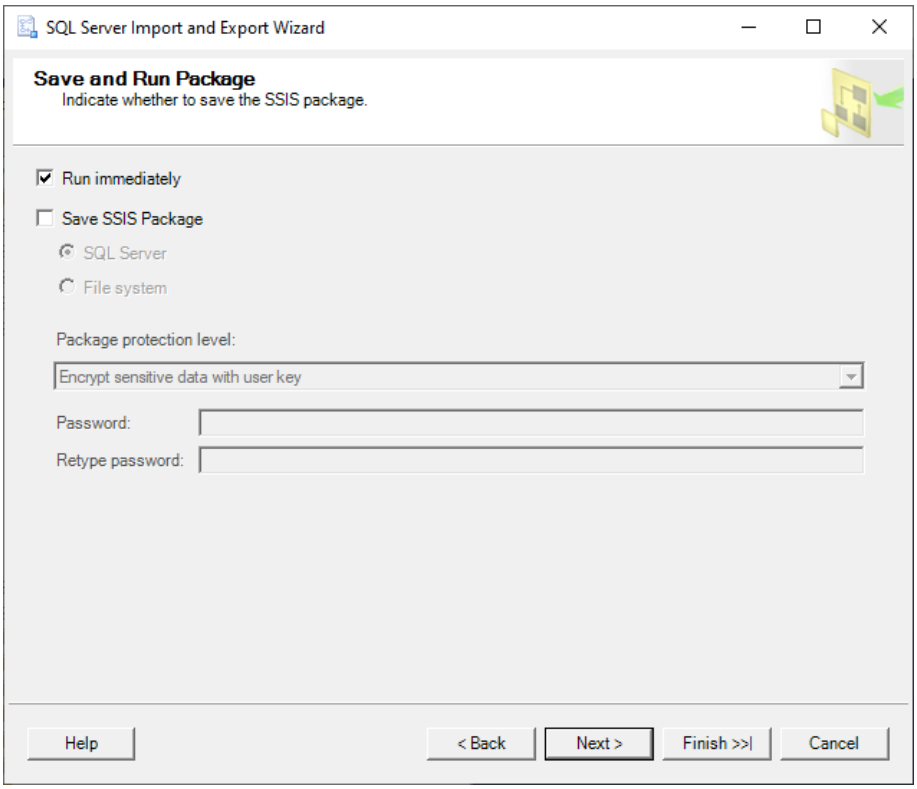
Click on the Next Button. Then in the destination part, select SQL Server Native Client.

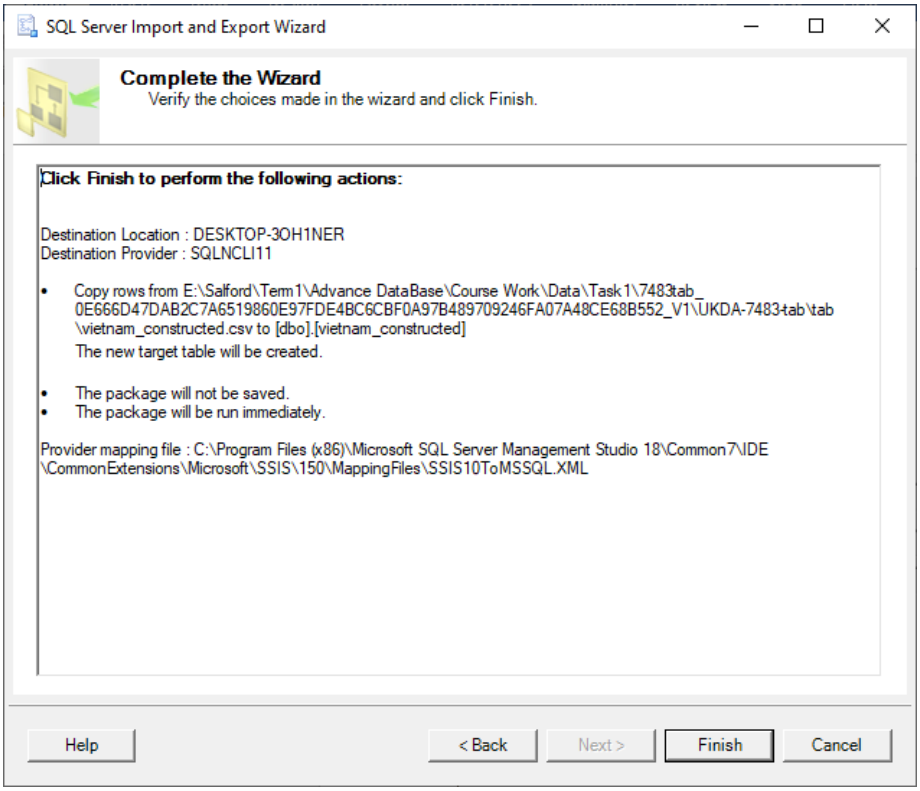


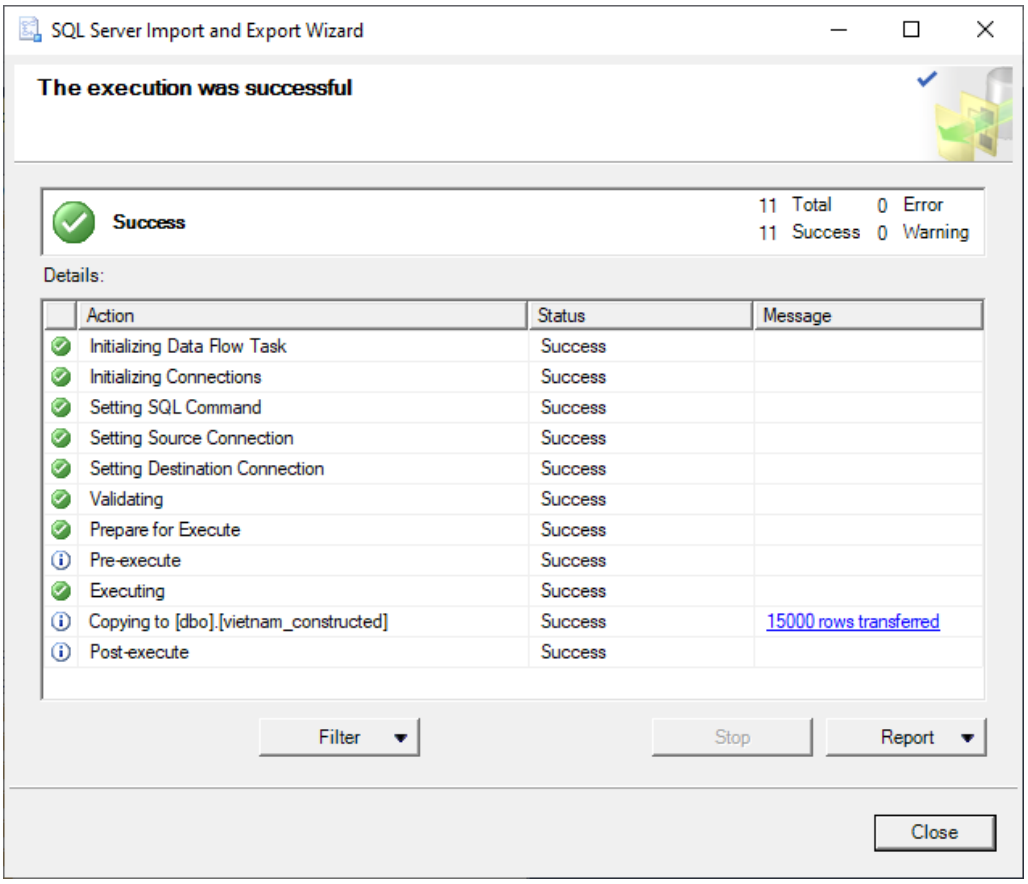
select a name for the table.



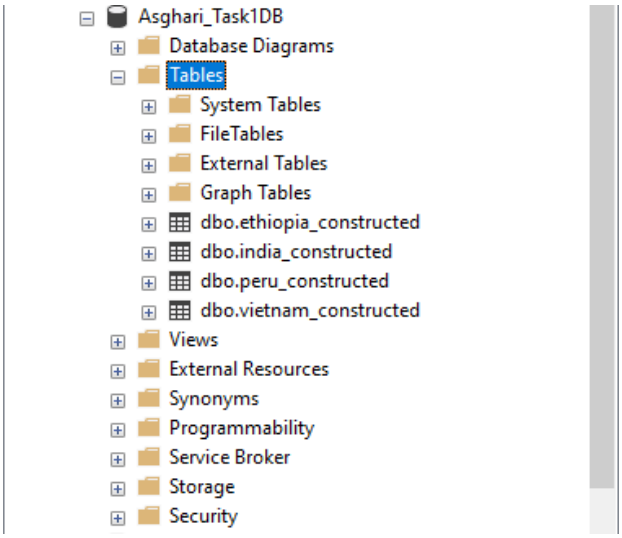
In the following steps, select Next and Finish.


SQL Server Import and Export Wizard
Save and Run Package
Indicate whether to save the SSIS package.
Run immediately
Save SSIS Package
SQL Server
File system
Package protection level:
Encrypt sensitive data with user key
Password:
Retype password:
Help
< Back
Next >
Finish >>|
Cancel

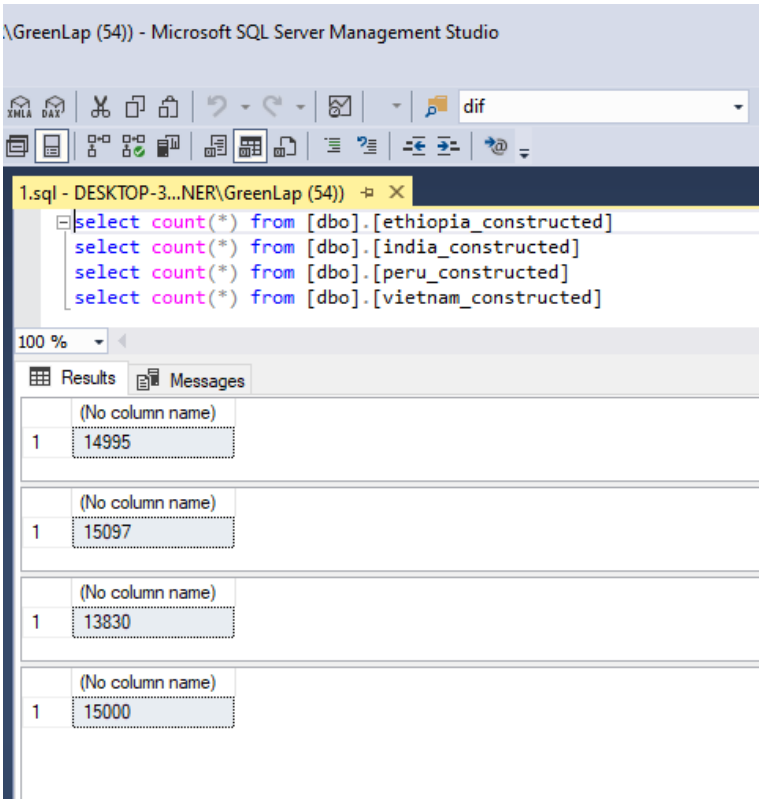

SQL Server Import and Export Wizard
Complete the Wizard
Verify the choices made in the wizard and click Finish.
Click Finish to perform the following actions:
Destination Location : DESKTOP-3OH1NER
Destination Provider : SQLNCLI11
Copy rows from E:\Salford\Term1\Advance DataBase\Course Work\Data\Task1\7483tab_0E666D47DAB2C7A6519860E97FDE4BC6CBF0A97B489709246FA07A48CE68B552_V1\UKDA-7483-tab\tab\vietnam_constructed.csv to [dbo].[vietnam_constructed]
The new target table will be created.
The package will not be saved.
The package will be run immediately.
Provider mapping file : C:\Program Files (x86)\Microsoft SQL Server Management Studio 18\Common7\IDE\CommonExtensions\Microsoft\SSIS\150\MappingFiles\SSIS10ToMSSQL.XML
Help
< Back
Next >
Finish
Cancel



Continue these steps for the other CSV files to create all tables in the database.



Once all CSV files were transferred into SQL Server, we check the table's count with the count of CSV files.



5 T-SQL Statements

5.1 Tables

5.1.1 [dbo].[Absolute_Deprivation_Percentage]

This procedure are created in `[dbo].[sp_Absolute_Deprivation]`. This table describe the number and percentage of absolute poverty by gender and country.

```
USE [Asghari_Task1DB]
GO

/****** Object:  Table [dbo].[Absolute_Deprivation_Percentage]    Script Date: 5/13/2022 5:30:19 PM ******/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO

CREATE TABLE [dbo].[Absolute_Deprivation_Percentage](
    [country_flg] [int] NOT NULL,
    [country] [varchar](8) NOT NULL,
    [male_absolute_dep_cnt] [int] NULL,
    [female_absolute_dep_cnt] [int] NULL,
    [all_absolute_dep_cnt] [int] NULL,
    [male_absolute_dep_perc] [decimal](38, 2) NULL,
    [female_absolute_dep_perc] [decimal](38, 2) NULL,
    [all_absolute_dep_perc] [decimal](38, 2) NULL
) ON [PRIMARY]
GO
```

5.1.2 [dbo].[Ethiopia_constructed]:

Ethiopia_constructed.tab has been imported to the table.

5.1.3 [dbo].[India_constructed]

India_constructed .tab has been imported to the table.

5.1.4 [dbo].[Peru_constructed]

Peru_constructed.tab has been imported to the table.

5.1.5 [dbo].[Vietnam_constructed]

Vietnam_constructed .tab has been imported to the table.

5.1.6 [dbo].[Severe_Deprivation_Percentage]

```
USE [Asghari_Task1DB]
GO

/****** Object:  Table [dbo].[Severe_Deprivation_Percentage]    Script Date: 5/13/2022 5:47:20 PM ******/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO

CREATE TABLE [dbo].[Severe_Deprivation_Percentage](
    [country_flg] [int] NOT NULL,
    [country] [varchar](8) NOT NULL,
    [male_severe_dep_cnt] [int] NULL,
    [female_severe_dep_cnt] [int] NULL,
    [all_severe_dep_cnt] [int] NULL,
    [male_severe_dep_perc] [decimal](38, 2) NULL,
    [female_severe_dep_perc] [decimal](38, 2) NULL,
    [all_severe_dep_perc] [decimal](38, 2) NULL
) ON [PRIMARY]
GO
```

5.1.7 [dbo].[Severe_Deprivation_Total_Percentage]

```
USE [Asghari_Task1DB]
GO

/****** Object:  Table [dbo].[Severe_Deprivation_Total_Percentage]    Script Date: 5/13/2022 5:49:53 PM ******/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO

CREATE TABLE [dbo].[Severe_Deprivation_Total_Percentage](
    [Deprivation] [varchar](28) NOT NULL,
    [Deprivation_percentage] [decimal](38, 2) NULL
) ON [PRIMARY]
GO

```

5.1.8 [dbo].[Severe_Education_Deprivation_Percentage]

```
USE [Asghari_Task1DB]
GO

/****** Object:  Table [dbo].[Severe_Education_Deprivation_Percentage]    Script Date: 5/13/2022 5:50:42 PM ******/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO

CREATE TABLE [dbo].[Severe_Education_Deprivation_Percentage](
    [country_flg] [int] NOT NULL,
    [country] [varchar](8) NOT NULL,
    [male_cnt] [int] NULL,
    [female_cnt] [int] NULL,
    [all_cnt] [int] NULL,
    [male_perc] [decimal](38, 2) NULL,
    [female_perc] [decimal](38, 2) NULL,
    [all_perc] [decimal](38, 2) NULL
) ON [PRIMARY]
GO
```

5.1.9 [dbo].[Severe_Food_Deprivation_Percentage]

```
USE [Asghari_Task1DB]
GO

/****** Object:  Table [dbo].[Severe_Food_Deprivation_Percentage]    Script Date: 5/13/2022 5:51:29 PM ******/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO

CREATE TABLE [dbo].[Severe_Food_Deprivation_Percentage](
    [country_flg] [int] NOT NULL,
    [country] [varchar](8) NOT NULL,
    [male_cnt] [int] NULL,
    [female_cnt] [int] NULL,
    [all_cnt] [int] NULL,
    [male_perc] [decimal](38, 2) NULL,
    [female_perc] [decimal](38, 2) NULL,
    [all_perc] [decimal](38, 2) NULL
) ON [PRIMARY]
GO
```

5.1.10 [dbo].[Severe_Health_Deprivation_Percentage]

```
USE [Asghari_Task1DB]
GO

/****** Object:  Table [dbo].[Severe_Health_Deprivation_Percentage]    Script Date: 5/13/2022 5:52:12 PM ******/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO

CREATE TABLE [dbo].[Severe_Health_Deprivation_Percentage](
    [country_flg] [int] NOT NULL,
    [country] [varchar](8) NOT NULL,
    [male_cnt] [int] NULL,
    [female_cnt] [int] NULL,
    [all_cnt] [int] NULL,
    [male_perc] [decimal](38, 2) NULL,
    [female_perc] [decimal](38, 2) NULL,
    [all_perc] [decimal](38, 2) NULL
) ON [PRIMARY]
GO
```

5.1.11 [dbo].[Severe_Sanitation_Deprivation_Percentage]

```
USE [Asghari_Task1DB]
GO

/****** Object:  Table [dbo].[Severe_Water_Deprivation_Percentage]    Script Date: 5/13/2022 5:53:53 PM ******/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO

CREATE TABLE [dbo].[Severe_Water_Deprivation_Percentage](
    [country_flg] [int] NOT NULL,
    [country] [varchar](8) NOT NULL,
    [male_cnt] [int] NULL,
    [female_cnt] [int] NULL,
    [all_cnt] [int] NULL,
    [male_perc] [decimal](38, 2) NULL,
    [female_perc] [decimal](38, 2) NULL,
    [all_perc] [decimal](38, 2) NULL
) ON [PRIMARY]
GO
```

5.1.12 [dbo].[Severe_Water_Deprivation_Percentage]

```
USE [Asghari_Task1DB]
GO

/****** Object:  Table [dbo].[Severe_Sanitation_Deprivation_Percentage]    Script Date: 5/13/2022 5:53:06 PM ******/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO

CREATE TABLE [dbo].[Severe_Sanitation_Deprivation_Percentage](
    [country_flg] [int] NOT NULL,
    [country] [varchar](8) NOT NULL,
    [male_cnt] [int] NULL,
    [female_cnt] [int] NULL,
    [all_cnt] [int] NULL,
    [male_perc] [decimal](38, 2) NULL,
    [female_perc] [decimal](38, 2) NULL,
    [all_perc] [decimal](38, 2) NULL
) ON [PRIMARY]
GO
```

5.2 Views

5.2.1 [dbo].[view_AllCountries]

```sql
USE [Asghari_Task1DB]
GO

/****** Object:  View [dbo].[view_AllCountries]    Script Date: 5/13/2022 5:57:39 PM ******/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO



CREATE view [dbo].[view_AllCountries]
as

select *
from(
select * from [dbo].[view_Ethiopia]
union all
select * from [dbo].[view_India]
union all
select * from [dbo].[view_Peru]
union all
select * from [dbo].[view_Vietnam])k
where inround=1
GO
```

5.2.2 [dbo].[view_Ethiopia]

```sql
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE view [dbo].[view_Ethiopia]
as
select 1 country_flg ,'Ethiopia' country,[childid]
,[yc],case
when [yc]=0 then'Older cohort'
when [yc]=1 then'Younger cohort'
else 'unknown'
end [cohort_type]
,[round],[inround]
,case
when [inround]=0 then'no'
when [inround]=1 then'yes'
else 'unknown'
end [inround_desc]
,deceased,[panel12345],[typesite]
,case when [typesite]=1 then 'urban'
when [typesite]=2 then 'rural'
else 'unknown'
end [typesite_desc]
,[childloc],[chsex]
,case
when [chsex]=1 then 'male'
when [chsex]=2 then 'female'
else 'unknown'
end [chsex_desc]
```

109 %

```
end [chsex_desc]
,[agemon]--Child's age - in months
,[dbo].[Convert_agemon]([agemon])age--user defined function to convert age in month to age  in year
,[underweight]--low weight for age
,[stunting]--short height for age
,[thinness]--low BMI for age
,case when [underweight] = 0 then 'not'
when [underweight] =1 then 'moderate'
when [underweight]=2 then 'severe'
end [underweight_desc]

,case when [stunting] = 0 then'not'
when [stunting] =1 then'moderate'
when [stunting]=2 then'severe'
end [stunting_desc]

,case when [thinness] = 0 then'not'
when [thinness] =1 then'moderate'
when [thinness]=2 then'severe'
end [thinness_desc]
------Water Deprivation----------
,drwaterq
------Sanitation Facilities-----
,toiletq
/*-------------------Birth and immunisation variables*/
,bcg,measles,dpt,polio,hib
```

```
/*-------------------Child's health and well-being------------------*/
,chmightdie --Child has had serious injury/illness since last round when caregiver thought child might die
,chillness --Child has had serious illness since last round
,chinjury --Child has had serious injury since last round
,chhprob --Child has long-term health problem
,chdisability --Child has a permanent disability
,chdisscale --Permanent disability scale
/*chdisscale,
Value = 0.0 Label = Able to work same as others of this age
    Value = 1.0 Label = Capable of most types of full-time work but some difficulty with physical work
    Value = 2.0 Label = Able to work full-time but only work requiring no physical activity
    Value = 3.0 Label = Can only do light work on a part-time basis
    Value = 4.0 Label = Cannot work but able to care for themselves (e.g. dress themselves, etc.)
    Value = 5.0 Label = Cannot work and needs help with daily activities such as dressing, washing, etc.
    Value = 6.0 Label = Other

*/
 ,chhrel--Child's health compared to peers
  /*
Value = 1.0 Label = Same
Value = 2.0 Label = Better
Value = 3.0 Label = Worse
*/
```

```
*/
,chhealth--Child's health in general
/*
Value = 1.0 Label = very poor
    Value = 2.0 Label = poor
    Value = 3.0 Label = average
    Value = 4.0 Label = good
    Value = 5.0 Label = very good
*/
,cladder  -- Child's subjective well-being (nine-step ladder)
/*9 represents the 'best
possible life' and 1 'the worst possible life'
*/
/*----------------------Smoking and drinking habits and reproductive health knowledge variables*/

,chsmoke --Child's frequency of smoking
,chalcohol --Child consumes alcohol every day or at least once a week
,chrephealth1 --Child's knowledge of reproductive health
,chrephealth2 --Child knows condom can prevent disease through sex
,chrephealth3 --Child knows healthy-looking person can pass on a disease through sex
,chrephealth4 --Child's source of condom
```

```
/*----------------------Education and skills------------*/
,preprim --Child has attended pre-primary school
,agegr1 --Age at start of Grade 1
,enrol --Enrolled in formal school during survey year
,case
when enrol=0 then 'no'
when enrol=1 then 'yes'
when enrol=99 then 'missing'
when enrol= 77 then 'nk'
when enrol= 88 then 'n/a'
else ''
end enrol_desc
,engrade --Grade enrolled during survey year
,entype --Type of school enrolled during survey year
,hghgrade --Highest grade completed at time of interview
,timesch --Travel time to school (in minutes)
,levlread --Child's reading level
,case
when levlread= 1 then 'cant read anything'
when levlread= 2 then 'reads letters'
when levlread= 3 then 'reads word'
when levlread= 4 then 'reads sentence'
else ''
end readng_skill
,levlwrit --Child's writing level
,case
when levlwrit= 1 then 'no'
when levlwrit= 2 then 'yes with difficulty or errors'
```

```
when levlwrit= 3 then 'yes without difficulty or errors'
else ''
end writing_skill
,literate --Child can read and write a sentence without difficulty
from [Asghari_Task1DB].[dbo].[Ethiopia_constructed] e
where [inround]=1

GO
```

5.2.3 [dbo].[view_India]

```
USE [Asghari_Task1DB]
GO
/****** Object:  View [dbo].[view_India]    Script Date: 5/13/2022 6:08:40 PM ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE view [dbo].[view_India]
as
select 2 country_flg ,'India' country,[childid],[yc]
,case
when [yc]=0 then'Older cohort'
when [yc]=1 then'Younger cohort'
else 'unknown'
end [cohort_type]
,[round],[inround]
,case
when [inround]=0 then'no'
when [inround]=1 then'yes'
else 'unknown'
end [inround_desc]
,deceased
,[panel12345]
,[typesite]
,case when [typesite]=1 then 'urban'
when [typesite]=2 then 'rural'
```

120 %

```
else 'unknown'
end [typesite_desc]
,[childloc],[chsex]
,case
when [chsex]=1 then 'male'
when [chsex]=2 then 'female'
else 'unknown'
end [chsex_desc]
,[agemon]--Child's age - in months
,[dbo].[Convert_agemon]([agemon])age--user defined function to convert age in month to age  in year
,[underweight]--low weight for age
,[stunting]--short height for age
,[thinness]--low BMI for age
,case when [underweight] = 0 then 'not'
when [underweight] =1 then 'moderate'
when [underweight]=2 then 'severe'
end [underweight_desc]
,case when [stunting] = 0 then'not'
when [stunting] =1 then'moderate'
when [stunting]=2 then'severe'
end [stunting_desc]
,case when [thinness] = 0 then'not'
when [thinness] =1 then'moderate'
when [thinness]=2 then'severe'
```

120 %

```
end [thinness_desc]
------Water Deprivation----------
,drwaterq
------Sanitation Facilities-----
,toiletq
/*-------------------Birth and immunisation variables*/
,bcg
,measles
,dpt
,polio
,hib
/*-------------------Child's health and well-being------------------*/
,chmightdie --Child has had serious injury/illness since last round when caregiver thought child might die
,chillness --Child has had serious illness since last round
,chinjury --Child has had serious injury since last round
,chhprob --Child has long-term health problem
,chdisability --Child has a permanent disability
,chdisscale --Permanent disability scale
/*chdisscale,
Value = 0.0 Label = Able to work same as others of this age
    Value = 1.0 Label = Capable of most types of full-time work but some difficulty with physical work
    Value = 2.0 Label = Able to work full-time but only work requiring no physical activity
    Value = 3.0 Label = Can only do light work on a part-time basis
    Value = 4.0 Label = Cannot work but able to care for themselves (e.g. dress themselves, etc.)
    Value = 5.0 Label = Cannot work and needs help with daily activities such as dressing, washing, etc.
    Value = 6.0 Label = Other
```

120 %

```
78  */
79   ,chhrel--Child's health compared to peers
80   /*
81  Value = 1.0 Label = Same
82  Value = 2.0 Label = Better
83  Value = 3.0 Label = Worse
84  */
85  ,chhealth--Child's health in general
86  /*
87  Value = 1.0 Label = very poor
88      Value = 2.0 Label = poor
89      Value = 3.0 Label = average
90      Value = 4.0 Label = good
91      Value = 5.0 Label = very good
92  */
93  ,cladder  -- Child's subjective well-being (nine-step ladder)
94  /*9 represents the 'best
95  possible life' and 1 'the worst possible life'
96  */
97  /*----------------------Smoking and drinking habits and reproductive health knowledge variables*/
98  ,chsmoke --Child's frequency of smoking
99  ,chalcohol --Child consumes alcohol every day or at least once a week
100 ,chrephealth1 --Child's knowledge of reproductive health
101 ,chrephealth2 --Child knows condom can prevent disease through sex
102 ,chrephealth3 --Child knows healthy-looking person can pass on a disease through sex
103 ,chrephealth4 --Child's source of condom
```

120 %

```
104 /*----------------------Education and skills------------*/
105  ,preprim --Child has attended pre-primary school
106  ,agegr1 --Age at start of Grade 1
107  ,enrol --Enrolled in formal school during survey year
108  ,case
109  when enrol=0 then 'no'
110  when enrol=1 then 'yes'
111  when enrol=99 then 'missing'
112  when enrol= 77 then 'nk'
113  when enrol= 88 then 'n/a'
114  else ''
115  end enrol_desc
116  ,engrade --Grade enrolled during survey year
117  ,entype --Type of school enrolled during survey year
118  ,hghgrade --Highest grade completed at time of interview
119  ,timesch --Travel time to school (in minutes)
120  ,levlread --Child's reading level
121  ,case
122  when levlread= 1 then 'cant read anything'
123  when levlread= 2 then 'reads letters'
124  when levlread= 3 then 'reads word'
125  when levlread= 4 then 'reads sentence'
126  else ''
127  end readng_skill
128  ,levlwrit --Child's writing level
```

```
,case
when levlwrit= 1 then 'no'
when levlwrit= 2 then 'yes with difficulty or errors'
when levlwrit= 3 then 'yes without difficulty or errors'
else ''
end writing_skill
,literate --Child can read and write a sentence without difficulty
from [Asghari_Task1DB].[dbo].[India_constructed] e
where [inround]=1


GO
```

5.2.4 [dbo].[view_Peru]

```
USE [Asghari_Task1DB]
GO
/****** Object:  View [dbo].[view_Peru]    Script Date: 5/13/2022 6:13:35 PM ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE view [dbo].[view_Peru]
as
select 3 country_flg ,'Peru' country,[childid],[yc]
,case
when [yc]=0 then'Older cohort'
when [yc]=1 then'Younger cohort'
else 'unknown'
end [cohort_type]
,[round],[inround]
,case
when [inround]=0 then'no'
when [inround]=1 then'yes'
else 'unknown'
end [inround_desc]
,deceased,[panel12345],[typesite]
,case when [typesite]=1 then 'urban'
when [typesite]=2 then 'rural'
else 'unknown'
end [typesite_desc]
```

120 %

```
,[childloc]
,[chsex]
,case
when [chsex]=1 then 'male'
when [chsex]=2 then 'female'
else 'unknown'
end [chsex_desc]
,[agemon]--Child's age - in months
,[dbo].[Convert_agemon]([agemon])age--user defined function to convert age in month to age  in year
,[underweight]--low weight for age
,[stunting]--short height for age
,[thinness]--low BMI for age
,case when [underweight] = 0 then 'not'
when [underweight] =1 then 'moderate'
when [underweight]=2 then 'severe'
end [underweight_desc]
,case when [stunting] = 0 then'not'
when [stunting] =1 then'moderate'
when [stunting]=2 then'severe'
end [stunting_desc]
,case when [thinness] = 0 then'not'
when [thinness] =1 then'moderate'
when [thinness]=2 then'severe'
end [thinness_desc]
```

```
,drwaterq
------Sanitation Facilities-----
,toiletq
/*-------------------Birth and immunisation variables*/
,bcg
,measles
,dpt
,polio
,hib
/*-------------------Child's health and well-being------------------*/
,chmightdie --Child has had serious injury/illness since last round when caregiver thought child might die
,chillness --Child has had serious illness since last round
,chinjury --Child has had serious injury since last round
,chhprob --Child has long-term health problem
,chdisability --Child has a permanent disability
,chdisscale --Permanent disability scale
/*chdisscale,
Value = 0.0 Label = Able to work same as others of this age
    Value = 1.0 Label = Capable of most types of full-time work but some difficulty with physical work
    Value = 2.0 Label = Able to work full-time but only work requiring no physical activity
    Value = 3.0 Label = Can only do light work on a part-time basis
    Value = 4.0 Label = Cannot work but able to care for themselves (e.g. dress themselves, etc.)
    Value = 5.0 Label = Cannot work and needs help with daily activities such as dressing, washing, etc.
    Value = 6.0 Label = Other

*/
```

120 %

```
*/
 ,chhrel--Child's health compared to peers
  /*
Value = 1.0 Label = Same
Value = 2.0 Label = Better
Value = 3.0 Label = Worse
*/
,chhealth--Child's health in general
/*
Value = 1.0 Label = very poor
    Value = 2.0 Label = poor
    Value = 3.0 Label = average
    Value = 4.0 Label = good
    Value = 5.0 Label = very good
*/
,cladder  -- Child's subjective well-being (nine-step ladder)
/*9 represents the 'best
possible life' and 1 'the worst possible life'
*/
/*----------------------Smoking and drinking habits and reproductive health knowledge variables*/
,chsmoke --Child's frequency of smoking
,chalcohol --Child consumes alcohol every day or at least once a week
,chrephealth1 --Child's knowledge of reproductive health
,chrephealth2 --Child knows condom can prevent disease through sex
,chrephealth3 --Child knows healthy-looking person can pass on a disease through sex
,chrephealth4 --Child's source of condom
```

120 %

```
/*----------------------Education and skills------------*/
,preprim --Child has attended pre-primary school
,agegr1 --Age at start of Grade 1
,enrol --Enrolled in formal school during survey year
,case
when enrol=0 then 'no'
when enrol=1 then 'yes'
when enrol=99 then 'missing'
when enrol= 77 then 'nk'
when enrol= 88 then 'n/a'
else ''
end enrol_desc
,engrade --Grade enrolled during survey year
,entype --Type of school enrolled during survey year
, ''hghgrade --Highest grade completed at time of interview
,timesch --Travel time to school (in minutes)
,levlread --Child's reading level
,case
when levlread= 1 then 'cant read anything'
when levlread= 2 then 'reads letters'
when levlread= 3 then 'reads word'
when levlread= 4 then 'reads sentence'
else ''
end readng_skill
,levlwrit --Child's writing level
```

```
,case
when levlwrit= 1 then 'no'
when levlwrit= 2 then 'yes with difficulty or errors'
when levlwrit= 3 then 'yes without difficulty or errors'
else ''
end writing_skill
,literate --Child can read and write a sentence without difficulty
from [Asghari_Task1DB].[dbo].[Peru_constructed] e
where [inround]=1

GO
```

5.2.5 [dbo].[view_Severe_Deprivations_AllCountries]

```
/****** Object:  View [dbo].[view_Severe_Deprivations_AllCountries]    Script Date: 5/13/2022 6:18:28 PM ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE view [dbo].[view_Severe_Deprivations_AllCountries]
as
select
country_flg,country,childid,yc,cohort_type,chsex
,chsex_desc,Education,Food,Health,sanitation,Water
,Education+Food+Health+sanitation+Water All_Dep
from
(select country_flg,country,childid,yc,cohort_type,chsex,chsex_desc
,sum(case when dep_flg = 'E' then 1 else 0 end) Education
,sum(case when dep_flg = 'F' then 1 else 0 end) Food
,sum(case when dep_flg = 'H' then 1 else 0 end) Health
,sum(case when dep_flg = 'S' then 1 else 0 end) Sanitation
,sum(case when dep_flg = 'W' then 1 else 0 end) Water
from (
select 'E'Dep_flg,* from [dbo].[view_Severe_Education_Deprivation_AllCountries]
union all
select 'F'Dep_flg,* from [dbo].[view_Severe_Food_Deprivation_AllCountries]
union all
select 'H'Dep_flg,* from [dbo].[view_Severe_Health_Deprivation_AllCountries]
union all
select 'S'Dep_flg,* from [dbo].[view_Severe_Sanitation_Deprivation_AllCountries]
union all
select 'W'Dep_flg,* from [dbo].[view_Severe_Water_Deprivation_AllCountries]
)k
group by country_flg
,country,childid,yc,cohort_type,chsex,chsex_desc)k
GO
```

90 %

5.2.6 [dbo].[view_Severe_Education_Deprivation_AllCountries]

```
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE view [dbo].[view_Severe_Education_Deprivation_AllCountries]
as

select distinct country_flg
,country,childid,yc,cohort_type,chsex,chsex_desc from
(select country_flg
,country,childid,yc,cohort_type,chsex,chsex_desc
,max(enrol)enrol
,max(hghgrade)hghgrade--the highest grade achieved
from [dbo].[view_AllCountries] b
where age between 7 and 18
group by country_flg
,country,childid,yc
,cohort_type,chsex,chsex_desc)k
where enrol<>1--Child is currently enrolled=> who had never been to school
and hghgrade=0--Highest grade achieved at time of interview=>no professional education of any kind

GO
```

5.2.7 [dbo].[view_Severe_Food_Deprivation_AllCountries]

```
USE [Asghari_Task1DB]
GO

/****** Object:  View [dbo].[view_Severe_Food_Deprivation_AllCountries]    Script Date: 5/13/2022 6:20:39 PM ******/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO



CREATE view [dbo].[view_Severe_Food_Deprivation_AllCountries]
as
select distinct
country_flg
,country
,childid
,yc
,cohort_type
,chsex
,chsex_desc from  [dbo].[view_AllCountries] e
where age<5
and ( [underweight]=2
or stunting=2
or thinness=2)
GO
```

5.2.8 [dbo].[view_Severe_Health_Deprivation_AllCountries]

```
USE [Asghari_Task1DB]
GO

/****** Object:  View [dbo].[view_Severe_Health_Deprivation_AllCountries]    Script Date: 5/13/2022 6:21:46 PM ******/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO



CREATE view [dbo].[view_Severe_Health_Deprivation_AllCountries]
as

select distinct
country_flg
,country
,childid
,yc
,cohort_type
,chsex
,chsex_desc
from [dbo].[view_AllCountries]
where
(age>0 and age<5
and ( bcg<>1 and    measles<>1 and  dpt<>1 and  polio<>1 and hib<>1 )
)--children who had not been immunised against any diseases--445
or
(age>=5 and chmightdie =1)--young children who had a recent illness--624
--2794
GO
```

5.2.9 [dbo].[view_Severe_Sanitation_Deprivation_AllCountries]

```
USE [Asghari_Task1DB]
GO

/****** Object:  View [dbo].[view_Severe_Sanitation_Deprivation_AllCountries]    Script Date: 5/13/2022 6:22:18 PM ******/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO



CREATE view [dbo].[view_Severe_Sanitation_Deprivation_AllCountries]
as

select distinct
country_flg
,country
,childid
,yc
,cohort_type
,chsex
,chsex_desc
from [dbo].[view_AllCountries]
where toiletq=0---toiletq=1=>-Access to sanitation



GO
```

5.2.10 [dbo].[view_Severe_Water_Deprivation_AllCountries]

```
USE [Asghari_Task1DB]
GO

/****** Object:  View [dbo].[view_Severe_Water_Deprivation_AllCountries]    Script Date: 5/13/2022 6:22:58 PM ******/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO


CREATE view [dbo].[view_Severe_Water_Deprivation_AllCountries]
as

select distinct
country_flg
,country
,childid
,yc
,cohort_type
,chsex
,chsex_desc
from [dbo].[view_AllCountries]
where drwaterq=0---drwaterq=1=>-Access to safe drinking water

GO
```

5.2.11 [dbo].[view_Vietnam]

```
USE [Asghari_Task1DB]
GO

/****** Object:  View [dbo].[view_Vietnam]    Script Date: 5/13/2022 6:24:16 PM ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE view [dbo].[view_Vietnam]
as

select 4 country_flg ,
'Vietnam' country,
[childid]
,[yc]
,case
when [yc]=0 then'Older cohort'
when [yc]=1 then'Younger cohort'
else 'unknown'
end [cohort_type]
,[round]
,[inround]
,case
when [inround]=0 then'no'
when [inround]=1 then'yes'
else 'unknown'
end [inround_desc]
,deceased
,[panel12345]
,[typesite]
,case when [typesite]=1 then 'urban'
when [typesite]=2 then 'rural'
else 'unknown'
end [typesite_desc]
```

```
,[childloc]
,[chsex]
,case
when [chsex]=1 then 'male'
when [chsex]=2 then 'female'
else 'unknown'
end [chsex_desc]
,[agemon]--Child's age - in months
,[dbo].[Convert_agemon]([agemon])age--user defined function to convert age in month to age  in year
,[underweight]--low weight for age
,[stunting]--short height for age
,[thinness]--low BMI for age
,case when [underweight] = 0 then 'not'
when [underweight] =1 then 'moderate'
when [underweight]=2 then 'severe'
end [underweight_desc]
,case when [stunting] = 0 then'not'
when [stunting] =1 then'moderate'
when [stunting]=2 then'severe'
end [stunting_desc]
,case when [thinness] = 0 then'not'
when [thinness] =1 then'moderate'
when [thinness]=2 then'severe'
end [thinness_desc]
------Water Deprivation----------
,drwaterq
------Sanitation Facilities-----
,toiletq
/*-------------------Birth and immunisation variables*/
,bcg,measles,dpt,polio,hib
/*-------------------Child's health and well-being------------------*/
,chmightdie --Child has had serious injury/illness since last round when caregiver thought child might die
,chillness --Child has had serious illness since last round
,chinjury --Child has had serious injury since last round
```

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```
,chhprob --Child has long-term health problem
,chdisability --Child has a permanent disability
,chdisscale --Permanent disability scale
/*chdisscale,
Value = 0.0 Label = Able to work same as others of this age
    Value = 1.0 Label = Capable of most types of full-time work but some difficulty with physical work
    Value = 2.0 Label = Able to work full-time but only work requiring no physical activity
    Value = 3.0 Label = Can only do light work on a part-time basis
    Value = 4.0 Label = Cannot work but able to care for themselves (e.g. dress themselves, etc.)
    Value = 5.0 Label = Cannot work and needs help with daily activities such as dressing, washing, etc.
    Value = 6.0 Label = Other

*/
 ,chhrel--Child's health compared to peers
 /*
Value = 1.0 Label = Same
Value = 2.0 Label = Better
Value = 3.0 Label = Worse
*/
,chhealth--Child's health in general
/*
Value = 1.0 Label = very poor
    Value = 2.0 Label = poor
    Value = 3.0 Label = average
    Value = 4.0 Label = good
    Value = 5.0 Label = very good
*/
,cladder  -- Child's subjective well-being (nine-step ladder)
```

```
,chsmoke --Child's frequency of smoking
,chalcohol --Child consumes alcohol every day or at least once a week
,chrephealth1 --Child's knowledge of reproductive health
,chrephealth2 --Child knows condom can prevent disease through sex
,chrephealth3 --Child knows healthy-looking person can pass on a disease through sex
,chrephealth4 --Child's source of condom
/*-----------------------Education and skills------------*/
/*-----------------------Education and skills------------*/
/*-----------------------Education and skills------------*/
/*-----------------------Education and skills------------*/
,preprim --Child has attended pre-primary school
,agegr1 --Age at start of Grade 1
,enrol --Enrolled in formal school during survey year
,case
when enrol=0 then 'no'
when enrol=1 then 'yes'
when enrol=99 then 'missing'
when enrol= 77 then 'nk'
when enrol= 88 then 'n/a'
else ''
end enrol_desc
,engrade --Grade enrolled during survey year
,entype --Type of school enrolled during survey year
,hghgrade --Highest grade completed at time of interview
,timesch --Travel time to school (in minutes)
,levlread --Child's reading level
,case
when levlread= 1 then 'cant read anything'
when levlread= 2 then 'reads letters'
when levlread= 3 then 'reads word'
when levlread= 4 then 'reads sentence'
else ''
end readng_skill
```

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```
,levlwrit --Child's writing level
,case
when levlwrit= 1 then 'no'
when levlwrit= 2 then 'yes with difficulty or errors'
when levlwrit= 3 then 'yes without difficulty or errors'
else ''
end writing_skill
,literate --Child can read and write a sentence without difficulty
from [Asghari_Task1DB].[dbo].[Vietnam_constructed] e
where [inround]=1

GO
```

5.3 Stored procedures

5.3.1 [dbo].[sp_Absolute_Deprivation]

```
USE [Asghari_Task1DB]
GO
/****** Object:  StoredProcedure [dbo].[sp_Absolute_Deprivation]    Script Date: 5/13/2022 6:28:40 PM ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO

ALTER procedure [dbo].[sp_Absolute_Deprivation]
--exec [dbo].[sp_Absolute_Deprivation]
as
begin
------------------How many children are there in each country?----------------------------
declare @cnt_Ethiopia int =( select count(distinct childid) from [Ethiopia_constructed])--2999
declare @cnt_India int =( select count(distinct childid) from [India_constructed])--3019
declare @cnt_Peru int =( select count(distinct childid) from [Peru_constructed])--2766
declare @cnt_Vietnam int =( select count(distinct childid) from [Vietnam_constructed])--3000
/*select @cnt_Ethiopia '@cnt_Ethiopia'
,@cnt_India '@cnt_India'
,@cnt_Peru '@cnt_Peru'
,@cnt_Vietnam '@cnt_Vietnam'*/

declare @cnt_All int =( select @cnt_Ethiopia+@cnt_India+@cnt_Peru+@cnt_Vietnam)--11784

----------Children who experience in one or more absolute deprivation ---------------
if object_id('tempdb..#absolutely_deprived') is not null drop table #absolutely_deprived
select country_flg
,country
,male_absolute_dep_cnt
,female_absolute_dep_cnt
,(male_absolute_dep_cnt+female_absolute_dep_cnt) all_absolute_dep_cnt
into #absolutely_deprived
from
```

```
(select
country_flg
,country
,sum(male_absolute_dep_cnt)male_absolute_dep_cnt
,sum(female_absolute_dep_cnt)female_absolute_dep_cnt
from
(select country_flg
,country
,case when chsex_desc = 'male'   then  count(*) else 0 end male_absolute_dep_cnt
,case when chsex_desc = 'female' then  count(*) else 0 end female_absolute_dep_cnt
from  [dbo].[view_Severe_Deprivations_AllCountries]
where all_dep>2
--and country_flg=1
--and chsex=1--1155
--and chsex=2--1045
group by country_flg
,country
,chsex_desc)k
group by country_flg
,country)k1
-----The number and percentage of absolute deprivation in each country can be seen by gender.-----------
if object_id('Absolute_Deprivation_Percentage') is not null drop table Absolute_Deprivation_Percentage
select *
, cast (cast(male_absolute_dep_cnt as decimal(38,2)) *100 /
case when country_flg=1 then @cnt_Ethiopia
when country_flg=2 then @cnt_India
when country_flg=3 then @cnt_Peru
when country_flg=4 then @cnt_Vietnam
end as decimal(38,2)) male_absolute_dep_perc
, cast (cast(female_absolute_dep_cnt as decimal(38,2)) *100 /
case when country_flg=1 then @cnt_Ethiopia
when country_flg=2 then @cnt_India
when country_flg=3 then @cnt_Peru
when country_flg=4 then @cnt_Vietnam
end as decimal(38,2)) female_absolute_dep_perc
, cast (cast(all_absolute_dep_cnt as decimal(38,2)) *100 /
case when country_flg=1 then @cnt_Ethiopia
when country_flg=2 then @cnt_India
when country_flg=3 then @cnt_Peru
when country_flg=4 then @cnt_Vietnam
end as decimal(38,2)) all_absolute_dep_perc
into [dbo].Absolute_Deprivation_Percentage
from #absolutely_deprived
----------------------------------------
select * from [dbo].Absolute_Deprivation_Percentage
order by all_absolute_dep_perc desc
end
```

5.3.2 [dbo].[sp_Severe_Deprivation]

```
USE [Asghari_Task1DB]
GO
/****** Object:  StoredProcedure [dbo].[sp_Severe_Deprivation]    Script Date: 5/13/2022 6:30:32 PM ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
-----The number and percentage of severe deprivation in each country can be seen by gender.-----------------

ALTER procedure [dbo].[sp_Severe_Deprivation]
as
begin
------------------How many children are there in each country?----------------------------
declare @cnt_Ethiopia int =( select count(distinct childid) from [Ethiopia_constructed])--2999
declare @cnt_India int =( select count(distinct childid) from [India_constructed])--3019
declare @cnt_Peru int =( select count(distinct childid) from [Peru_constructed])--2766
declare @cnt_Vietnam int =( select count(distinct childid) from [Vietnam_constructed])--3000
/*select @cnt_Ethiopia '@cnt_Ethiopia'
,@cnt_India '@cnt_India'
,@cnt_Peru '@cnt_Peru'
,@cnt_Vietnam '@cnt_Vietnam'*/

declare @cnt_All int =( select @cnt_Ethiopia+@cnt_India+@cnt_Peru+@cnt_Vietnam)--11784

----------Children who experience in one or more severe deprivation ---------------
if object_id('tempdb..#severely_deprived') is not null drop table #severely_deprived
select country_flg
,country
,male_severe_dep_cnt
,female_severe_dep_cnt
,(male_severe_dep_cnt+female_severe_dep_cnt) all_severe_dep_cnt
into #severely_deprived
```

```
from
(select
country_flg
,country
,sum(male_severe_dep_cnt)male_severe_dep_cnt
,sum(female_severe_dep_cnt)female_severe_dep_cnt
from
(select country_flg
,country
,case when chsex_desc = 'male'   then  count(*) else 0 end male_severe_dep_cnt
,case when chsex_desc = 'female' then  count(*) else 0 end female_severe_dep_cnt
from  [dbo].[view_Severe_Deprivations_AllCountries]
where all_dep>1
--and country_flg=1
--and chsex=1--1155
--and chsex=2--1045
group by country_flg
,country
,chsex_desc)k
group by country_flg
,country)k1
-----The number and percentage of severe deprivation in each country can be seen by gender.--------
if object_id('Severe_Deprivation_Percentage') is not null drop table Severe_Deprivation_Percentage
select *
, cast (cast(male_severe_dep_cnt as decimal(38,2)) *100 /
case when country_flg=1 then @cnt_Ethiopia
when country_flg=2 then @cnt_India
when country_flg=3 then @cnt_Peru
when country_flg=4 then @cnt_Vietnam
end as decimal(38,2)) male_severe_dep_perc
, cast (cast(female_severe_dep_cnt as decimal(38,2)) *100 /
case when country_flg=1 then @cnt_Ethiopia
when country_flg=2 then @cnt_India
when country_flg=3 then @cnt_Peru
when country_flg=4 then @cnt_Vietnam
```

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```
when country_flg=4 then @cnt_Vietnam
end as decimal(38,2)) female_severe_dep_perc
, cast (cast(all_severe_dep_cnt as decimal(38,2)) *100 /
case when country_flg=1 then @cnt_Ethiopia
when country_flg=2 then @cnt_India
when country_flg=3 then @cnt_Peru
when country_flg=4 then @cnt_Vietnam
end as decimal(38,2)) all_severe_dep_perc
into [dbo].[Severe_Deprivation_Percentage]
from #severely_deprived
-----------------------------------------

select * from [dbo].[Severe_Deprivation_Percentage]
order by all_severe_dep_perc desc
end
```

5.3.3 [dbo].[sp_Severe_Deprivation_Total]

```
USE [Asghari_Task1DB]
GO
/****** Object:  StoredProcedure [dbo].[sp_Severe_Deprivation_Total]    Script Date: 5/13/2022 6:35:27 PM ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
ALTER procedure [dbo].[sp_Severe_Deprivation_Total]
-- exec [dbo].[sp_Severe_Deprivation_Total]
as
begin
declare @cnt_Ethiopia int =( select count(distinct childid) from [Ethiopia_constructed])--2999
declare @cnt_India int =( select count(distinct childid) from [India_constructed])--3019
declare @cnt_Peru int =( select count(distinct childid) from [Peru_constructed])--2766
declare @cnt_Vietnam int =( select count(distinct childid) from [Vietnam_constructed])--3000
declare @cnt_All int =( select @cnt_Ethiopia+@cnt_India+@cnt_Peru+@cnt_Vietnam)--11784
if object_id('[dbo].[Severe_Deprivation_Total_Percentage]') is not null
drop table [dbo].[Severe_Deprivation_Total_Percentage]
select 'Severe_Education_Deprivation' Deprivation, cast(cast(count(*) as decimal(38,2))*100/@cnt_All as decimal(38,2)) Deprivation_percentage
into [dbo].[Severe_Deprivation_Total_Percentage]
from [dbo].[view_Severe_Education_Deprivation_AllCountries]
union all
select 'Food_Deprivation'Deprivation,cast(cast(count(*) as decimal(38,2))*100/@cnt_All as decimal(38,2)) Deprivation_percentage
from [dbo].[view_Severe_Food_Deprivation_AllCountries]
union all
select 'Health_Deprivation'Deprivation,cast(cast(count(*) as decimal(38,2))*100/@cnt_All as decimal(38,2)) Deprivation_percentage
from [dbo].[view_Severe_Health_Deprivation_AllCountries]
union all
select 'Sanitation_Deprivation'Deprivation,cast(cast(count(*) as decimal(38,2))*100/@cnt_All as decimal(38,2)) Deprivation_percentage
from [dbo].[view_Severe_Sanitation_Deprivation_AllCountries]
union all
select 'Water_Deprivation'Deprivation,cast(cast(count(*) as decimal(38,2))*100/@cnt_All as decimal(38,2)) Deprivation_percentage
from [dbo].[view_Severe_Water_Deprivation_AllCountries]
select * from [dbo].[Severe_Deprivation_Total_Percentage]
order by Deprivation_percentage desc
end
```

5.3.4 [dbo].[sp_Severe_Education_Deprivation]

```
USE [Asghari_Task1DB]
GO
/****** Object:  StoredProcedure [dbo].[sp_Severe_Education_Deprivation]    Script Date: 5/13/2022 6:36:42 PM ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
ALTER PROCEDURE [dbo].[sp_Severe_Education_Deprivation]
--Exec [dbo].[sp_Severe_Education_Deprivation]
AS
BEGIN
------------------How many children are there in each country?----------------------------
declare @cnt_Ethiopia int =( select count(distinct childid) from [Ethiopia_constructed])--2999
declare @cnt_India int =( select count(distinct childid) from [India_constructed])--3019
declare @cnt_Peru int =( select count(distinct childid) from [Peru_constructed])--2766
declare @cnt_Vietnam int =( select count(distinct childid) from [Vietnam_constructed])--3000
/*select @cnt_Ethiopia '@cnt_Ethiopia'
,@cnt_India '@cnt_India'
,@cnt_Peru '@cnt_Peru'
,@cnt_Vietnam '@cnt_Vietnam'*/
declare @cnt_All int =( select @cnt_Ethiopia+@cnt_India+@cnt_Peru+@cnt_Vietnam)--11784
---------------------------------
if object_id ('dbo.[Severe_Education_Deprivation_Percentage]') is not null
drop table dbo.Severe_Education_Deprivation_Percentage
select
country_flg,country
,sum(male)male_cnt--count of males who suffer from malnutrition
,sum(female)female_cnt--count of females who suffer from malnutrition
,cast(0 as int) all_cnt--count of all genders
,cast(cast(sum(male)*100  as decimal(38,2))/
case when country_flg=1 then @cnt_Ethiopia
when country_flg=2 then @cnt_India
when country_flg=3 then @cnt_Peru
when country_flg=4 then @cnt_Vietnam
end as decimal(38,2))   male_perc--percentage of male is computed depending on the count of children in each country
,cast(cast(sum(female)*100 as decimal(38,2))/
case when country_flg=1 then @cnt_Ethiopia
when country_flg=2 then @cnt_India
```

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```
when country_flg=3 then @cnt_Peru
when country_flg=4 then @cnt_Vietnam
end as decimal(38,2))  female_perc--percentage of female is computed depending on the count of children in each country
,cast(0 as decimal(38,2)) all_perc--percentage of all genders
into dbo.[Severe_Education_Deprivation_Percentage]
from (
select distinct country_flg,country,childid
,case
when [chsex]=1 then 1
else 0 end male
,case when [chsex]=2 then 1
else 0 end female
from  [dbo].[view_Severe_Education_Deprivation_AllCountries]
)k
group by country_flg,country
-------Update all_cnt and all_perc----------------
update dbo.Severe_Education_Deprivation_Percentage
set all_cnt= male_cnt +female_cnt
    ,all_perc = male_perc+female_perc
--------------------
select country,male_cnt ,female_cnt ,all_cnt,male_perc,female_perc,all_perc
from dbo.Severe_Education_Deprivation_Percentage
end
```

5.3.5 [dbo].[sp_Severe_Food_Deprivation]

```
USE [Asghari_Task1DB]
GO
/****** Object:  StoredProcedure [dbo].[sp_Severe_Food_Deprivation]    Script Date: 5/13/2022 6:38:31 PM ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO

ALTER PROCEDURE [dbo].[sp_Severe_Food_Deprivation]
--Exec [dbo].[sp_Severe_Food_Deprivation]
AS
BEGIN

------------------How many children are there in each country?----------------------------
declare @cnt_Ethiopia int =( select count(distinct childid) from [Ethiopia_constructed])--2999
declare @cnt_India int =( select count(distinct childid) from [India_constructed])--3019
declare @cnt_Peru int =( select count(distinct childid) from [Peru_constructed])--2766
declare @cnt_Vietnam int =( select count(distinct childid) from [Vietnam_constructed])--3000
/*select @cnt_Ethiopia '@cnt_Ethiopia'
,@cnt_India '@cnt_India'
,@cnt_Peru '@cnt_Peru'
,@cnt_Vietnam '@cnt_Vietnam'*/

declare @cnt_All int =( select @cnt_Ethiopia+@cnt_India+@cnt_Peru+@cnt_Vietnam)--11784
--------------------------------
if object_id ('dbo.[Severe_Food_Deprivation_Percentage]') is not null
drop table dbo.Severe_Food_Deprivation_Percentage

select
country_flg
,country
,sum(male)male_cnt--count of males who suffer from malnutrition
,sum(female)female_cnt--count of females who suffer from malnutrition
,cast(0 as int) all_cnt--count of all genders

,cast(cast(sum(male)*100  as decimal(38,2))/
case when country_flg=1 then @cnt_Ethiopia
when country_flg=2 then @cnt_India
```

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```
when country_flg=3 then @cnt_Peru
when country_flg=4 then @cnt_Vietnam
end as decimal(38,2))   male_perc--percentage of male is computed depending on the count of children in each country

,cast(cast(sum(female)*100 as decimal(38,2))/
case when country_flg=1 then @cnt_Ethiopia
when country_flg=2 then @cnt_India
when country_flg=3 then @cnt_Peru
when country_flg=4 then @cnt_Vietnam
end as decimal(38,2))  female_perc--percentage of female is computed depending on the count of children in each country

,cast(0 as decimal(38,2)) all_perc--percentage of all genders
into dbo.[Severe_Food_Deprivation_Percentage]
from (
select distinct country_flg,country,childid
,case
when [chsex]=1 then 1
else 0 end male

,case when [chsex]=2 then 1
else 0 end female

from  [dbo].[view_Severe_Food_Deprivation_AllCountries]
)k
group by country_flg,country
-------Update all_cnt and all_perc----------------
update dbo.Severe_Food_Deprivation_Percentage
set all_cnt= male_cnt +female_cnt
    ,all_perc = male_perc+female_perc
--------------------
select country,male_cnt ,female_cnt ,all_cnt,male_perc,female_perc,all_perc
from dbo.Severe_Food_Deprivation_Percentage
end
```

5.3.6 [dbo].[sp_Severe_Health_Deprivation]

```
USE [Asghari_Task1DB]
GO
/****** Object:  StoredProcedure [dbo].[sp_Severe_Health_Deprivation]    Script Date: 5/13/2022 6:39:44 PM ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
ALTER PROCEDURE [dbo].[sp_Severe_Health_Deprivation]
--Exec [dbo].[sp_Severe_Health_Deprivation]
AS
BEGIN
-------------------How many children are there in each country?----------------------------
declare @cnt_Ethiopia int =( select count(distinct childid) from [Ethiopia_constructed])--2999
declare @cnt_India int =( select count(distinct childid) from [India_constructed])--3019
declare @cnt_Peru int =( select count(distinct childid) from [Peru_constructed])--2766
declare @cnt_Vietnam int =( select count(distinct childid) from [Vietnam_constructed])--3000
/*select @cnt_Ethiopia '@cnt_Ethiopia'
,@cnt_India '@cnt_India'
,@cnt_Peru '@cnt_Peru'
,@cnt_Vietnam '@cnt_Vietnam'*/
declare @cnt_All int =( select @cnt_Ethiopia+@cnt_India+@cnt_Peru+@cnt_Vietnam)--11784
---------------------------------
if object_id ('dbo.[Severe_Health_Deprivation_Percentage]') is not null
drop table dbo.Severe_Health_Deprivation_Percentage
select
country_flg
,country
,sum(male)male_cnt--count of males who suffer from malnutrition
,sum(female)female_cnt--count of females who suffer from malnutrition
,cast(0 as int) all_cnt--count of all genders
,cast(cast(sum(male)*100  as decimal(38,2))/
case when country_flg=1 then @cnt_Ethiopia
when country_flg=2 then @cnt_India
when country_flg=3 then @cnt_Peru
when country_flg=4 then @cnt_Vietnam
end as decimal(38,2))   male_perc--percentage of male is computed depending on the count of children in each country
,cast(cast(sum(female)*100 as decimal(38,2))/
case when country_flg=1 then @cnt_Ethiopia
```

82 %

```
case when country_flg=1 then @cnt_Ethiopia
when country_flg=2 then @cnt_India
when country_flg=3 then @cnt_Peru
when country_flg=4 then @cnt_Vietnam
end as decimal(38,2))  female_perc--percentage of female is computed depending on the count of children in each country

,cast(0 as decimal(38,2)) all_perc--percentage of all genders
into dbo.[Severe_Health_Deprivation_Percentage]
from (
select distinct country_flg,country,childid
,case
when [chsex]=1 then 1
else 0 end male

,case when [chsex]=2 then 1
else 0 end female

from  [dbo].[view_Severe_Health_Deprivation_AllCountries]
)k
group by country_flg,country

-------Update all_cnt and all_perc----------------
update dbo.Severe_Health_Deprivation_Percentage
set all_cnt= male_cnt +female_cnt
    ,all_perc = male_perc+female_perc

--------------------
select
country,male_cnt,female_cnt ,all_cnt,male_perc,female_perc,all_perc
from dbo.Severe_Health_Deprivation_Percentage
order by all_perc desc
end
```

5.3.7 [dbo].[sp_Severe_Sanitation_Deprivation]

```
USE [Asghari_Task1DB]
GO
/****** Object:  StoredProcedure [dbo].[sp_Severe_Sanitation_Deprivation]    Script Date: 5/13/2022 6:41:43 PM ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO

ALTER PROCEDURE [dbo].[sp_Severe_Sanitation_Deprivation]
--Exec [dbo].[sp_Severe_Sanitation_Deprivation]
AS
BEGIN

------------------How many children are there in each country?-----------------------------
declare @cnt_Ethiopia int =( select count(distinct childid) from [Ethiopia_constructed])--2999
declare @cnt_India int =( select count(distinct childid) from [India_constructed])--3019
declare @cnt_Peru int =( select count(distinct childid) from [Peru_constructed])--2766
declare @cnt_Vietnam int =( select count(distinct childid) from [Vietnam_constructed])--3000
/*select @cnt_Ethiopia '@cnt_Ethiopia'
,@cnt_India '@cnt_India'
,@cnt_Peru '@cnt_Peru'
,@cnt_Vietnam '@cnt_Vietnam'*/

declare @cnt_All int =( select @cnt_Ethiopia+@cnt_India+@cnt_Peru+@cnt_Vietnam)--11784
--------------------------------
if object_id ('dbo.[Severe_Sanitation_Deprivation_Percentage]') is not null
drop table dbo.Severe_Sanitation_Deprivation_Percentage

select
country_flg
,country
,sum(male)male_cnt--count of males who suffer from malnutrition
,sum(female)female_cnt--count of females who suffer from malnutrition
,cast(0 as int) all_cnt--count of all genders

,cast(cast(sum(male)*100  as decimal(38,2))/
case when country_flg=1 then @cnt_Ethiopia
when country_flg=2 then @cnt_India
```

82 %

```
when country_flg=3 then @cnt_Peru
when country_flg=4 then @cnt_Vietnam
end as decimal(38,2))   male_perc--percentage of male is computed depending on the count of children in each country

,cast(cast(sum(female)*100 as decimal(38,2))/
case when country_flg=1 then @cnt_Ethiopia
when country_flg=2 then @cnt_India
when country_flg=3 then @cnt_Peru
when country_flg=4 then @cnt_Vietnam
end as decimal(38,2))  female_perc--percentage of female is computed depending on the count of children in each country

,cast(0 as decimal(38,2)) all_perc--percentage of all genders
into dbo.[Severe_Sanitation_Deprivation_Percentage]
from (
select distinct country_flg,country,childid
,case
when [chsex]=1 then 1
else 0 end male
,case when [chsex]=2 then 1
else 0 end female
from  [dbo].[view_Severe_Sanitation_Deprivation_AllCountries]
)k
group by country_flg,country
-------Update all_cnt and all_perc----------------
update dbo.Severe_Sanitation_Deprivation_Percentage
set all_cnt= male_cnt +female_cnt
    ,all_perc = male_perc+female_perc
--------------------
select country,male_cnt,female_cnt  ,all_cnt
,male_perc  ,female_perc,all_perc
from dbo.Severe_Sanitation_Deprivation_Percentage
order by all_perc desc
end
```

5.3.8 [dbo].[sp_Severe_Water_Deprivation]

```
USE [Asghari_Task1DB]
GO
/****** Object:  StoredProcedure [dbo].[sp_Severe_Water_Deprivation]    Script Date: 5/13/2022 6:42:59 PM ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
ALTER PROCEDURE [dbo].[sp_Severe_Water_Deprivation]
--Exec [dbo].[sp_Severe_Water_Deprivation]
AS
BEGIN
--------------------How many children are there in each country?-----------------------------
declare @cnt_Ethiopia int =( select count(distinct childid) from [Ethiopia_constructed])--2999
declare @cnt_India int =( select count(distinct childid) from [India_constructed])--3019
declare @cnt_Peru int =( select count(distinct childid) from [Peru_constructed])--2766
declare @cnt_Vietnam int =( select count(distinct childid) from [Vietnam_constructed])--3000
/*select @cnt_Ethiopia '@cnt_Ethiopia'
,@cnt_India '@cnt_India'
,@cnt_Peru '@cnt_Peru'
,@cnt_Vietnam '@cnt_Vietnam'*/
declare @cnt_All int =( select @cnt_Ethiopia+@cnt_India+@cnt_Peru+@cnt_Vietnam)--11784
--------------------------------
if object_id ('dbo.[Severe_Water_Deprivation_Percentage]') is not null
drop table dbo.Severe_Water_Deprivation_Percentage
select
country_flg
,country
,sum(male)male_cnt--count of males who suffer from malnutrition
,sum(female)female_cnt--count of females who suffer from malnutrition
,cast(0 as int) all_cnt--count of all genders

,cast(cast(sum(male)*100  as decimal(38,2))/
case when country_flg=1 then @cnt_Ethiopia
when country_flg=2 then @cnt_India
when country_flg=3 then @cnt_Peru
when country_flg=4 then @cnt_Vietnam
end as decimal(38,2))   male_perc--percentage of male is computed depending on the count of children in each country

82 %
```

```
38
39  ,cast(cast(sum(female)*100 as decimal(38,2))/
40  case when country_flg=1 then @cnt_Ethiopia
41  when country_flg=2 then @cnt_India
42  when country_flg=3 then @cnt_Peru
43  when country_flg=4 then @cnt_Vietnam
44  end as decimal(38,2))  female_perc--percentage of female is computed depending on the count of children in each country
45
46  ,cast(0 as decimal(38,2)) all_perc--percentage of all genders
47  into dbo.[Severe_Water_Deprivation_Percentage]
48  from (
49  select distinct country_flg,country,childid
50  ,case
51  when [chsex]=1 then 1
52  else 0 end male
53
54  ,case when [chsex]=2 then 1
55  else 0 end female
56
57  from  [dbo].[view_Severe_Water_Deprivation_AllCountries]
58  )k
59  group by country_flg,country
60
61  -------Update all_cnt and all_perc----------------
62  update dbo.Severe_Water_Deprivation_Percentage
63  set all_cnt= male_cnt +female_cnt
64      ,all_perc = male_perc+female_perc
65
66  --------------------
67  select
68  country,male_cnt,female_cnt ,all_cnt,male_perc,female_perc,all_perc
69  from dbo.Severe_Water_Deprivation_Percentage
70  order by all_perc desc
71  end
```

5.4 Functions

5.4.1 [dbo].[Convert_agemon]

```
1   USE [Asghari_Task1DB]
2   GO
3   /****** Object:  UserDefinedFunction [dbo].[Convert_agemon]    Script Date: 5/13/2022 6:44:38 PM ******/
4   SET ANSI_NULLS ON
5   GO
6   SET QUOTED_IDENTIFIER ON
7   GO
8
9   -- =============================================
10  -- Author:      <roghayeh Asghari>
11  -- Create date: <Create Date, ,>
12  -- Description: <Description, ,>
13  -- =============================================
14  ALTER FUNCTION [dbo].[Convert_agemon]
15  (
16      -- Add the parameters for the function here
17      @agemon as decimal(38,2)
18  )
19  --select dbo.[Convert_agemon] (150)
20  RETURNS decimal(38,2)
21  AS
22  BEGIN
23
24  DECLARE @age as decimal(38,2) =(select cast(@agemon/12 as decimal(38,2)))
25
26  return @age
27
28  END
```

6 Report Design

In the following steps, the processes for measuring severe poverty in five dimensions in Ethiopia, India, Peru, and Vietnam will be explained. Although the original tables have over 200 columns, for child poverty measerments we need just some of these fields. Therefore, four views have been created with the similar fields. In these views, to distinguish the data of each country, two new fields are added, including Country_flg and country which is the name of the country. In addition, in the original tables like [dbo].[Ethiopia_constructed] the age of children is in month but to measure the child poverty we need to find children in different age groups in year. Therefore, to convert age in month to age in year a user-defined function has been created named [dbo]. [Convert_agemon] that converts age in month to age in year (agemon/12). The views with similar columns are view_Ethiopia, view_India, view_Peru, view_Vietnam. The result of the view_Ethopia is as follow:

```
SELECT * FROM [Asghari_Task1DB].[dbo].[view_Ethiopia]
```

100 % | Results | Messages

	country_flg	country	childid	yc	cohort_type	round	inround	inround_desc	deceased	panel12345	typesite	typesite_desc	childloc	chsex	chsex_desc	agemon	age	underweight	stunting	thir
1	1	Ethiopia	ET010001	1	Younger cohort	1	1	yes		1	1	urban	1	1	male	14	1.17	0	0	0
2	1	Ethiopia	ET010001	1	Younger cohort	2	1	yes		1	1	urban	1	1	male	64	5.33	0	0	0
3	1	Ethiopia	ET010001	1	Younger cohort	3	1	yes		1	1	urban	1	1	male	100	8.33	0	0	1
4	1	Ethiopia	ET010001	1	Younger cohort	4	1	yes		1	1	urban	1	1	male	150	12.50		0	2
5	1	Ethiopia	ET010001	1	Younger cohort	5	1	yes		1	1	urban	1	1	male	185	15.42		0	2
6	1	Ethiopia	ET010002	1	Younger cohort	1	1	yes		1	1	urban	1	1	male	8	0.67	0	0	0
7	1	Ethiopia	ET010002	1	Younger cohort	2	1	yes		1	1	urban	1	1	male	58	4.83	1	1	0
8	1	Ethiopia	ET010002	1	Younger cohort	3	1	yes		1	1	urban	1	1	male	94	7.83	1	1	0
9	1	Ethiopia	ET010002	1	Younger cohort	4	1	yes		1	1	urban	1	1	male	143	11.92		1	1
10	1	Ethiopia	ET010002	1	Younger cohort	5	1	yes		1	1	urban	1	1	male	178	14.83		0	0
11	1	Ethiopia	ET010003	1	Younger cohort	1	1	yes		0	1	urban	1	1	male	12	1.00	2	2	2
12	1	Ethiopia	ET010004	1	Younger cohort	1	1	yes		1	1	urban	1	1	male	11	0.92	0	0	0
13	1	Ethiopia	ET010004	1	Younger cohort	2	1	yes		1	1	urban	1	1	male	63	5.25	0	0	0
14	1	Ethiopia	ET010004	1	Younger cohort	3	1	yes		1	1	urban	1	1	male	99	8.25	0	0	0
15	1	Ethiopia	ET010004	1	Younger cohort	4	1	yes		1	1	urban	1	1	male	146	12.17		0	0
16	1	Ethiopia	ET010004	1	Younger cohort	5	1	yes		1	1	urban	1	1	male	182	15.17		0	0
17	1	Ethiopia	ET010005	1	Younger cohort	1	1	yes		1	1	urban	1	2	female	13	1.08	0	0	0
18	1	Ethiopia	ET010005	1	Younger cohort	2	1	yes		1	1	urban	1	2	female	63	5.25	0	0	0
19	1	Ethiopia	ET010005	1	Younger cohort	3	1	yes		1	1	urban	1	2	female	99	8.25	0	0	0
20	1	Ethiopia	ET010005	1	Younger cohort	4	1	yes		1	1	urban	1	2	female	146	12.17		0	0
21	1	Ethiopia	ET010005	1	Younger cohort	5	1	yes		1	1	urban	1	2	female	183	15.25		0	2

As all the five dimensions are measure for all countries of young Live dataset, after creating the views with the same columns, a view has been created from those views to have access to all countries in a unique view in the following processes. By using union all and filtered children that participated in each round (inround=1) this view named [dbo].[view_AllCountries] is created.

```
CREATE view [dbo].[view_AllCountries]
as

select *
from(
select * from [dbo].[view_Ethiopia]
union all
select * from [dbo].[view_India]
union all
select * from [dbo].[view_Peru]
union all
select * from [dbo].[view_Vietnam])k
where inround=1
GO
```

6.1 Severe Food Deprivation Report

According to the data dictionary of the Young Life Project, Child's weight (chweight), height (chheight), and body mass index (bmi) is available in the constructed files for both cohorts in all rounds. Using these three indicators, z-scores for weight-for-height, height-for-age, and BMI-for age were estimated using World Health Organization (WHO) reference tables and software. WHO-defined flags for each indicator were also computed to identify outliers or observations that are considered to be biologically implausible values. [6]

Child's anthropometric information variables

Variable name	Description
chweight	Child weight (kg)
chheight	Child height (cm)
bmi	calculated bmi = weight / squared(height)
zwfa	weight-for-age z-score
zhfa	height-for-age z-score
zbfa	BMI-for-age z-score
zwfl	weight-for-length/height z-score
fwfa	flag = 1 if (zwfa < -6 | zwfa >5)
fhfa	flag = 1 if (zhfa < -6 | zhfa >6)
fbfa	flag = 1 if (zbfa < -5 | zbfa >5)
fwfl	flag = 1 if (zwfl < -5 | zwfl >5)
underweight	low weight for age
stunting	short height for age
thinness	low BMI for age

In yong Life dataset, the weight-for-age z-score (zwfa) is computed for Younger Cohort up to Round3 and only in Round 1 for the Older Cohort because the WHO reference tables are applicable only to children of certain ages. However the height-for-age and BMI-for-age z-scores are not computed for the Older Cohort in Round 5. [6]

According to the data dictionary three malnutrition estimators were computed based on the z-scores:

(1) underweight (0 – not underweight, 1 – moderately underweight, 2 – severely underweight)

(2) stunting (0 – not stunted, 1 – moderately stunted, 2 – severely stunted)

(3) thinness (0 – not thin, 1 – moderately thin, 2 – severely thin).

Table 6 provides the definition for each. [6]

Description of malnutrition estimators

Estimator	Definition
Moderately underweight	Less than -2 SD of weight-for-age z-score
Severely underweight	Less than -3 SD of weight-for-age z-score
Moderately stunted	Less than -2 SD of height-for-age z-score
Severely stunted	Less than -3 SD of height-for-age z-score
Moderately thin	Less than -2 SD of BMI-for-age z-score
Severely thin	Less than -3 SD of BMI-for-age z-score

Based on Bristol Approach Severe Food Deprivation is a dimension of poverty that is applicable for children aged under 5 whose heights and weights for their age were more than -3 standard deviations below the median of the international reference population, i.e. severe anthropometric failure. To compute this measure a view has been created for children aged under 5 who have severe underweight or stunting or thinness.

```
CREATE view [dbo].[view_Severe_Food_Deprivation_AllCountries]
as
select distinct
country_flg
,country
,childid
,yc
,cohort_type
,chsex
,chsex_desc from  [dbo].[view_AllCountries] e
where age<5
and ( [underweight]=2
or stunting=2
or thinness=2)
GO
```

In the next step a procedure has been created to compute the percentage of food deprivation among different countries and different genders. The result is stored in a table named dbo.Severe_Food_Deprivation_Percentage.

```
Exec [Asghari_Task1DB].[dbo].[sp_Severe_Food_Deprivation]
```

100 %

Results | Messages

	country_flg	country	male_cnt	female_cnt	all_cnt	male_perc	female_perc	all_perc
1	1	Ethiopia	345	239	584	11.50	7.97	19.47
2	2	India	214	152	366	7.09	5.03	12.12
3	3	Peru	146	111	257	5.28	4.01	9.29
4	4	Vietnam	101	63	164	3.37	2.10	5.47

The results show the number children by gender who experience severe food deprivation and the percentage of this measure in each country for males and females. As the results show Ethiopia with 19.47% has the most severe food deprivation while Vietnam with almost 5% has the minimum figure.

6.2 Severe Education Deprivation Report

According to the Bristol methodology, the Severe Education Deprivation means children aged between 7 and 18 who had never been to school and were not currently attending school (no professional education of any kind). [3]

Due to the definition of Severe Education Deprivation two fields can be used, including enrol and hghgrade . If enrol is not equal to one, it means that child was not enrolled. And also if hghgrade=0 it means that the child has no professional education. Since we have 5 rounds and in each round, a child can have different educational status the maximum of enrol and hghgrade should be computed to understand the highest level of his/her educational status. Then children who had never been enrolled on school and have not gained any educational degree should be filtered. To achieve this goal a view named [dbo].[view_Severe_Education_Deprivation_AllCountries] has been created.

```sql
CREATE view [dbo].[view_Severe_Education_Deprivation_AllCountries]
as

select distinct country_flg
,country
,childid
,yc
,cohort_type
,chsex
,chsex_desc from
(select country_flg
,country
,childid
,yc
,cohort_type
,chsex
,chsex_desc
,max(enrol)enrol
,max(hghgrade)hghgrade--the highest grade achieved
from [dbo].[view_AllCountries] b
where
age between 7 and 18
group by country_flg
,country
,childid
,yc
,cohort_type
,chsex
,chsex_desc)k
where enrol<>1--Child is currently enrolled=> who had never been to school
and hghgrade=0--Highest grade achieved at time of interview=>no professional education of any kind
```

```sql
7
8
9
  select *  from [dbo].[view_Severe_Education_Deprivation_AllCountries]
```

100 %

Results | Messages

	country_flg	country	childid	yc	cohort_type	chsex	chsex_desc	enrol	hghgrade
1	1	Ethiopia	ET010054	1	Younger cohort	1	male		0
2	1	Ethiopia	ET011011	0	Older cohort	2	female		
3	1	Ethiopia	ET011047	0	Older cohort	2	female		
4	1	Ethiopia	ET030063	1	Younger cohort	1	male		0
5	1	Ethiopia	ET031005	0	Older cohort	2	female		

To compute the percentage of severe education deprivation for children of each county a stored procedure has been created. The result is stored in a table named dbo.Severe_Education_Deprivation_Percentage.

```
SELECT [country_flg]
      ,[country]
      ,[male_cnt]
      ,[female_cnt]
      ,[all_cnt]
      ,[male_perc]
      ,[female_perc]
      ,[all_perc]
  FROM [Asghari_Task1DB].[dbo].[Severe_Education_Deprivation_Percentage]
```

100 %

Results | Messages

	country_flg	country	male_cnt	female_cnt	all_cnt	male_perc	female_perc	all_perc
1	1	Ethiopia	31	23	54	1.03	0.77	1.80
2	2	India	12	18	30	0.40	0.60	1.00
3	3	Peru	30	22	52	1.08	0.80	1.88
4	4	Vietnam	32	29	61	1.07	0.97	2.04

As the result shows the severe education deprivation in all of the countries is almost the same and between 1% and 2% but the highest rate of it is in Vietnam with 2.04%.

6.3 Severe Water Deprivation Report

Based on Bristol methodology, children who only had access to surface water (e.g. rivers) for drinking or who lived in households where the nearest source of water was more than 15 minutes away (indicators of severe deprivation of water quality or quantity). [3]

Since in the Young Life dataset, the only field releted to access to safe water is drwaterq and there is no information about the type of water (like surface water) and the distance of the nearest source of water, in this project the severe water deprivation is computed based on the Lack of access to water (drwaterq=0). For this indicator a view has been created to show the children who has experienced lack of access to safe water during the all 5 rounds.

```
CREATE view [dbo].[view_Severe_Water_Deprivation_AllCountries]
as

select distinct
country_flg
,country
,childid
,yc
,cohort_type
,chsex
,chsex_desc
from [dbo].[view_AllCountries]
where drwaterq=0---drwaterq=1=>-Access to safe drinking water

GO
```

```
20  ------------lack of access to safe drinking water-------------
21  select country_flg
22  ,country
23  ,childid
24  ,cohort_type
25  ,chsex_desc
26   from  [dbo].[view_Severe_Water_Deprivation_AllCountries]
27
```

100 %

Results | Messages

	country_flg	country	childid	cohort_type	chsex_desc
1	1	Ethiopia	ET010006	Younger cohort	female
2	1	Ethiopia	ET010009	Younger cohort	male
3	1	Ethiopia	ET010014	Younger cohort	female
4	1	Ethiopia	ET010016	Younger cohort	male

To measure this poverty indicator a stored procedure has been created to show the percentage of the lack of access to safe water in each country. The result of this procedure is stored in dbo.Severe_Water_Deprivation_Percentage. As the result shows Vietnam with 92.30% has the worst situation in comparison to other countries and India with almost 21% has the least severe water deprivation.

```
68  ---------Percentage of Severe_Water_Deprivation in each country-----------
69  Exec [dbo].[sp_Severe_Water_Deprivation]
70
71
72
```

100 %

Results | Messages

	country	male_cnt	female_cnt	all_cnt	male_perc	female_perc	all_perc
1	Vietnam	1401	1368	2769	46.70	45.60	92.30
2	Ethiopia	1116	1017	2133	37.21	33.91	71.12
3	Peru	828	819	1647	29.93	29.61	59.54
4	India	297	328	625	9.84	10.86	20.70

6.4 Severe Deprivation of Sanitation Facilities Report

The definition of this indicator is “Children who had no access to a toilet of any kind in the vicinity of their dwelling, including communal toilets or latrines “. In the Yong Life dataset, the toilet measures the access to sanitation facilities. Children who at least one time during the project have had no access to sanitation facilities are shown in [dbo].[view_Severe_Sanitation_Deprivation_AllCountries].

```sql
CREATE view [dbo].[view_Severe_Sanitation_Deprivation_AllCountries]
as

select distinct
country_flg
,country
,childid
,yc
,cohort_type
,chsex
,chsex_desc
from [dbo].[view_AllCountries]
where toiletq=0---toiletq=1=>-Access to sanitation

GO
```

```sql
select * from [dbo].[view_Severe_Sanitation_Deprivation_AllCountries]
```

Results | Messages

	country_flg	country	childid	yc	cohort_type	chsex	chsex_desc
1	1	Ethiopia	ET010003	1	Younger cohort	1	male
2	1	Ethiopia	ET010004	1	Younger cohort	1	male
3	1	Ethiopia	ET010005	1	Younger cohort	2	female
4	1	Ethiopia	ET010006	1	Younger cohort	2	female
5	1	Ethiopia	ET010011	1	Younger cohort	2	female

To measure the percentage of severe sanitation deprivation a stored procedure is named [dbo].[sp_Severe_Sanitation_Deprivation] has been created and its result is stored in dbo.Severe_Sanitation_Deprivation_Percentage.

```sql
exec [dbo].[sp_Severe_Sanitation_Deprivation]
```

Results | Messages

	country	male_cnt	female_cnt	all_cnt	male_perc	female_perc	all_perc
1	India	1222	1137	2359	40.48	37.66	78.14
2	Ethiopia	1201	1107	2308	40.05	36.91	76.96
3	Vietnam	948	918	1866	31.60	30.60	62.20
4	Peru	474	448	922	17.14	16.20	33.34

Regarding the result, India and Ethiopia with over 76% have the most Severe Sanitation deprivation among the other countries and Peru with 33.34 has the least severe health deprivation.

6.5 Severe Health Deprivation Report

This dimension measures children who had not been immunised against any diseases or young children who had a recent illness involving diarrhoea and had not received any medical advice or

treatment. [3] These are the columns in the Young Life dataset that indicate the immunization information for children under the age of 5: [6]

- BCG: vaccination against BCG
- measles: vaccination against measles
- DPT: vaccination against DPT
- POLIO: vaccination against POLIO
- HIB: vaccination against HIB

In addition, if a child has had serious injury or illness since the last round, the column named chmightdie is equal to one. Therefore, the second condition of severe health deprivation will be measured in this field. By applying these two conditions a view is named [dbo].[view_Severe_Health_Deprivation_AllCountries] has been created.

```
11
12  CREATE view [dbo].[view_Severe_Health_Deprivation_AllCountries]
13  as
14
15  select distinct
16  country_flg
17  ,country
18  ,childid
19  ,yc
20  ,cohort_type
21  ,chsex
22  ,chsex_desc
23  from [dbo].[view_AllCountries]
24  where
25  (age>0 and age<5
26  and ( bcg<>1 and    measles<>1 and  dpt<>1 and  polio<>1 and hib<>1 )
27  )--children who had not been immunised against any diseases
28  or
29  (age>=5 and chmightdie =1)--young children who had a recent illness
30
31  go
32
33
```

```
6
7   select
8   country
9   ,childid
10  ,cohort_type
11  ,chsex_desc from  [dbo].[view_Severe_Health_Deprivation_AllCountries]
12
```

100 %

Results | Messages

	country	childid	cohort_type	chsex_desc
1	Ethiopia	ET010007	Younger cohort	female
2	Ethiopia	ET010008	Younger cohort	female
3	Ethiopia	ET010009	Younger cohort	male
4	Ethiopia	ET010011	Younger cohort	female
5	Ethiopia	ET010018	Younger cohort	male
6	Ethiopia	ET010024	Younger cohort	female

To compute the percentage of severe health deprivation among the countries a procedure has been created named [dbo]. [sp_Severe_Health_Deprivation] and its result is stored in a table named dbo.Severe_Health_Deprivation_Percentage. The percentage of severe health deprivation is shown below. Ethiopia with 32.48% has the highest level of health deprivation, while Vietnam with 16% has the second highest level of deprivation.

```
13
14  Exec [dbo].[sp_Severe_Health_Deprivation]
```

100 %

Results | Messages

	country	male_cnt	female_cnt	all_cnt	male_perc	female_perc	all_perc
1	Ethiopia	500	474	974	16.67	15.81	32.48
2	India	465	371	836	15.40	12.29	27.69
3	Peru	389	329	718	14.06	11.89	25.95
4	Vietnam	266	222	488	8.87	7.40	16.27

6.6 Severe Poverty Report

In this stage children who suffer from severe deprivation in five dimensions including Food, Education, water, sanitation and health have been computed and are accessible via these five views:

- [dbo].[view_Severe_Education_Deprivation_AllCountries]
- [dbo].[view_Severe_Food_Deprivation_AllCountries]
- [dbo].[view_Severe_Health_Deprivation_AllCountries]
- [dbo].[view_Severe_Sanitation_Deprivation_AllCountries]
- [dbo].[view_Severe_Water_Deprivation_AllCountries]

In addition, the percentage of severe deprivation in each dimension has been stored in these tables:

- [dbo].[Severe_Education_Deprivation_Percentage]
- [dbo].[Severe_Food_Deprivation_Percentage]
- [dbo].[Severe_Health_Deprivation_Percentage]
- [dbo].[Severe_Sanitation_Deprivation_Percentage]
- [dbo].[Severe_Water_Deprivation_Percentage]

In this step, by using the five Severe Deprivation views, a view is created to show that a child has how many severe deprivations. In this view, each child has just one record that shows all of the one's deprivations.

```sql
CREATE view [dbo].[view_Severe_Deprivations_AllCountries]
as
select
country_flg,country,childid,yc,cohort_type,chsex
,chsex_desc,Education,Food,Health,sanitation,Water
,Education+Food+Health+sanitation+Water All_Dep
from
(select country_flg,country,childid,yc,cohort_type,chsex,chsex_desc
,sum(case when dep_flg = 'E' then 1 else 0 end) Education
,sum(case when dep_flg = 'F' then 1 else 0 end) Food
,sum(case when dep_flg = 'H' then 1 else 0 end) Health
,sum(case when dep_flg = 'S' then 1 else 0 end) Sanitation
,sum(case when dep_flg = 'W' then 1 else 0 end) Water
from (
select 'E'Dep_flg,* from [dbo].[view_Severe_Education_Deprivation_AllCountries]
union all
select 'F'Dep_flg,* from [dbo].[view_Severe_Food_Deprivation_AllCountries]
union all
select 'H'Dep_flg,* from [dbo].[view_Severe_Health_Deprivation_AllCountries]
union all
select 'S'Dep_flg,* from [dbo].[view_Severe_Sanitation_Deprivation_AllCountries]
union all
select 'W'Dep_flg,* from [dbo].[view_Severe_Water_Deprivation_AllCountries]
)k
group by country_flg
,country,childid,yc,cohort_type,chsex,chsex_desc)k
GO
```

```sql
select * from [dbo].[view_Severe_Deprivations_AllCountries]
```

Results | Messages

	country_flg	country	childid	yc	cohort_type	chsex	chsex_desc	Education	Food	Health	sanitation	Water	All_Dep
1	1	Ethiopia	ET010003	1	Younger cohort	1	male	0	1	0	1	0	2
2	1	Ethiopia	ET010004	1	Younger cohort	1	male	0	0	0	1	0	1
3	1	Ethiopia	ET010005	1	Younger cohort	2	female	0	0	0	1	0	1
4	1	Ethiopia	ET010006	1	Younger cohort	2	female	0	0	0	1	1	2
5	1	Ethiopia	ET010007	1	Younger cohort	2	female	0	0	1	0	0	1
6	1	Ethiopia	ET010008	1	Younger cohort	2	female	0	0	1	0	0	1
7	1	Ethiopia	ET010009	1	Younger cohort	1	male	0	0	1	0	1	2
8	1	Ethiopia	ET010011	1	Younger cohort	2	female	0	0	1	1	0	2
9	1	Ethiopia	ET010014	1	Younger cohort	2	female	0	0	0	1	1	2
10	1	Ethiopia	ET010016	1	Younger cohort	1	male	0	0	0	0	1	1
11	1	Ethiopia	ET010017	1	Younger cohort	2	female	0	0	0	0	1	1
12	1	Ethiopia	ET010018	1	Younger cohort	1	male	0	0	1	0	0	1
13	1	Ethiopia	ET010020	1	Younger cohort	2	female	0	0	0	1	0	1
14	1	Ethiopia	ET010023	1	Younger cohort	1	male	0	0	0	0	1	1
15	1	Ethiopia	ET010024	1	Younger cohort	2	female	0	0	1	0	1	2
16	1	Ethiopia	ET010025	1	Younger cohort	2	female	0	0	0	0	1	1
17	1	Ethiopia	ET010029	1	Younger cohort	2	female	0	0	0	1	1	2
18	1	Ethiopia	ET010030	1	Younger cohort	2	female	0	0	0	0	1	1
19	1	Ethiopia	ET010031	1	Younger cohort	1	male	0	1	0	0	0	1
20	1	Ethiopia	ET010034	1	Younger cohort	2	female	0	0	0	1	0	1
21	1	Ethiopia	ET010035	1	Younger cohort	2	female	0	0	1	0	1	2

Query executed successfully. | DESKTOP-3OH1NER (15.0 RTM) | DESKTOP-3OH1NER\GreenL... | Asghari_Task1DB | 00:00:05 | 10,136 rows

As the result of the [dbo]. [view_Severe_Deprivations_AllCountries] shows, that 10136 children suffer

from at least one severe deprivation in five dimensions. To compute the percentage of severe deprivation in each country a procedure has been created named [dbo].[sp_Severe_Deprivation]. In this procedure, the number of children who suffer from one or more severe deprivation is counted by gender for each country and then by dividing by the total number of children in each country the percentage of the severe deprivation is computed. The result has been stored in a table named [dbo].[Severe_Deprivation_Percentage].

```
106
107  -----The number and percentage of severe deprivation in each country can be seen by gender.-----------------------
108
109  exec [dbo].[sp_Severe_Deprivation]
110
```

100 %

Results | Messages

	country_flg	country	male_severe_dep_cnt	female_severe_dep_cnt	all_severe_dep_cnt	male_severe_dep_perc	female_severe_dep_perc	all_severe_dep_perc
1	1	Ethiopia	1155	1045	2200	38.51	34.84	73.36
2	4	Vietnam	1028	968	1996	34.27	32.27	66.53
3	2	India	708	641	1349	23.45	21.23	44.68
4	3	Peru	602	554	1156	21.76	20.03	41.79

As the result shows Ethiopia with 73.36% has the most children who live in severely deprived conditions and Vietnam with almost 66% ranks second. India and Peru also rank third and fourth, respectively.

6.7 Absolute Poverty Report

Children who suffer from these levels of severe deprivation are very likely to be living in absolute poverty because, in the overwhelming majority of cases, the cause of severe deprivation of basic human needs is invariably a result of lack of resources/income. However, there may also be some children in this situation due to discrimination. For this reason, we have assumed that a child is living in absolute poverty only if he or she suffers from multiple deprivations (i.e., two or more severe deprivations of basic human needs as defined above). [3]

According to the definition of Absolute Poverty, the number and percentage of each gender who suffer from more than one severe poverty has been computed in a stored procedure named [dbo].[sp_Absolute_Deprivation] and its result is stored in a table named [dbo].[Absolute_Deprivation_Percentage].

```
119  ------*************Report 07: Absolute poverty(children who suffers from multiple deprivations) in each country*******
120
121  Exec [dbo].[sp_Absolute_Deprivation]
122
123
124
125
```

100 %

Results | Messages

	country_flg	country	male_severe_dep_cnt	female_severe_dep_cnt	all_severe_dep_cnt	male_severe_dep_perc	female_severe_dep_perc	all_severe_dep_perc
1	1	Ethiopia	541	454	995	18.04	15.14	33.18
2	4	Vietnam	265	224	489	8.83	7.47	16.30
3	3	Peru	162	145	307	5.86	5.24	11.10
4	2	India	151	130	281	5.00	4.31	9.31

As the result shows, 33% of Ethiopian children who participated in the Young Life Project live in absolute poverty, this percentage is almost twice the percentage of children in Vietnam, which is ranked

second.

6.8 Absolute and Severe Poverty in each country Report

In the last report, the percentage of absolute poverty, severe poverty and five severe poverty dimensions including food, education, water, sanitation, and health is shown.

```
106 select
107 a.country
108 ,a.all_absolute_dep_perc 'Absolute Poverty(2+ severe deprevation)(%)'
109 ,b.all_severe_dep_perc'Severe Poverty (1+ severe deprivations)(%)'
110 ,c.[all_perc] 'Severe Sanitation Deprivation(%)'
111 ,d.[all_perc]'Severe Water Deprivation (%)'
112 ,e.[all_perc]'Severe Food Deprivation (%)'
113 ,f.[all_perc]'Severe Health Deprivation (%)'
114 ,g.[all_perc]'Severe Education Deprivation (%)'
115 from [dbo].[Absolute_Deprivation_Percentage] a
116 left join  [dbo].[severe_Deprivation_Percentage] b
117 on a.country_flg=b.country_flg
118 left join [dbo].[Severe_Sanitation_Deprivation_Percentage]c
119 on a.country_flg=c.country_flg
120 left join [dbo].[Severe_Water_Deprivation_Percentage]d
121 on a.country_flg=d.country_flg
122 left join[dbo].[Severe_Food_Deprivation_Percentage]e
123 on a.country_flg=e.country_flg
124 left join[dbo].[Severe_Health_Deprivation_Percentage]f
125 on a.country_flg=f.country_flg
126 left join[dbo].[Severe_Education_Deprivation_Percentage]g
127 on a.country_flg=g.country_flg
128 order by all_absolute_dep_perc desc,all_severe_dep_perc desc
129
```

100 %

Results | Messages

	country	Absolute Poverty(2+ severe deprevation)(%)	Severe Poverty (...	Severe Sanitatio...	Severe Water ...	Severe Food ...	Severe Health ...	Severe Educatio...
1	Ethiopia	33.18	73.36	76.96	71.12	19.47	32.48	1.80
2	Vietnam	16.30	66.53	62.20	92.30	5.47	16.27	2.04
3	Peru	11.10	41.79	33.34	59.54	9.29	25.95	1.88
4	India	9.31	44.68	78.14	20.70	12.12	27.69	1.00

Ethiopia with 33.18% absolute poverty and 73.36% severe poverty has the highest child poverty rate. In addition, Vietnam is ranked second with 16.30% absolute poverty and 66.53% severe Poverty.

6.9 Percent of severely deprived Children in five dimensions [3]

To compare the rate of severe deprivation in the Yong Life dataset, a report is created that shows the rate of each deprivation among five dimensions of basic human needs, including food, education, health, water, and sanitation. To prepare this report a stored procedure named [dbo].[sp_Severe_Deprivation_Total]is created and its result is stored in a table named [dbo].[Severe_Deprivation_Total_Percentage].

```sql
Alter procedure [dbo].[sp_Severe_Deprivation_Total]
-- exec [dbo].[sp_Severe_Deprivation_Total]
as
begin
declare @cnt_Ethiopia int =( select count(distinct childid) from [Ethiopia_constructed])--2999
declare @cnt_India int =( select count(distinct childid) from [India_constructed])--3019
declare @cnt_Peru int =( select count(distinct childid) from [Peru_constructed])--2766
declare @cnt_Vietnam int =( select count(distinct childid) from [Vietnam_constructed])--3000
declare @cnt_All int =( select @cnt_Ethiopia+@cnt_India+@cnt_Peru+@cnt_Vietnam)--11784

if object_id('[dbo].[Severe_Deprivation_Total_Percentage]') is not null
drop table [dbo].[Severe_Deprivation_Total_Percentage]
select 'Severe_Education_Deprivation' Deprivation, cast(cast(count(*) as decimal(38,2))*100/@cnt_All as decimal(38,2)) Deprivation_percentage
into [dbo].[Severe_Deprivation_Total_Percentage]
from [dbo].[view_Severe_Education_Deprivation_AllCountries]
union all
select 'Food_Deprivation'Deprivation,cast(cast(count(*) as decimal(38,2))*100/@cnt_All as decimal(38,2)) Deprivation_percentage
from [dbo].[view_Severe_Food_Deprivation_AllCountries]
union all
select 'Health_Deprivation'Deprivation,cast(cast(count(*) as decimal(38,2))*100/@cnt_All as decimal(38,2)) Deprivation_percentage
from [dbo].[view_Severe_Health_Deprivation_AllCountries]
union all
select 'Sanitation_Deprivation'Deprivation,cast(cast(count(*) as decimal(38,2))*100/@cnt_All as decimal(38,2)) Deprivation_percentage
from [dbo].[view_Severe_Sanitation_Deprivation_AllCountries]
union all
select 'Water_Deprivation'Deprivation,cast(cast(count(*) as decimal(38,2))*100/@cnt_All as decimal(38,2)) Deprivation_percentage
from [dbo].[view_Severe_Water_Deprivation_AllCountries]
select * from [dbo].[Severe_Deprivation_Total_Percentage]
order by Deprivation_percentage desc
end
```

```sql
130 ------************Report 09: Percent of severely deprived Children*****************-----------
131 exec [dbo].[sp_Severe_Deprivation_Total]
132
133
134
135
```

100 %

Results | Messages

	Deprivation	Deprivation_percentage
1	Sanitation_Deprivation	63.26
2	Water_Deprivation	60.88
3	Health_Deprivation	25.59
4	Food_Deprivation	11.63
5	Severe_Education_Deprivation	1.67

As the result shows, 63.26% of children in the Young Life project suffer from sanitation deprivation. Moreover, Water deprivation with 60.88% is the second most severe deprivation among the children of the Young Life project. Health, Food and Education are the children's other severe deprivations with 25.59%, 11.63% and 1.67% respectively.

7 Database Security

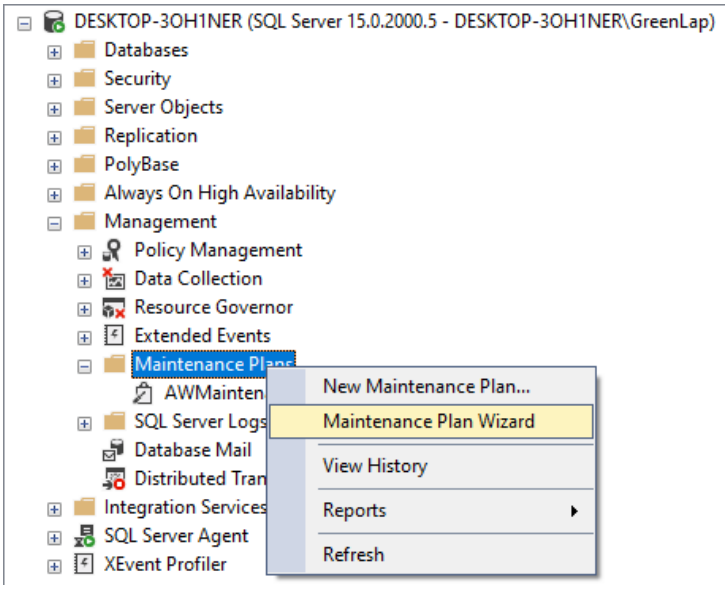
Since the result of this project has to be used by a client, to prevent direct access to original data, which shows the detailed information of a Yong Life child, some views and stored procedures have been designed. By creating different users with different accesses like data read, data write, owner and sysadmin, the access of users to data can be adjusted. In some views, just coded fields are shown and users who have access to these views cannot get information about a Yong Life child or teachers. If users have access to original tables and views, they can have access to the details of data.

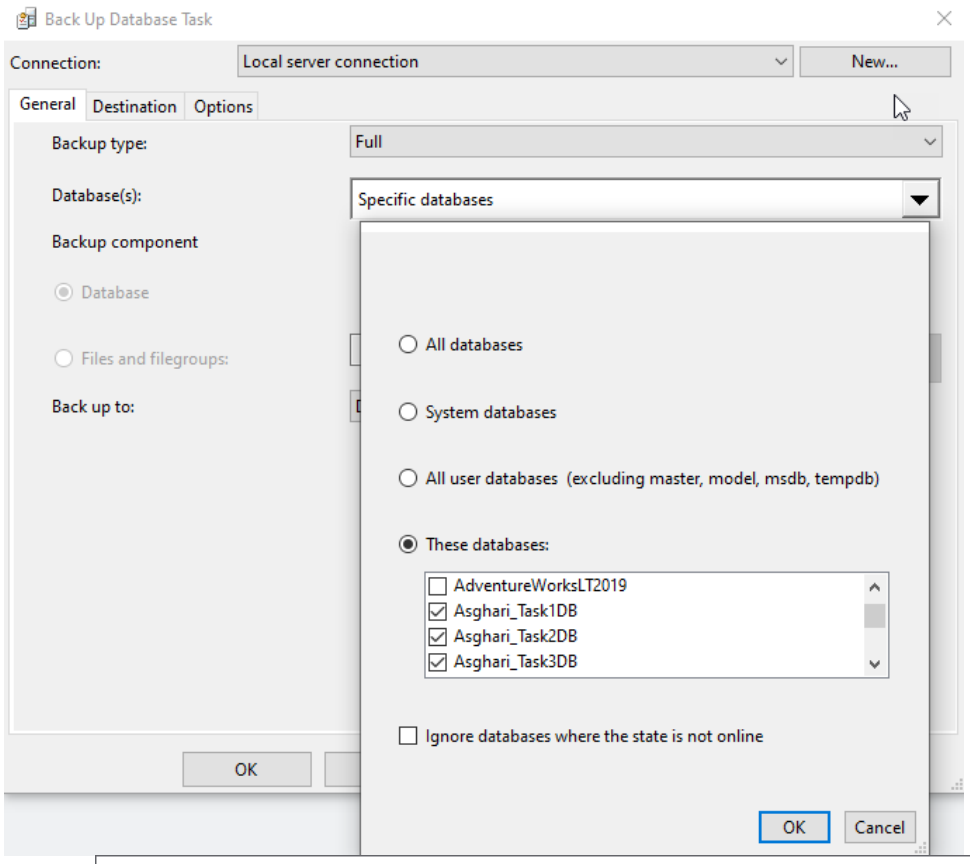
Moreover, by creating stored procedures the data can be secured from the users. They can run the stored procedures to watch the result of reports without having direct access to tables and views and their columns. In addition, they do not know which processes are executing in that procedure unless they

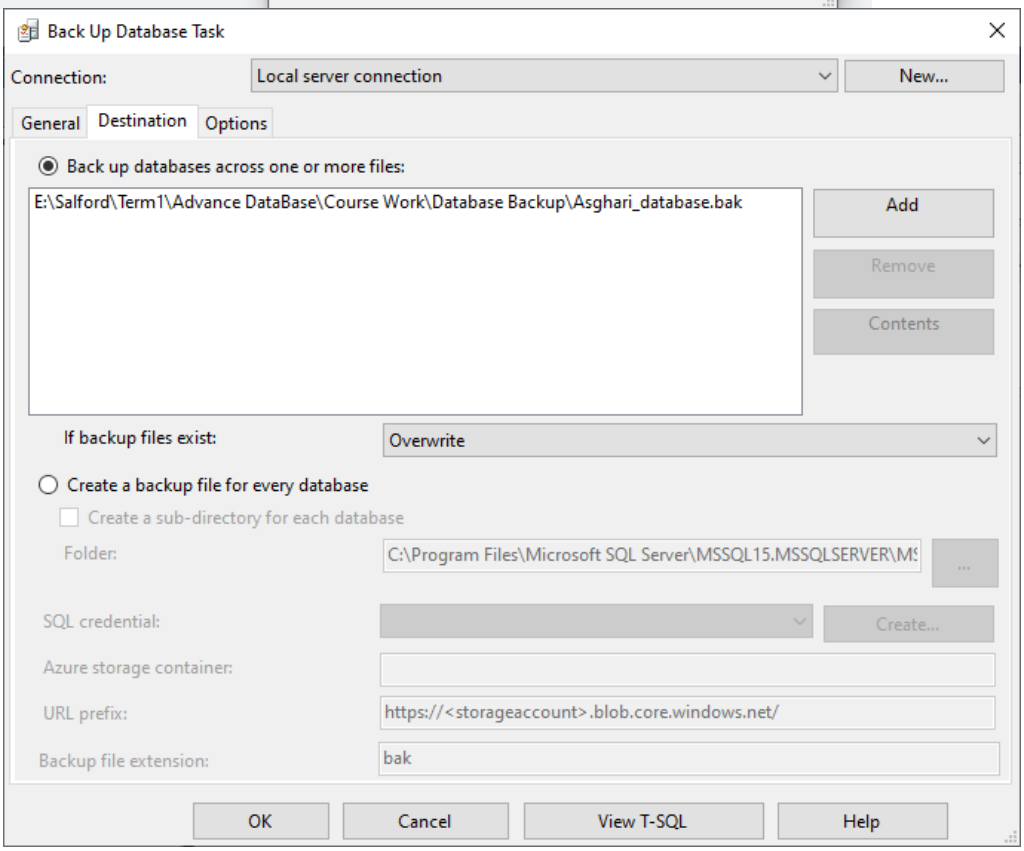
have access to modify the procedures.

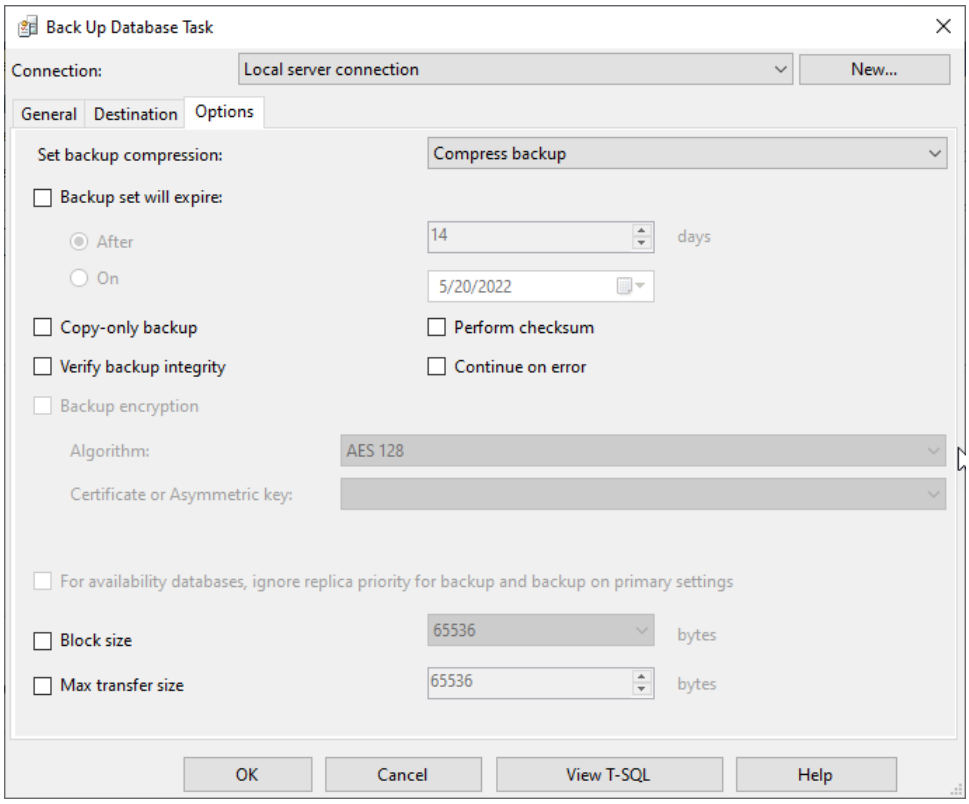
8 Database Backup and Restore Strategy

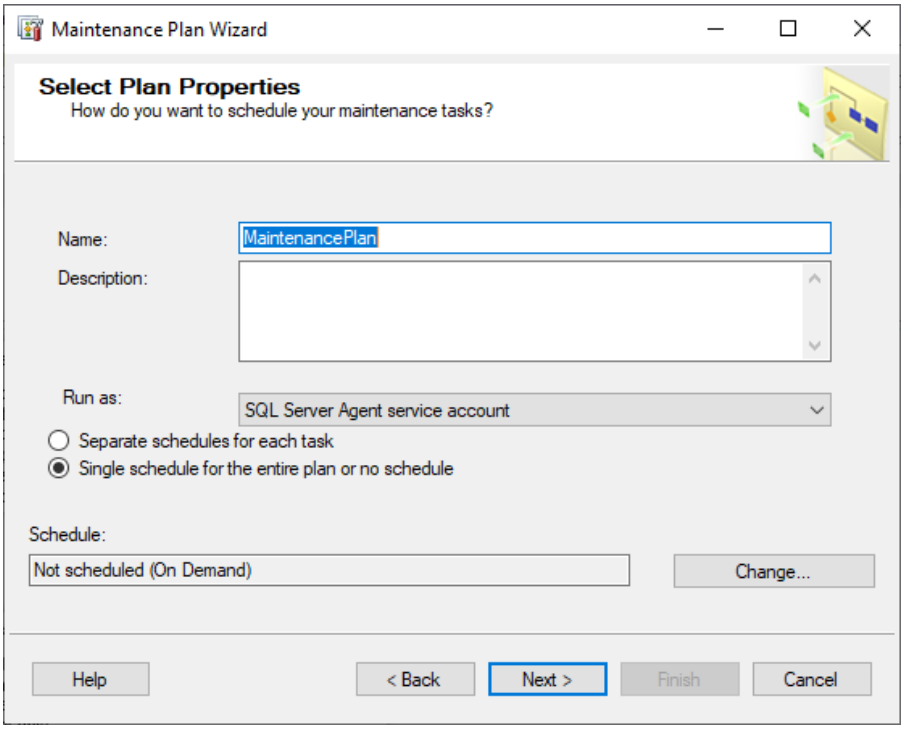
To prevent any data loss, a Maintenance plan is designed. By right-clicking on the Maintenance plan and selecting the Maintenance Plan Wizard a plan is created. The name of this plan that will create a backup from the database is “Maintenance plan”.




Back Up Database Task
Connection:
Local server connection
New...
General
Destination
Options
Backup type:
Full
Database(s):
Specific databases
Backup component
Database
Files and filegroups:
Back up to:
OK
All databases
System databases
All user databases (excluding master, model, msdb, tempdb)
These databases:
AdventureWorksLT2019
Asghari_Task1DB
Asghari_Task2DB
Asghari_Task3DB
Ignore databases where the state is not online
OK
Cancel

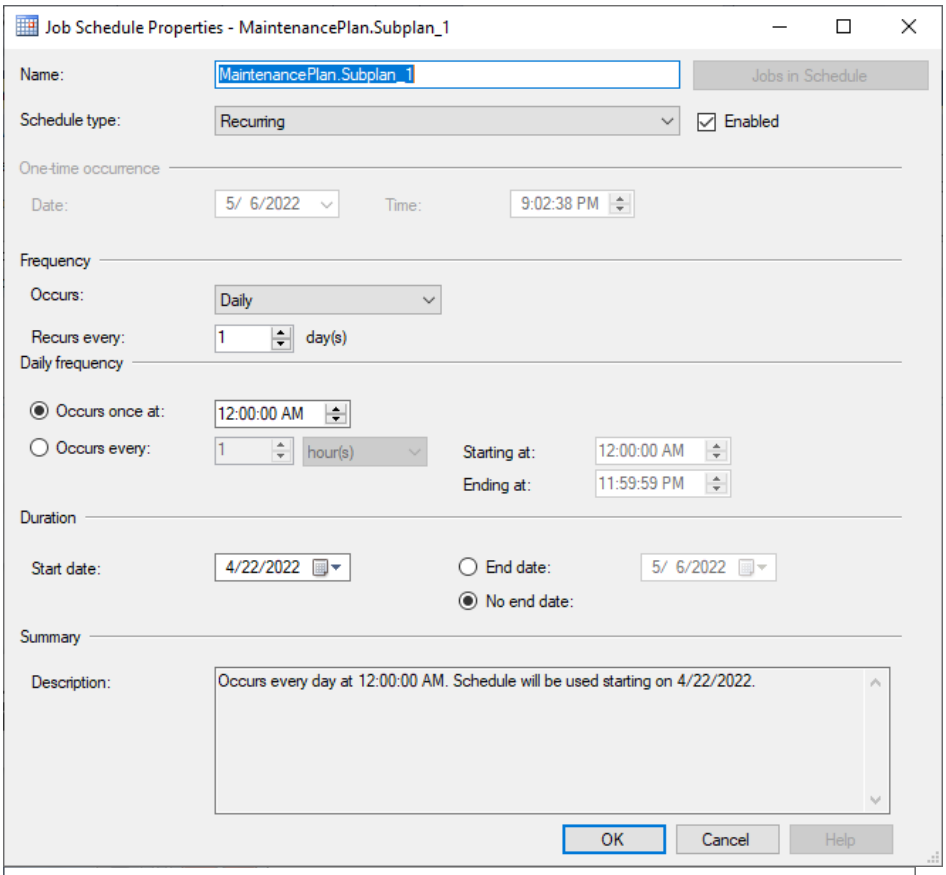

Back Up Database Task
Connection:
Local server connection
New...
General
Destination
Options
Back up databases across one or more files:
E:\Salford\Term1\Advance DataBase\Course Work\Database Backup\Asghari_database.bak
Add
Remove
Contents
If backup files exist:
Overwrite
Create a backup file for every database
Create a sub-directory for each database
Folder:
C:\Program Files\Microsoft SQL Server\MSSQL15.MSSQLSERVER\MS
SQL credential:
Create...
Azure storage container:
URL prefix:
https://<storageaccount>.blob.core.windows.net/
Backup file extension:
bak
OK
Cancel
View T-SQL
Help

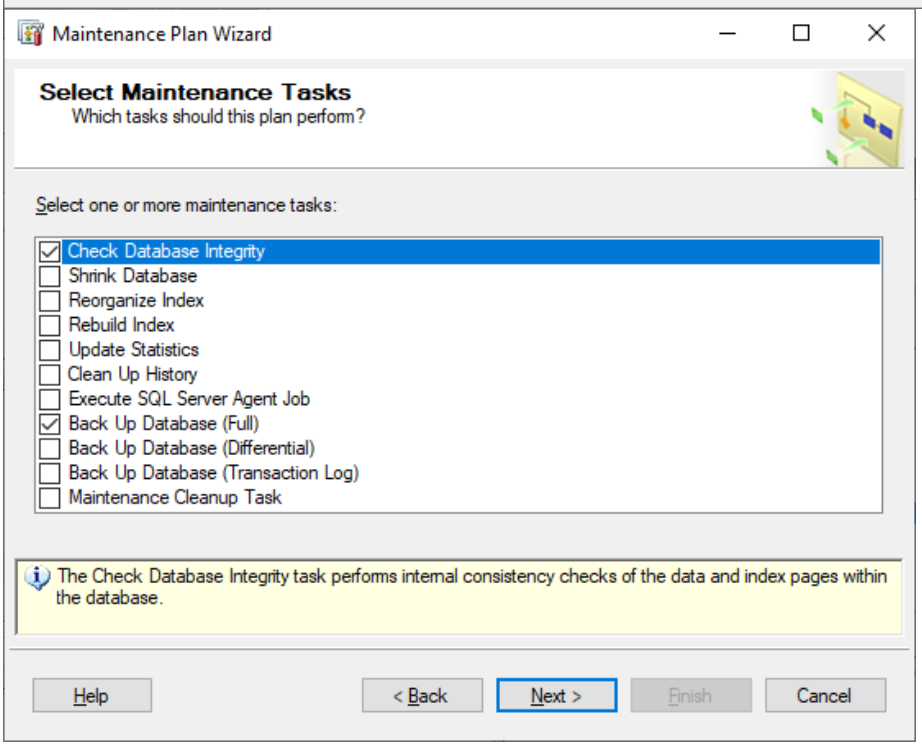


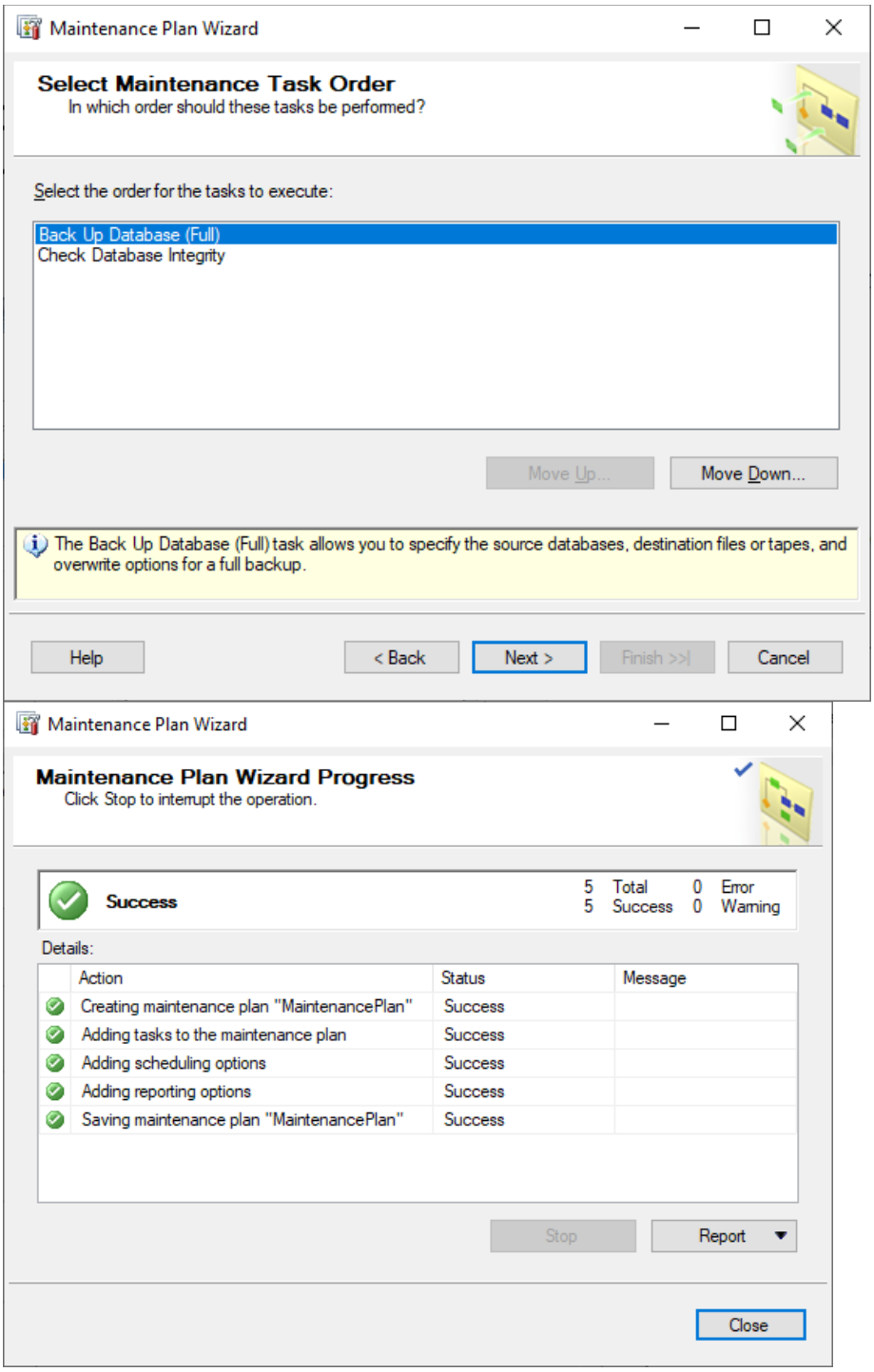


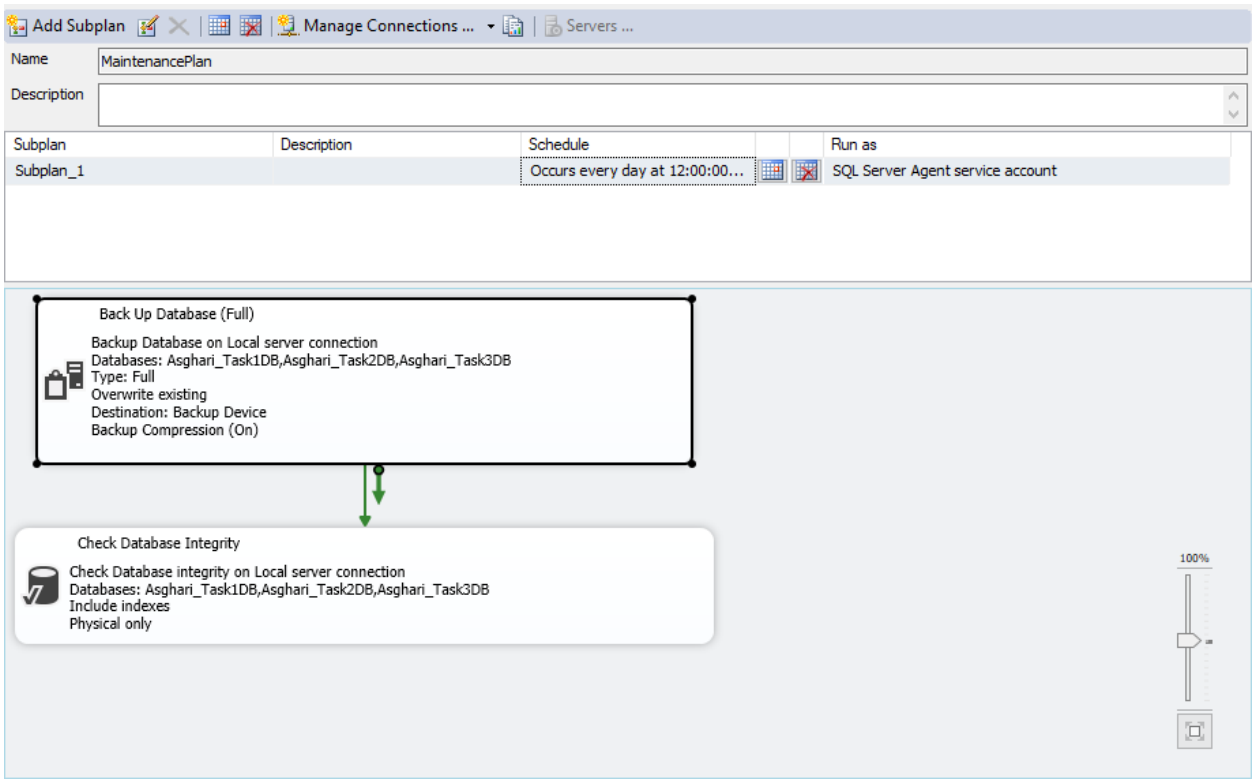
This maintenance plan is scheduled to create a backup of all databases at 12:00:00AM every day and

save it is the path that is mentioned in the plan.

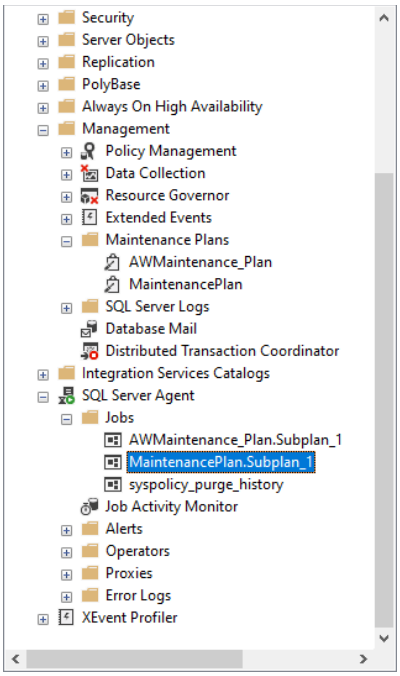


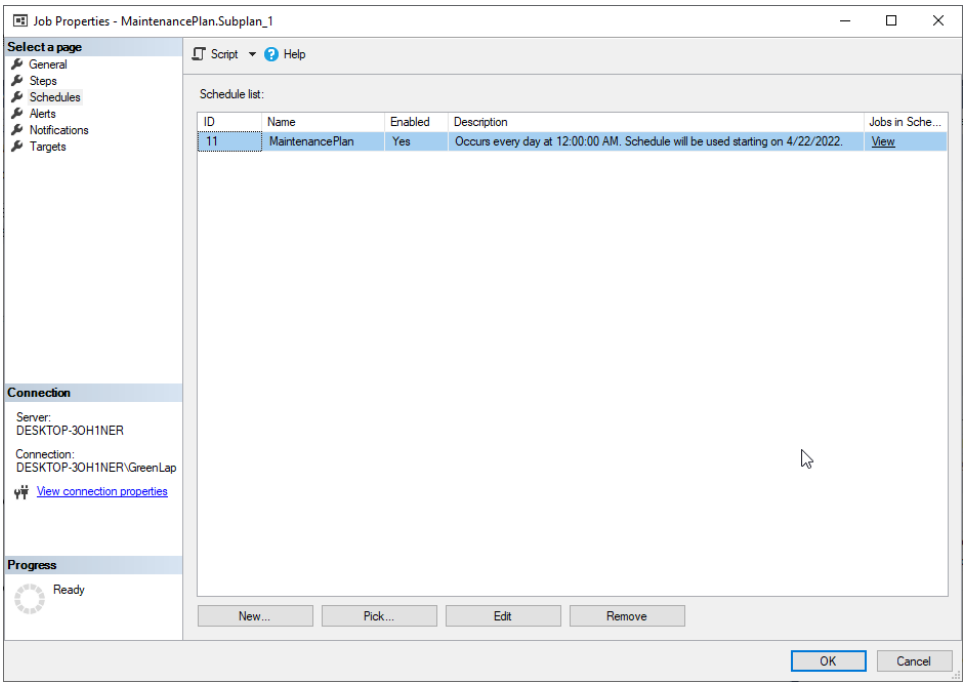



Maintenance Plan Wizard
Select Maintenance Task Order
In which order should these tasks be performed?
Select the order for the tasks to execute:
Back Up Database (Full)
Check Database Integrity
Move Up...
Move Down...
The Back Up Database (Full) task allows you to specify the source databases, destination files or tapes, and overwrite options for a full backup.
Help
< Back
Next >
Finish >>|
Cancel
Maintenance Plan Wizard
Maintenance Plan Wizard Progress
Click Stop to interrupt the operation.
Success
5 Total
5 Success
0 Error
0 Warning
Details:
Action
Status
Message
Creating maintenance plan "MaintenancePlan"
Success
Adding tasks to the maintenance plan
Success
Adding scheduling options
Success
Adding reporting options
Success
Saving maintenance plan "MaintenancePlan"
Success
Stop
Report
Close

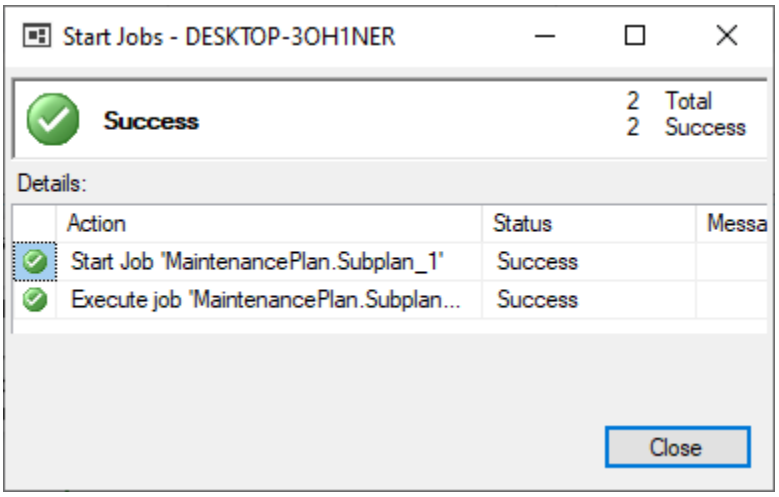


After creating this maintenance plan as it is scheduled for 12:00;00 AM, a job is created for this maintenance plan.

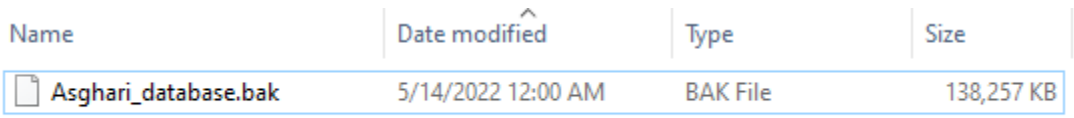




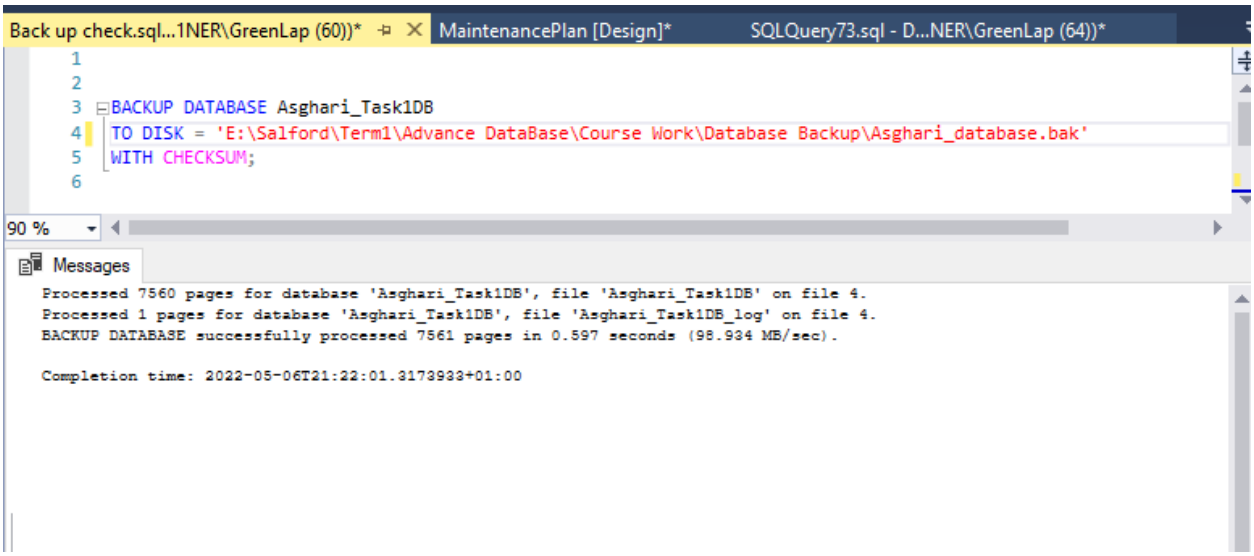
When the scheduler is executed, the database backup will be prepared.



The image below shows all backups that are created by this job.



To ensure that the backup file will be successfully restored, the WITH CHECKSUM option has been used.



9 Data Privacy, Ethical and legal issues

As a result of the use of Young Lives: International Study of Childhood Poverty: Rounds 1-5 Constructed Files, 2002-2016, all ethical and legal concerns from https://www.younglives.org.uk/use-our-data have been met, including registration, citing and acknowledging the data.

10 Conclusion:

Ethiopia with 33.18% absolute poverty and 73.36% severe poverty has the highest child poverty rate. In addition, Vietnam is ranked second with 16.30% absolute poverty and 66.53% severe Poverty. However, India with 9.31% has the lowest absolute poverty while Peru with 41.79% has the lowest severe poverty. In aspect of severe sanitation deprivation India with 78% has the highest poverty rate and then Ethiopia with 62%. Regarding the severe water deprivation, Vietnam with 92% has the worst situation and then Ethiopia with 71%. Turning to the of food and health deprivation Ethiopia has the most deprived children. The deprivation in education is almost the same in each country bet the most deprivation is for Vietnam with 2.04%.

In addition, 63.26% of children in the Young Life project suffer from sanitation deprivation. Moreover, Water deprivation with 60.88% is the second most severe deprivation among the children of the Young Life project. Health, Food and Education are the children's other severe deprivations with 25.59%, 11.63% and 1.67% respectively.

Task2: Educational Inequality in Vietnam

1 Abstract:

In this project, the Educational Inequality in Vietnam will be measured based on the Young Lives: School Survey, Vietnam, 2016-2017 dataset. Educational Inequality means the unequal distribution of academic resources including but not limited to; school infrastructure, qualified and experienced teachers, student achievements, and tech. [7] In this project, the inequality in the education sector is measured based on location, gender, and ethnicity. To show this measure four different reports are created and visualized. The first report shows the percentage of students that have access to schools with acceptable infrastructures, including access to water, electricity, library, computer, internet and a safe building. These criteria are shown by the location, gender and ethnicity of students. The second report demonstrates the percentage of students that are taught by experienced and qualified teachers. The third report describes the students' achievements based on their results in Math, English and Transferable Skill test. Finally, the fourth report is a summary of three reports.

2 Introduction:

Educational inequality is the unequal distribution of academic resources, including but not limited to; school funding, qualified and experienced teachers, books, and technologies to socially excluded communities. These communities tend to be historically disadvantaged and oppressed. Individuals belonging to these marginalized groups are often denied access to schools with adequate resources. Inequality leads to major differences in the educational success or efficiency of these individuals and ultimately suppresses social and economic mobility. Inequality in education is broken down into different types: Regional inequality, inequality by sex, inequality by social stratification, inequality by parental income, inequality by parent occupation, and many more. [7]

3 Design Rationale

In This section, a database has been designed that consists of the following objects:

- Two tables have been created from the dataset
- Two views have been created with selected fields
- Three views have been created to show the data for students, schools and teachers
- Three procedures have been created to compute the measures of inequality in the education sector and the output is stored in tables
- A stored procedure has been created to present a summary report and the output is stored in a table

4 Design Considerations

The data used in this publication come from Young Lives, a 20-year study of childhood poverty and transitions to adulthood in Ethiopia, India, Peru and Vietnam (www.younglives.org.uk). Young Lives is funded by UK aid from the Foreign, Commonwealth & Development Office and a number of further funders. The views expressed here are those of the author(s). They are not necessarily those of Young

Lives, the University of Oxford, FCDO or other funders. [4]

In this project, the Young Lives: School Survey, Vietnam, 2016-2017 is used to assess inequality in the educational sector in Vietnam. There are two Tab files in this dataset named vietnam_wave_1.tab and vietnam_wave_2.tab. The 2016-2017 Vietnam School Survey Wave 1 Data was collected between September to October 2016. The Vietnam Wave 1 file contains all the data collected at the beginning of the school year (Wave 1). The data have been merged into one data file at the student level. [8]

The 2016-2017 Vietnam School Survey Wave 2 Data were collected between March to April 2017. The Vietnam Wave 2 file contains all the data collected at the end of the school year (Wave 2). The data have been merged into one data file at the student level.

File Format	File Size (mb)	Download	
Dataset: Young Lives: School Survey, Vietnam, 2016-2017			
SPSS	17.17	Download	☐
STATA	16.99	Download	☐
TAB	17.23	Download	☐

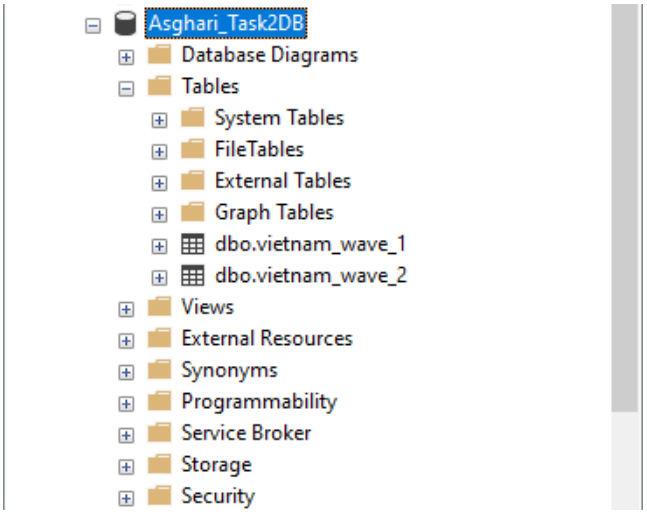
Download selected

After converting Tab files to CSV files, the files are imported to the database. To store the dataset in SQL Server, a new database is created named Asghari_task2DB.

According to the data dictionary number of cases is 8740 and the number of variables in vietnam_wave_1 and vietnam_wave_2 is 406 and 726 respectively. In this project, the educational inequality in Vietnam is assessed based on three criteria, including school infrastructure, experienced teachers and students' achievements. These criteria are measured by location, gender and ethnicity of students.

In the first stage Regarding the scope of this assessment, the fields that consist of the required data are selected and two views are created dbo.view_Vietnam_wave_1 and dbo. view_Vietnam_wave_2.

- **dbo.view_Vietnam_wave_1** consists of the schools' details, the student details, students' test results at the beginning of the educational year and their access to technology.
- **dbo.view_Vietnam_wave_2** consist of the students' test result at the end of the educational year and the teachers' details.



5 T-SQL Statements

5.1 Tables

5.1.1 [dbo].[Experienced_Qualified_Teacher]

```
USE [Asghari_Task2DB]
GO

/****** Object:  Table [dbo].[Experienced_Qualified_Teacher]    Script Date: 5/13/2022 6:53:31 PM ******/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO

CREATE TABLE [dbo].[Experienced_Qualified_Teacher](
    [Group_Type] [varchar](9) NOT NULL,
    [SubGroup] [varchar](9) NULL,
    [University_Education] [decimal](38, 2) NULL,
    [Teacher_Training_Qualification] [decimal](38, 2) NULL,
    [Experience] [decimal](38, 2) NULL,
    [Experienced_Qualified_Teacher] [decimal](38, 2) NULL
) ON [PRIMARY]
GO

```

5.1.2 [dbo].[Schools_Infrastructures]

```
USE [Asghari_Task2DB]
GO

/****** Object:  Table [dbo].[Schools_Infrastructures]    Script Date: 5/13/2022 6:54:34 PM ******/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO

CREATE TABLE [dbo].[Schools_Infrastructures](
    [Group_Type] [varchar](9) NOT NULL,
    [SubGroup] [varchar](9) NULL,
    [electricity] [decimal](38, 2) NULL,
    [water] [decimal](38, 2) NULL,
    [library_] [decimal](38, 2) NULL,
    [internet] [decimal](38, 2) NULL,
    [computers] [decimal](38, 2) NULL,
    [NoNeed_major_repairs] [decimal](38, 2) NULL,
    [Schools_Infrastructures] [decimal](38, 2) NULL
) ON [PRIMARY]
GO
```

5.1.3 [dbo].[Student_Achievement]

```
USE [Asghari_Task2DB]
GO

/****** Object:  Table [dbo].[Student_Achievement]    Script Date: 5/13/2022 6:55:24 PM ******/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO

CREATE TABLE [dbo].[Student_Achievement](
    [Group_Type] [varchar](9) NOT NULL,
    [SubGroup] [varchar](9) NULL,
    [No_repeated_Grades] [decimal](38, 2) NULL,
    [Transferable_skills] [decimal](38, 2) NULL,
    [ENG_Progress] [decimal](38, 2) NULL,
    [Math_Progress] [decimal](38, 2) NULL
) ON [PRIMARY]
GO
```

5.1.4 [dbo].[Summary_Report]

```
USE [Asghari_Task2DB]
GO

/****** Object:  Table [dbo].[Summary_Report]    Script Date: 5/13/2022 6:56:08 PM ******/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO

CREATE TABLE [dbo].[Summary_Report](
    [Group_Type] [varchar](9) NOT NULL,
    [SubGroup] [varchar](9) NULL,
    [Schools_Infrastructures] [decimal](38, 2) NULL,
    [Experienced_Qualified_Teacher] [decimal](38, 2) NULL,
    [ENG_Progress] [decimal](38, 2) NULL,
    [Math_Progress] [decimal](38, 2) NULL
) ON [PRIMARY]
GO
```

5.1.5 [dbo].[vietnam_wave_1]

vietnam_wave_1.tab has been imported to the table.

5.1.6 [dbo].[vietnam_wave_2]

vietnam_wave_2.tab has been imported to the table.

5.2 Views

5.2.1 [dbo].[view_Schools]

```
USE [Asghari_Task2DB]
GO
/****** Object:  View [dbo].[view_Schools]    Script Date: 5/13/2022 6:57:39 PM ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE view [dbo].[view_Schools]
as
select *,case when [NoNeed_major_repairs]=1and
Water=1and[electricity]=1and[library_]=1and
[internet]=1and[Computers]=1 then 1
else 0 end Schools_Infrastructures
     from (select
     [SCHOOLID]  ,[PROVINCE_CODE]    ,[PROVINCE]
     ,[DISTRICTCODE]     ,[DISTRICT]      ,[LOCALITY_CODE]
      ,[LOCALITY]  ,[electricity]
      ,case when [source_of_water_code] in (1,8) then 1 else 0 end water
      ,[library_]  ,[internet]    --,Computers
      ,case when computers>=20 --Computers_per_student>=@Avg_Computers_per_student
      then 1 else 0 end computers
       ,NoNeed_major_repairs
          from
      (select distinct a.[SCHOOLID],[PROVINCE_CODE],[PROVINCE]   ,[DISTRICTCODE],[DISTRICT]
      ,[LOCALITY_CODE],[LOCALITY] ,[Classrooms_num]  ,[Laboratories_num]
      ,[separate_classroom],Student_num ,[electricity] ,[library_]
      ,[internet],[computers] ,[sports_area]  ,[swimming_pool]
      ,[gymnasium],[toilets],[separated_toilets]  ,[source_of_water_code]
      ,[source_of_water] ,NoNeed_major_repairs
      from [dbo].[view_Vietnam_wave_1]a
left join (select SCHOOLID,count(*) Student_num from [Asghari_Task2DB].[dbo].[view_Vietnam_wave_1]
group by SCHOOLID)b
on a.SCHOOLID=b.SCHOOLID
      )k)k
GO
```

5.2.2 [dbo].[view_Students]

```
USE [Asghari_Task2DB]
GO

/****** Object:  View [dbo].[view_Students]    Script Date: 5/13/2022 7:01:55 PM ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE view [dbo].[view_Students]
as select a.[UNIQUEID]
,[No_repeated_Grades]
,a.[ENG_SCORE]
,a.[MATH_SCORE]
,b.[ENG_SCORE][ENG_SCORE_2]
,b.[MATH_SCORE][MATH_SCORE_2]
,b.TS_SCORE TS_SCORE_2
,case when isnull(b.ENG_RAWSCORE,0)-isnull(a.ENG_RAWSCORE,0) >0 then 1 else 0 end  ENG_Progress
,case when isnull(b.Math_RAWSCORE,0)-isnull(a.Math_RAWSCORE,0) >0 then 1 else 0 end  Math_Progress
from [dbo].[view_Vietnam_wave_1]a
left join  view_vietnam_wave_2 b
on a.UNIQUEID=b.UNIQUEID--8740

GO
```

5.2.3 [dbo].[view_Teachers]

```
USE [Asghari_Task2DB]
GO
/****** Object:  View [dbo].[view_Teachers]    Script Date: 5/13/2022 7:02:53 PM ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE view [dbo].[view_Teachers]
As
select * ,case when
University_Education=1
and Teacher_Training_Qualification=1
and Experience=1 then 1
else 0 end Experienced_Qualified_Teacher
from
(select UNIQUEID,SCHOOLID
--TC What is your highest level of education (excluding teacher training)?
,case when b.[ENG_TCLVLEDC] >3  and b.[Math_TCLVLEDC] >3 then 1 else 0 end University_Education
/*1 Upper secondary or equivalent
2 = Vocational training school
3 = College education
4 = University education (undergraduate)
5 = University education (postgraduate)*/
--TC What is your highest level of teacher training qualification?
,case when b.[ENG_TCTCHQLF]>1 and b.[Math_TCTCHQLF]>1  then 1 else 0 end  Teacher_Training_Qualification
/*
0 = I am not trained
1 = Short course or crash course in teaching profession
2 = Teacher training level (2 years after upper secondary education)
3 = Teacher training college level (3 years after upper secondary
education)
4 = Teacher training university level (4 years after upper secondary
education) or higher*/
--TC For how many years have you been doing the following? Working as a teacher
,case when b.ENG_TCYRTCH>4 and b.Math_TCYRTCH>4 then 1 else 0 end Experience
from [dbo].[view_vietnam_wave_2] b)k
GO
```

5.2.4 [dbo].[view_Vietnam_wave_1]

```
USE [Asghari_Task2DB]
GO
/****** Object:  View [dbo].[view_Vietnam_wave_1]    Script Date: 5/13/2022 7:05:17 PM ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE view [dbo].[view_Vietnam_wave_1]
as
select [UNIQUEID],[SCHOOLID],[CLASSID],[STUDENTID],[YLCHILDID],[PROVINCE][PROVINCE_CODE]
,case
when[PROVINCE]=1 then 'Ben Tre'--Mekong Delta
when[PROVINCE]=2 then 'Da Nang'--South Central Coast
when[PROVINCE]=3 then 'Hung Yen'--Red River Delta
when[PROVINCE]=4 then 'Lao Cai'--Northwest
when[PROVINCE]=5 then 'Phu Yen'--South Central Coast
else 'Unknown'
end PROVINCE
,[DISTRICTCODE]
,case
when [DISTRICTCODE]=  1 Then 'PY1'
when [DISTRICTCODE]=  2 Then 'PY2'
when [DISTRICTCODE]=  3 Then 'PY3'
when [DISTRICTCODE]=  4 Then 'PY4'
when [DISTRICTCODE]=  5 Then 'BT1'
when [DISTRICTCODE]=  6 Then 'BT2'
when [DISTRICTCODE]=  7 Then 'LC1'
when [DISTRICTCODE]=  8 Then 'LC2'
when [DISTRICTCODE]=  9 Then 'LC3'
when [DISTRICTCODE]=  10 Then 'HY1'
when [DISTRICTCODE]=  11 Then 'HY2'
when [DISTRICTCODE]=  12    Then 'DN1'
when [DISTRICTCODE]=  13    Then 'DN2'
when [DISTRICTCODE]=  14    Then 'DN3'
end [DISTRICT]
,[LOCALITY][LOCALITY_CODE]--ID School Location
,case
when [LOCALITY]=1 then 'Rural'
```

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```
when [LOCALITY]=2 then 'Urban'
else 'Unknown'
end [LOCALITY]
,[GENDER][GENDER_CODE]
,case
when [GENDER]=1 then 'Male'
when [GENDER]=2 then  'Female'
else 'Unknown'
end [GENDER]
,[AGE]
,case when [ETHNICITY] =1 then 1
when [ETHNICITY] <>1 then  0 end [ETHNICITY_Group_Code]
,case when [ETHNICITY] =1 then 'Miajority'
when [ETHNICITY] <>1 then  'Minority'end [ETHNICITY_Group]
,[ETHNICITY][ETHNICITY_CODE]
,case
when [ETHNICITY] =1 then 'Kinh'
when [ETHNICITY] =2 then 'H'Mong'
when [ETHNICITY] =3 then 'Cham-HRoi'
when [ETHNICITY] =4 then 'Ede'
when [ETHNICITY] =5 then 'Ba Na'
when [ETHNICITY] =6 then 'Nung'
when [ETHNICITY] =7 then 'Tay'
when [ETHNICITY] =8 then 'Dao'
when [ETHNICITY] =9 then 'Giay'
when [ETHNICITY] =10 then 'Other'
when [ETHNICITY] ='' then 'Unknown'
else 'Unknown'
end [ETHNICITY]
,[MOM_EDUC][MOM_EDUC_CODE]
,case
when [MOM_EDUC]=0 and [MOM_EDUC]<>'' then 'Never been to school'
when [MOM_EDUC]=1 then 'Primary school (Grades 1-5)'--7-11
when [MOM_EDUC]=2 then 'Lower secondary school (Grades 6-9)'--12-15
when [MOM_EDUC]=3 then 'Intermediate vocational training'
when [MOM_EDUC]=4 then 'Upper secondary school (Grades 10)'--16
when [MOM_EDUC]=5 then 'Higher education (e.g. university/college)'
when [MOM_EDUC]=6 then 'Don't know'
```

```
when [MOM_EDUC]=6 then 'Don’t know'
when [MOM_EDUC]='' then 'Unknown'
else 'Unknown'
end [MOM_EDUC]
,case when [MOM_EDUC] between 2 and 5 then 1
else 0 end 'MOM_is_Educated_Code' --7-11
,case when [MOM_EDUC] between 2 and 5 then 'MOM_is_Educated'
else 'MOM is not Educated' end 'MOM_is_Educated'
,case when STHVMTEL=1  then 1 else 0 end 'Mobile'
--,case when STHVRADO=1  then 1 else 0 end 'Radio'
--,case when STHVTELE=1  then 1 else 0 end 'Television'
,case when [STHVCOMP]=1  then 1 else 0 end 'Computer'
,case when [STHVINTR]=1  then 1 else 0 end 'St_Internet'
--,case when STHVDVD=1  then 1 else 0 end 'DVD'
--,case when STHVCBLE=1  then 1 else 0 end 'Cable TV box'
,case when STHVMTEL=1 and [STHVCOMP]=1 and [STHVINTR]=1 then 1 else 0 end Tech_Full_Access
----------------------------------------
,case when STRPTCL1=0 then 1 else 0 end 'No_repeated_Grades1-5' --ST Which grades have you repeated in school? In Grades 1-5
,case when STRPTCL6=0 then 1 else 0 end'No_repeated_Grades6-9'
,case when STRPTCL10=0 then 1 else 0 end'No_repeated_Grades10'
,case when cast(STRPTCL1 as int) +cast(STRPTCL6 as int)+cast(STRPTCL10 as int)=0 then 1 else 0 end No_repeated_Grades
,[ENG_RAWSCORE]
,[MATH_RAWSCORE]
,case when [ENG_RAWSCORE]>=20 then 1 else 0 end ENG_SCORE
,case when [MATH_RAWSCORE]>=20 then 1 else 0 end MATH_SCORE
----------------------English-------------------------
,case when STAGEENG=1 then 'Kindergarten'
when STAGEENG=2 then 'Grade 1 - 5'
when STAGEENG=3 then 'Grade 6 - 9'
when STAGEENG=4 then 'Grade 10'
when STAGEENG=5 then 'I have never learned English in school'
end Start_ENG
,case when STAGEENG<>5 then 1 else 0 end Know_ENG
,case when STPAYLNC=2 then 1 else 0 end Free_School_Meal--2=school provides lunch and I don’t pay for it
,case when HTTYPSCH=1 then 1 else 0 end Public_School
,case when HTPRDIST<>1 then 1 else 0 end Not_Poor_District
,[SCHFAC01A]Classrooms_num--SC SFO - Classrooms (Enter the number)
,[SCHFAC01B]Laboratories_num-- SC SFO - Laboratories(Enter the number)
,[SCHFAC02] separate_classroom-- SC SFO - Does each Grade 10 class have a separate classroom?
,[SCHFAC03] electricity--SC SFO - Is there an electricity supply at the school?
,[SCHFAC04]library_--SC SFO - Is there a functional library (i.e. a collection of books – not textboo
,[SCHFAC05]internet--SC SFO - Does the school have connected and working internet access?
,[SCHFAC06]computers--SC SFO - How many working computers are there for students to use?
,[SCHFAC07]sports_area--SC SFO - Does the school have a sports area or play area?
,[SCHFAC08]swimming_pool--SC SFO - Does the school have a swimming pool?
,[SCHFAC09]gymnasium--SC SFO - Does the school have a gymnasium?
,[SCHFAC10]toilets--SC SFO - How many individual working toilets are there for students to use? (Ple
,[SCHFAC11]separated_toilets--SC SFO - Does the school have separate toilets for male and female students?
,[SCHFAC12]source_of_water_code--SC SFO - What is the main source of drinking water at the school?
,case
when [SCHFAC12]  = 0    Then 'No drinking water'
when [SCHFAC12]  = 1    Then 'School''s own tap'
when [SCHFAC12]  = 2    Then 'Public tap'
when [SCHFAC12]  = 3    Then 'School''s own well'
when [SCHFAC12]  = 4    Then 'Public well'
when [SCHFAC12]  = 5    Then 'Rainwater'
when [SCHFAC12]  = 6    Then 'Spring'
when [SCHFAC12]  = 7    Then 'Tanker truck'
when [SCHFAC12]  = 8    Then 'Bottled water provided to school'
when [SCHFAC12]  = 9    Then 'Students bring drinking water from home'
when [SCHFAC12]  = 10   Then 'Other'
when [SCHFAC12]  = 99   Then 'Missing'
when [SCHFAC12]  = 88   Then 'NA'
end source_of_water
,case when [SCHFAC14]=0 then 1
else 0 end NoNeed_major_repairs--SC SFO - Does the school need major repairs? ('Major repairs' means the physical
from [Asghari_Task2DB].[dbo].[vietnam_wave_1]a
GO
```

5.2.5 [dbo].[view_vietnam_wave_2]

```
USE [Asghari_Task2DB]
GO
/****** Object:  View [dbo].[view_vietnam_wave_2]    Script Date: 5/13/2022 7:08:11 PM ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE view [dbo].[view_vietnam_wave_2]
as
select *
,case when k.ENG_RAWSCORE>=20 then 1 else 0 end ENG_SCORE
,case when k.MATH_RAWSCORE>=20 then 1 else 0 end MATH_SCORE
,case when k.TS_RAWSCORE>=20 then 1 else 0 end TS_SCORE
from (select UNIQUEID,SCHOOLID,CLASSID,STUDENTID,STNTCMP,STDINT
,case when ENG_TEST='No' then 0 else ENG_RAWSCORE end ENG_RAWSCORE
,case when MATH_TEST='No' then 0 else MATH_RAWSCORE end MATH_RAWSCORE
--,TS_TEST--Transferable skills test
,case when TS_TEST='No' then 0
when TS_TEST<>'No' then
cast( [TS_ITEM1] as smallint) +cast([TS_ITEM2] as smallint)
+cast([TS_ITEM3A] as smallint)+cast([TS_ITEM3B] as smallint)
+cast([TS_ITEM3C] as smallint) +cast([TS_ITEM3D] as smallint)
+cast([TS_ITEM3E] as smallint) +cast([TS_ITEM3F] as smallint)
+cast([TS_ITEM3] as smallint) +cast([TS_ITEM4] as smallint)
+cast([TS_ITEM5] as smallint) +cast([TS_ITEM6] as smallint)
+cast([TS_ITEM7] as smallint) +cast([TS_ITEM8A] as smallint)
+cast([TS_ITEM8B] as smallint) +cast([TS_ITEM8C] as smallint)
+cast([TS_ITEM8] as smallint) +cast([TS_ITEM9] as smallint)
+cast([TS_ITEM                                    ] as smallint)
+cast([TS_ITEM                                    _12] as smallint)
+cast([TS_ITEM13] as smallint) +cast([TS_ITEM14] as smallint)
+cast([TS_ITEM15] as smallint) +cast([TS_ITEM16] as smallint)
+cast([TS_ITEM17] as smallint) +cast([TS_ITEM18] as smallint)
+cast([TS_ITEM19] as smallint) +cast([TS_ITEM20] as smallint)
+cast([TS_ITEM21] as smallint) +cast([TS_ITEM22] as smallint)
+cast([TS_ITEM23] as smallint) end TS_RAWSCORE
```

column TS_ITEM8(varchar, null)

```
37
38  ----------------Experienced teacher---------------------
39  ,ENG_TCHID --TC Teacher ID
40  ,ENG_TCHSUBJ --TC Teacher Subject
41  ,[ENG_TCLVLEDC]--TC What is your highest level of education (excluding teacher training)?
42  /*1 Upper secondary or equivalent
43  2 = Vocational training school
44  3 = College education
45  4 = University education (undergraduate)
46  5 = University education (postgraduate)*/
47  ,[ENG_TCTCHQLF]--TC What is your highest level of teacher training qualification?
48  /*
49  0 = I am not trained
50  1 = Short course or crash course in teaching profession
51  2 = Teacher training level (2 years after upper secondary education)
52  3 = Teacher training college level (3 years after upper secondary
53  education)
54  4 = Teacher training university level (4 years after upper secondary
55  education) or higher*/
56  ,ENG_TCAWDTTL --TC Have you ever been awarded the title of 'Excellent Teacher'?
57  /*0 = Never been an excellent teacher
58  1 = Yes, school level
59  2 = Yes, district level
60  3 = Yes, province level or higher*/
61  ,ENG_TCYRTCH--TC For how many years have you been doing the following? Working as a teacher
62  ,ENG_TCSTDENG--TC Before you became a teacher, for how many years did you study English as a subject?
63  /*0 = I have never studied English as a subject
64  1 = Up to 1 year
65  2 = 1 - 2 years
66  3 = 3 - 5 years
67  4 = 6 - 10 years
68  5 = More than 10 years*/
69  --------------Table 4c: Teacher Background Questionnaire - Maths Teacher----------------
70  ,MATH_TCHID --TC Teacher ID
71  ,MATH_TCHSUBJ --TC Teacher Subject
72  ,[MATH_TCLVLEDC]--TC What is your highest level of education (excluding teacher training)?
73  /*1 Upper secondary or equivalent
74  2 = Vocational training school
```

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```
3 = College education
4 = University education (undergraduate)
5 = University education (postgraduate)*/
,[MATH_TCTCHQLF]--TC What is your highest level of teacher training qualification?
/*
0 = I am not trained
1 = Short course or crash course in teaching profession
2 = Teacher training level (2 years after upper secondary education)
3 = Teacher training college level (3 years after upper secondary
education)
4 = Teacher training university level (4 years after upper secondary
education) or higher*/
,MATH_TCAWDTTL --TC Have you ever been awarded the title of 'Excellent Teacher'?
/*0 = Never been an excellent teacher
1 = Yes, school level
2 = Yes, district level
3 = Yes, province level or higher*/
,MATH_TCYRTCH--TC For how many years have you been doing the following? Working as a teacher
,MATH_TCSTDENG--TC Before you became a teacher, for how many years did you study English as a subject?
/*0 = I have never studied English as a subject
1 = Up to 1 year
2 = 1 - 2 years
3 = 3 - 5 years
4 = 6 - 10 years
5 = More than 10 years*/

from vietnam_wave_2
)k
GO
```

5.3 Stored Procedures

5.3.1 [dbo].[sp_Experienced_Qualified_Teacher]

```
USE [Asghari_Task2DB]
GO
/****** Object:  StoredProcedure [dbo].[sp_Experienced_Qualified_Teacher]    Script Date: 5/13/2022 7:10:57 PM ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
ALTER procedure [dbo].[sp_Experienced_Qualified_Teacher](@Group_Type as varchar(100))
--exec sp_Experienced_Qualified_Teacher 'All'
as begin
Declare @Student_Number as int=(select count(distinct [UNIQUEID]) from [dbo].[view_Vietnam_wave_1])
--select @Student_Number
----------percentage of Experienced_Qualified_Teacher by [LOCALITY] -------------------------
if object_id('Experienced_Qualified_Teacher') is not null
drop table Experienced_Qualified_Teacher
select
'LOCALITY' Group_Type
,[LOCALITY] SubGroup
,cast(cast(sum([University_Education]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [University_Education]
,cast(cast(sum([Teacher_Training_Qualification]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [Teacher_Training_Qualification]
,cast(cast(sum([Experience]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [Experience]
,cast(cast(sum([Experienced_Qualified_Teacher]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [Experienced_Qualified_Teacher]
into Experienced_Qualified_Teacher
from [dbo].[view_Vietnam_wave_1] a
left join [dbo].[view_Teachers] b
on a.UNIQUEID=b.UNIQUEID
group by [LOCALITY]
union all
----------percentage of [GENDER]--------------
select
'GENDER' Group_Type
,[GENDER]
,cast(cast(sum([University_Education]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [University_Education]
,cast(cast(sum([Teacher_Training_Qualification]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [Teacher_Training_Qualification]
,cast(cast(sum([Experience]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [Experience]
,cast(cast(sum([Experienced_Qualified_Teacher]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [Experienced_Qualified_Teacher]
from [dbo].[view_Vietnam_wave_1] a
left join [dbo].[view_Teachers] b
```

82 %

```
on a.UNIQUEID=b.UNIQUEID
group by [GENDER]
union all
------------percentage of [ETHNICITY_Group]-----------------------
select
'ETHNICITY' Group_Type
,[ETHNICITY_Group]
,cast(cast(sum([University_Education]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [University_Education]
,cast(cast(sum([Teacher_Training_Qualification]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [Teacher_Training_Qualification]
,cast(cast(sum([Experience]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [Experience]
,cast(cast(sum([Experienced_Qualified_Teacher]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [Experienced_Qualified_Teacher]
from [dbo].[view_Vietnam_wave_1] a
left join [dbo].[view_Teachers] b
on a.UNIQUEID=b.UNIQUEID
group by [ETHNICITY_Group]
--------------------
select * from Experienced_Qualified_Teacher
where Group_Type=@Group_Type -- Shows the specific Group_Type
or 'All'=@Group_Type--Shows all the Group_Type
order by [Experienced_Qualified_Teacher] desc
end
```

5.3.2 [dbo].[sp_School_Infrastructure]

```
USE [Asghari_Task2DB]
GO
/****** Object:  StoredProcedure [dbo].[sp_School_Infrastructure]    Script Date: 5/13/2022 7:12:12 PM ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
--percentage of students who have access to good School Infrastructures
ALTER procedure [dbo].[sp_School_Infrastructure](@Group_Type as varchar(100))
--exec sp_School_Infrastructure 'All'
as begin
Declare @Student_Number as int=(select count(distinct [UNIQUEID]) from [dbo].[view_Vietnam_wave_1])
--select @Student_Number

-----------percentage of student have access to good School Infrastructures -------------------------
if object_id('Schools_Infrastructures') is not null
drop table Schools_Infrastructures
----------Percentage of student by LOCALITY-----------------------
select
'LOCALITY' Group_Type,
a.[LOCALITY] SubGroup
--,a.[GENDER],a.[ETHNICITY_Group]
,cast(cast(sum( b.[electricity]) as decimal(38,2))*100 /@Student_Number as decimal(38,2))  [electricity]
,cast(cast(sum(b.[water]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [water]
,cast(cast(sum(b.[library_]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [library_]
,cast(cast(sum(b.[internet]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [internet]
,cast(cast(sum(b.[computers]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [computers]
,cast(cast(sum(b.[NoNeed_major_repairs]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [NoNeed_major_repairs]
,cast(cast(sum(b.[Schools_Infrastructures]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [Schools_Infrastructures]
into Schools_Infrastructures
from [dbo].[view_Vietnam_wave_1] a
left join [dbo].[view_Schools] b
on a.SCHOOLID=b.SCHOOLID
group by a.[LOCALITY]
union all
----------Percentage of [GENDER]--------------------
select
'GENDER' Group_Type,
```

82 %

```
a.[GENDER]
--,a.[ETHNICITY_Group]
,cast(cast(sum( b.[electricity]) as decimal(38,2))*100 /@Student_Number as decimal(38,2))  [electricity]
,cast(cast(sum(b.[water]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [water]
,cast(cast(sum(b.[library_]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [library_]
,cast(cast(sum(b.[internet]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [internet]
,cast(cast(sum(b.[computers]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [computers]
,cast(cast(sum(b.[NoNeed_major_repairs]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [NoNeed_major_repairs]
,cast(cast(sum(b.[Schools_Infrastructures]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [Schools_Infrastructures]
from [dbo].[view_Vietnam_wave_1] a
left join [dbo].[view_Schools] b
on a.SCHOOLID=b.SCHOOLID
group by a.[GENDER]
union all
---------Percentage of ETHNICITY----------------
select
'ETHNICITY' Group_Type,
a.[ETHNICITY_Group]
,cast(cast(sum( b.[electricity]) as decimal(38,2))*100 /@Student_Number as decimal(38,2))  [electricity]
,cast(cast(sum(b.[water]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [water]
,cast(cast(sum(b.[library_]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [library_]
,cast(cast(sum(b.[internet]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [internet]
,cast(cast(sum(b.[computers]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [computers]
,cast(cast(sum(b.[NoNeed_major_repairs]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [NoNeed_major_repairs]
,cast(cast(sum(b.[Schools_Infrastructures]) as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [Schools_Infrastructures]
from [dbo].[view_Vietnam_wave_1] a
left join [dbo].[view_Schools] b
on a.SCHOOLID=b.SCHOOLID
group by a.[ETHNICITY_Group]
-----------------------------------

select * from Schools_Infrastructures
where Group_Type=@Group_Type
or 'All'=@Group_Type
order by [Schools_Infrastructures] desc
end
```

5.3.3 [dbo].[sp_Student_Achievement]

```sql
USE [Asghari_Task2DB]
GO
/****** Object:  StoredProcedure [dbo].[sp_Student_Achievement]    Script Date: 5/13/2022 7:13:17 PM ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO

/****** Script for SelectTopNRows command from SSMS  ******/
ALTER procedure [dbo].[sp_Student_Achievement](@Group_Type varchar(100))
--exec sp_Student_Achievement 'All'
as begin
Declare @Student_Number as int=(select count(distinct [UNIQUEID]) from [dbo].[view_Vietnam_wave_1])
--select @Student_Number
----------Student Achievement by LOCALITY--------------------
if object_id('Student_Achievement') is not null drop table Student_Achievement
select
'LOCALITY' Group_Type
,[LOCALITY] SubGroup
,cast(cast(sum(b.[No_repeated_Grades])as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [No_repeated_Grades]
,cast(cast(sum(TS_SCORE_2)as decimal(38,2))*100/@Student_Number as decimal(38,2))Transferable_skills
,cast(cast(sum(ENG_Progress)as decimal(38,2))*100/@Student_Number as decimal(38,2))ENG_Progress
,cast(cast(sum(Math_Progress)as decimal(38,2))*100/@Student_Number as decimal(38,2))Math_Progress
--,cast(cast(sum([MATH_SCORE])as decimal(38,2))*100/@Student_Number as decimal(38,2))[MATH_SCORE]
--,cast(cast(sum(MATH_SCORE_2)as decimal(38,2))*100/@Student_Number as decimal(38,2))MATH_SCORE_2
--,cast(cast(sum([Know_ENG])as decimal(38,2))*100/@Student_Number as decimal(38,2))[Know_ENG]
into Student_Achievement
from [dbo].[view_Vietnam_wave_1]b
left join [Asghari_Task2DB].[dbo].[view_Students] a
on a.UNIQUEID=b.UNIQUEID
group by
      [LOCALITY]
--------By GENDER-----------------
union all
select
'GENDER' Group_Type
,[GENDER]
[LOCALITY]
,cast(cast(sum(b.[No_repeated_Grades])as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [No_repeated_Grades]
,cast(cast(sum(TS_SCORE_2)as decimal(38,2))*100/@Student_Number as decimal(38,2))Transferable_skills
,cast(cast(sum(ENG_Progress)as decimal(38,2))*100/@Student_Number as decimal(38,2))ENG_Progress
,cast(cast(sum(Math_Progress)as decimal(38,2))*100/@Student_Number as decimal(38,2))Math_Progress
from  [dbo].[view_Vietnam_wave_1]b
left join [Asghari_Task2DB].[dbo].[view_Students] a
on a.UNIQUEID=b.UNIQUEID

  group by
[GENDER]
----------BY ETHNICITY_Group ---------------------
union all
select
'ETHNICITY' Group_Type
,[ETHNICITY_Group]
[LOCALITY]
,cast(cast(sum(b.[No_repeated_Grades])as decimal(38,2))*100 /@Student_Number as decimal(38,2)) [No_repeated_Grades]
,cast(cast(sum(TS_SCORE_2)as decimal(38,2))*100/@Student_Number as decimal(38,2))Transferable_skills
,cast(cast(sum(ENG_Progress)as decimal(38,2))*100/@Student_Number as decimal(38,2))ENG_Progress
,cast(cast(sum(Math_Progress)as decimal(38,2))*100/@Student_Number as decimal(38,2))Math_Progress
from [dbo].[view_Vietnam_wave_1]b
left join [Asghari_Task2DB].[dbo].[view_Students] a
on a.UNIQUEID=b.UNIQUEID

  group by [ETHNICITY_Group]
------------------------
select * from Student_Achievement
where Group_Type=@Group_Type --Shows specific Group_Type
or 'All'=@Group_Type--All the data
order by  [No_repeated_Grades] desc
,Transferable_skills desc
,ENG_Progress desc
,Math_Progress desc
  end
```

5.3.4 [dbo].[sp_Summary_Report]

```
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
ALTER procedure  [dbo].[sp_Summary_Report] (@min_perc as int)
--exec dbo.sp_Summary_Report 20
as
Begin
if object_id('Summary_Report') is not null drop table Summary_Report
select
sc.Group_Type,sc.SubGroup,sc.Schools_Infrastructures
,t.Experienced_Qualified_Teacher
,st.ENG_Progress,st.Math_Progress
into Summary_Report from  [dbo].[Schools_Infrastructures] Sc
left join [dbo].[Experienced_Qualified_Teacher] T
on sc.Group_Type=t.Group_Type
and sc.SubGroup=t.SubGroup
left join [dbo].[Student_Achievement]st
on sc.Group_Type=st.Group_Type
and sc.SubGroup=st.SubGroup
----------------------------
select * from Summary_Report
where
ENG_Progress<=@min_perc
or Math_Progress<=@min_perc
order by
ENG_Progress desc
,Math_Progress desc
end
```

6 Report Design

In this project for each report, a view with coded columns and a procedure is created. In the views listed below, it is possible to have access to the data of each measure including school infrastructure, experienced and qualified teachers, and student achievement:

- [dbo].[view_Schools]
- [dbo].[view_Students]
- [dbo].[view_Teachers]

The percentage of each criterion is measured in these stored procedures:

- [dbo].[sp_School_Infrastructure]
- [dbo].[sp_Experienced_Qualified_Teacher]
- [dbo].[sp_Student_Achievement]
- [dbo].[sp_Technology_Access]

In these procedures, the percentage of the student in each criterion and group (location, gender and ethnicity) is computed. In this procedure sums of each criterion are computed and then by dividing by the total number of students, the percentage of students is computed by their location, gender and ethnicity. Furthermore, these procedures have a parameter that defines the user's want to see which group of data. If users mention a specific group, including LOCALITY, GENDER or ETHNICITY, they can see the data based on that group but if they use ‘All’ as a parameter they can see all the data. The result of each procedure

is stored in a table.

As There are 54 ethnic groups in Vietnam and the largest ethnic groups are the Vietnamese or Kinh people, Kinh ethnicity is considered as majority ethnic group and the other a minority ethnic group. [9]. Since the gender of some students is not completed, an unknown gender record is shown in the reports.

6.1 School Infrastructure Report

To assess the school infrastructure some measures are considered such as access to water, electricity, internet, computer and the status of the school building (Some schools need a major repairment). The view and procedure that used for this assessment are [dbo].[view_Schools] and dbo.sp_School_Infrastructure.

6.1.1 [dbo].[view_Schools]

The view created for this assessment is [dbo].[view_Schools] ,and fields are coded by zero and one.

- If a school has electricity, source of water, library, internet and does not need major repairs these field the value is one otherwise the value is zero.
- Computers: if a school has more than 20 computers, this is considered as an acceptable number of computers provided for students and the value of this field is one otherwise the value is zero.
- school_Infrastructure: if a school has all the above criteria this field is one otherwise the value is zero.

6.1.2 dbo.sp_School_Infrastructure

In dbo.sp_School_Infrastructure, the percentage of students for each infrastructure criteria is measured based on students' location(rural/urban), gender and ethnicity(major/minor). The result of this procedure is stored in a table named [dbo].[Schools_Infrastructures].

6.1.3 Result

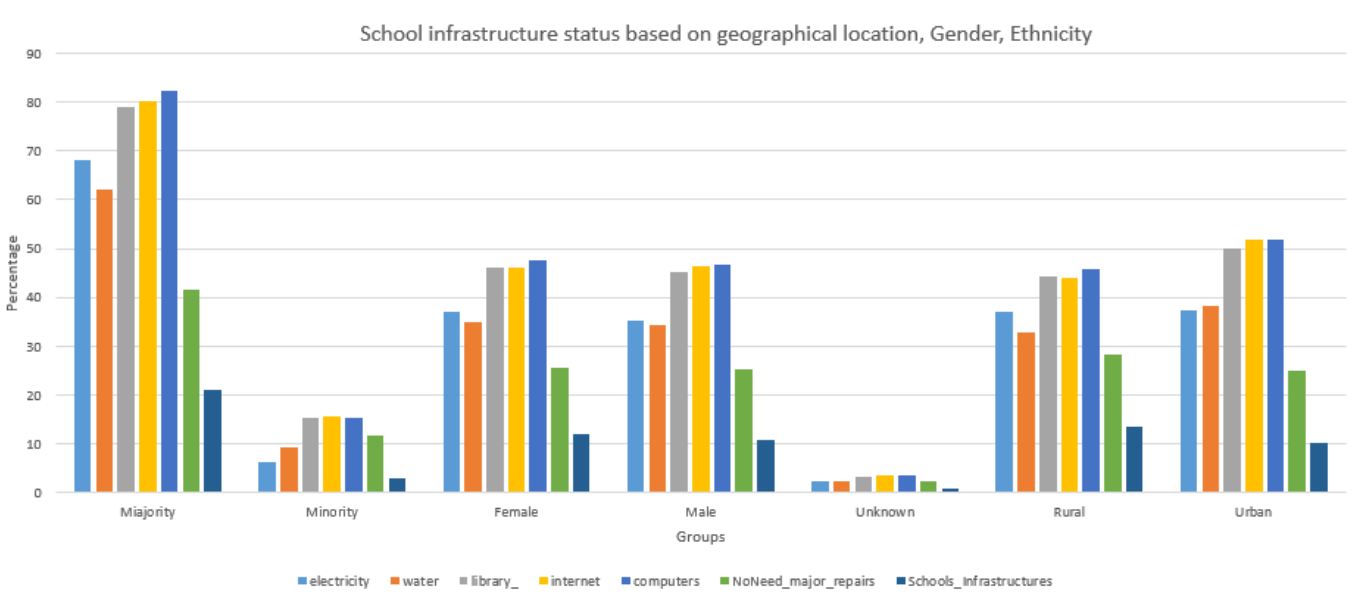
As the result shows, the access to a school with acceptable infrastructures is less than 50%. The majority ethnic group who has the highest level of access to a good school are 21% of students while minority ethnic group with 2.84% have the least access.

```
1
2  exec sp_School_Infrastructure 'All'
```

100 %

Results | Messages

	Group_Type	SubGroup	electricity	water	library_	internet	computers	NoNeed_major_repairs	Schools_Infrastructures
1	ETHNICITY	Miajority	68.24	62.07	79.05	80.29	82.46	41.66	21.00
2	LOCALITY	Rural	37.13	32.97	44.34	44.13	45.92	28.23	13.49
3	GENDER	Female	37.05	34.82	46.05	46.05	47.49	25.59	12.11
4	GENDER	Male	35.11	34.32	45.06	46.28	46.83	25.39	10.90
5	LOCALITY	Urban	37.30	38.40	50.08	51.75	51.91	25.11	10.34
6	ETHNICITY	Minority	6.19	9.30	15.37	15.59	15.37	11.68	2.84
7	GENDER	Unknown	2.27	2.23	3.31	3.55	3.50	2.36	0.82



6.2 Experienced and qualified Teacher Report

The second assessment for inequality in the education sector is based on teachers' experience and qualifications. This dimension is a measure based on these criteria:

- University education (undergraduate/postgraduate)
- Teacher training Qualification (More than two years of training)
- Experience(More than four years)

The view and procedure that used for this assessment are [dbo].[view_teachers] and [dbo].[sp_Experienced_Qualified_Teacher].

6.2.1 [dbo].[view_Teachers]

The data relating to teachers exists in view_vietnam_wave_2. To secure the data from unexpected access and compute the criteria a view is designed named "dbo.view_Teachers". In this view, some fields with a value of one or zero are kept and there is no direct access to teachers' information. This view consists of the following columns:

- University_Education: if the English and math teacher of a student has a university education the value is one.
- Teacher_Training_Qualification: if the English and math teacher of a student passed more than two ears teacher training qualifications, the value is one.
- Experience: if the English and math teacher of a student has more than 4 years of experience in teaching, the value is one.
- Experienced_Qualified_Teacher: if all the above fields are one, the value is one.

6.2.2 [dbo].[sp_Experienced_Qualified_Teacher]

In this stored procedure according to the data of [dbo].[view_Teachers] the percentage of students who have access to experienced and qualified teachers is computed. The result is shown by Location, gender, and ethnic group of students. The result of this procedure is stored in a table named [dbo].[Experienced_Qualified_Teacher].

6.2.3 Result

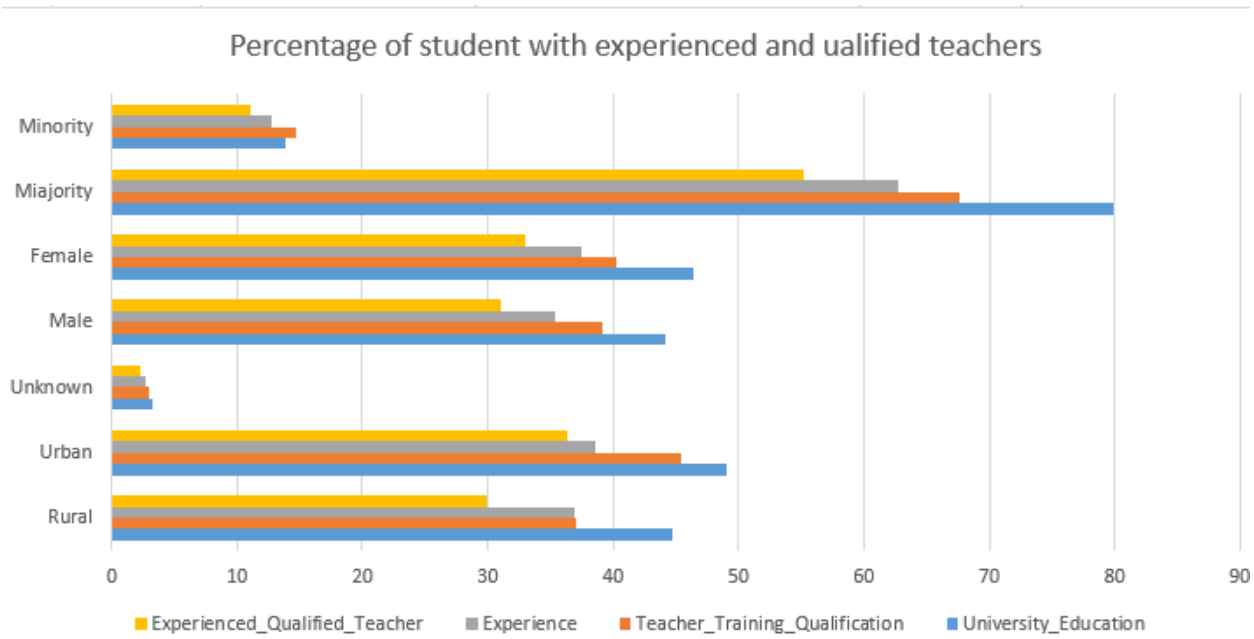
In the study, over 50% of students in the majority group had access to skilled and experienced teachers, while minority students had the least access to them. These numbers ranged from 30% to 37% for other groups.

```
1
2
3  exec sp_Experienced_Qualified_Teacher 'All'
```

100 %

Results | Messages

	Group_Type	SubGroup	University_Education	Teacher_Training_Qualification	Experience	Experienced_Qualified_Teacher
1	ETHNICITY	Miajority	79.93	67.63	62.75	55.22
2	LOCALITY	Urban	49.03	45.41	38.58	36.32
3	GENDER	Female	46.37	40.31	37.46	33.03
4	GENDER	Male	44.15	39.11	35.33	31.02
5	LOCALITY	Rural	44.76	36.98	36.84	29.95
6	ETHNICITY	Minority	13.86	14.76	12.68	11.05
7	GENDER	Unknown	3.26	2.97	2.63	2.22



6.3 Student Achievements Report

The student's achievements are measured based on the student's test results. The result of the first English and Math test exists in [dbo].[vietnam_wave_1] and the final result is in [dbo].[vietnam_wave_2]. To assess this dimension a view and a stored procedure are created named dbo.view_Students and dbo. sp_Student_Achievement.

6.3.1 dbo.view_Students

This view consists of the following columns. Some columns are coded in [dbo].[view_Vietnam_wave_1] and [dbo].[view_Vietnam_wave_2].

-
- No_repeated_Grades: if a student has not repeated a grade, this field is one.
- ENG_SCORE: if the result of the first English test is over 20, the value is one.
- Math_SCORE: if the result of the first Math test is over 20, the value is one.
- ENG_SCORE_2: if the result of the second English test is over 20, the value is one.
- Math_SCORE_2: if the result of the second Math test is over 20, the value is one.
- TS_SCORE_2: if the result of the Transferable Skills test (Problem-solving, Critical Thinking) is over 20, the value is one.
- ENG_Progress: if the student has progressed in the English test, the value is one.
- Math_Progress: if the student has progressed in the Math test, the value is one.

6.3.2 [dbo].[sp_Student_Achievement]

In this stored procedure, according to the data of [dbo].[view_Students] the percentage of student achievements is computed. The result shows the percentage of students that have not repeated a grade, gained more than 20 scores in transferable skills and had progression in their English and Mathematics test. The result of this procedure is stored in a table named [dbo].[Student_Achievement].

6.3.3 Result

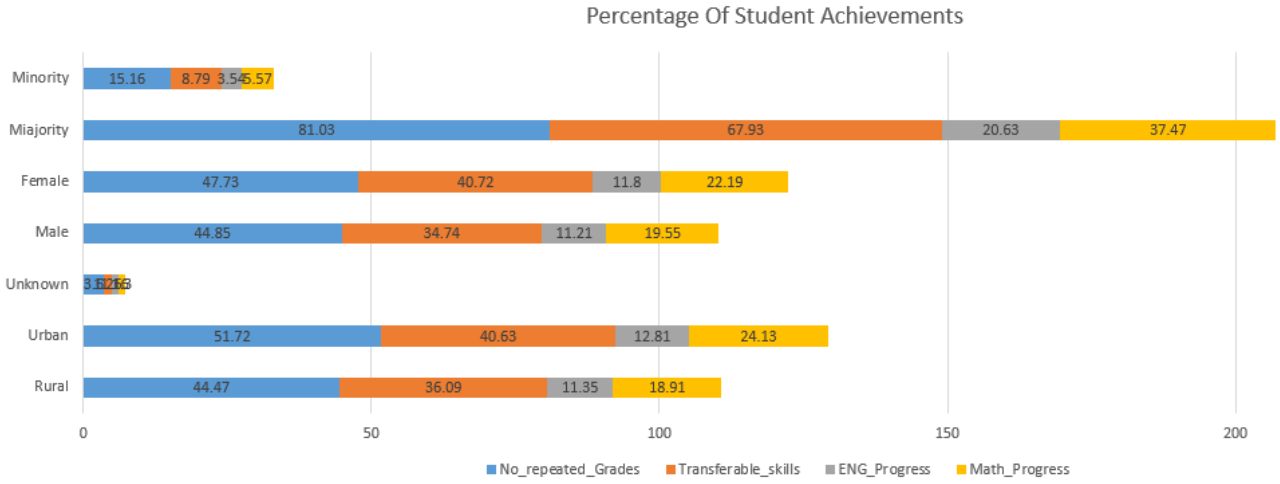
Students from the majority group showed the most growth based on the results. Additionally, rural students got better grades than their urban counterparts. Female students made better progress than male students.

```
2  exec sp_Student_Achievement 'All'
```

100 %

Results | Messages

	Group_Type	SubGroup	No_repeated_Grades	Transferable_skills	ENG_Progress	Math_Progress
1	ETHNICITY	Miajority	81.03	67.93	20.63	37.47
2	LOCALITY	Urban	51.72	40.63	12.81	24.13
3	GENDER	Female	47.73	40.72	11.80	22.19
4	GENDER	Male	44.85	34.74	11.21	19.55
5	LOCALITY	Rural	44.47	36.09	11.35	18.91
6	ETHNICITY	Minority	15.16	8.79	3.54	5.57
7	GENDER	Unknown	3.60	1.26	1.16	1.30



6.4 Summary Report

This report summarizes the previous reports and provides insight into all aspects of inequality in education in Vietnam. This report is generated by a stored procedure named dbo.sp_Summary_Report. The result is stored in a table named dbo. Summary_Report. Using this procedure, the user can filter the percentage they want to see. As an example, if a user wants to see which groups gained less than 50 per cent progress in English and maths, the parameter should be 50. To see all the results the parameter can be 100.

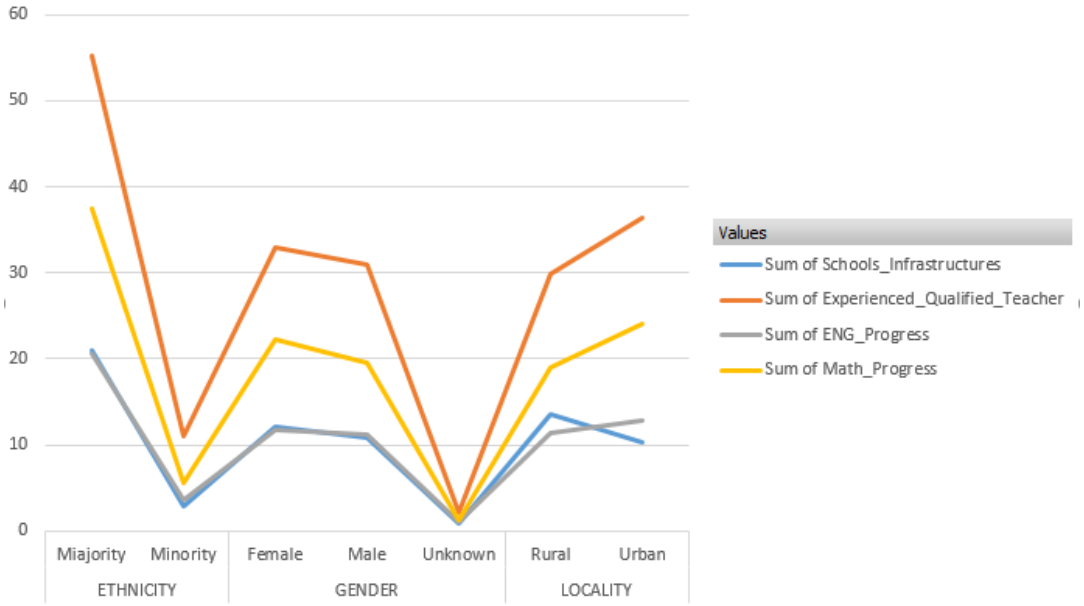
According to the results, The majority group has the most access to acceptable school infrastructure and experienced and qualified teachers. Therefore, the most student achievement is in these ethnic groups. While, the minority group, has the least access to school and teachers so the student has the least achievement. Although the minority has the most achievement, the progress of a student in English and Math is still less than 50 per cent.

```
1
2  exec dbo.sp_Summary_Report 100
```

100 %

Results | Messages

	Group_Type	SubGroup	Schools_Infrastructures	Experienced_Qualified_Teacher	ENG_Progress	Math_Progress
1	ETHNICITY	Miajority	21.00	55.22	20.63	37.47
2	LOCALITY	Urban	10.34	36.32	12.81	24.13
3	GENDER	Female	12.11	33.03	11.80	22.19
4	LOCALITY	Rural	13.49	29.95	11.35	18.91
5	GENDER	Male	10.90	31.02	11.21	19.55
6	ETHNICITY	Minority	2.84	11.05	3.54	5.57
7	GENDER	Unknown	0.82	2.22	1.16	1.30



7 Database Security

Since the result of this project has to be used by a client that is planning to initiate a project helping children from low-income families in Vietnam [10], to prevent direct access to original data, which show the details like students' and teachers' information, some views and stored procedures are designed. By creating different users with different accesses like data read, data write, owner and sysadmin, the access of users to data can be adjusted.

In some views, just coded fields are shown and users who have access to these views cannot get information about the individual students or teachers. If users have access to original tables and views, including dbo.Vietnam_wave_1, dbo.Vietnam_wave_2, dbo.view_Vietnam_wave_1 and dbo.view_Vietnam_wave_2, they can have access to details data.

Moreover, by creating stored procedures the data can be secured from the users. They can run the stored procedures to watch the result of reports without having direct access to tables and views and

their columns. And also, they do not know which processes are executing in that procedure unless they have access to modify the procedures.

8 Backup and Restore Strategy

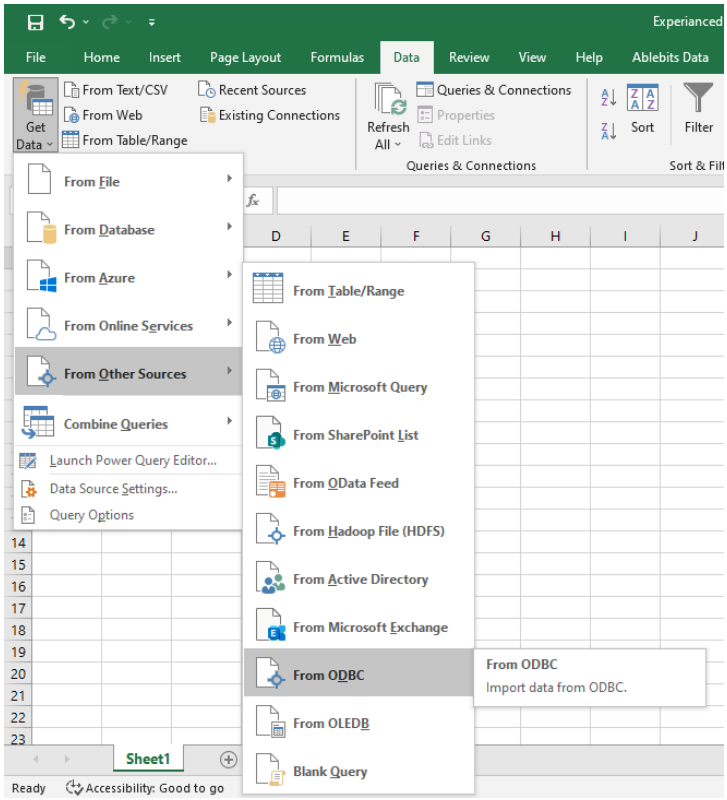
The database is backed up every day at 12:00:00 AM through a Maintenance Plan, as described in the previous section (Task 1).

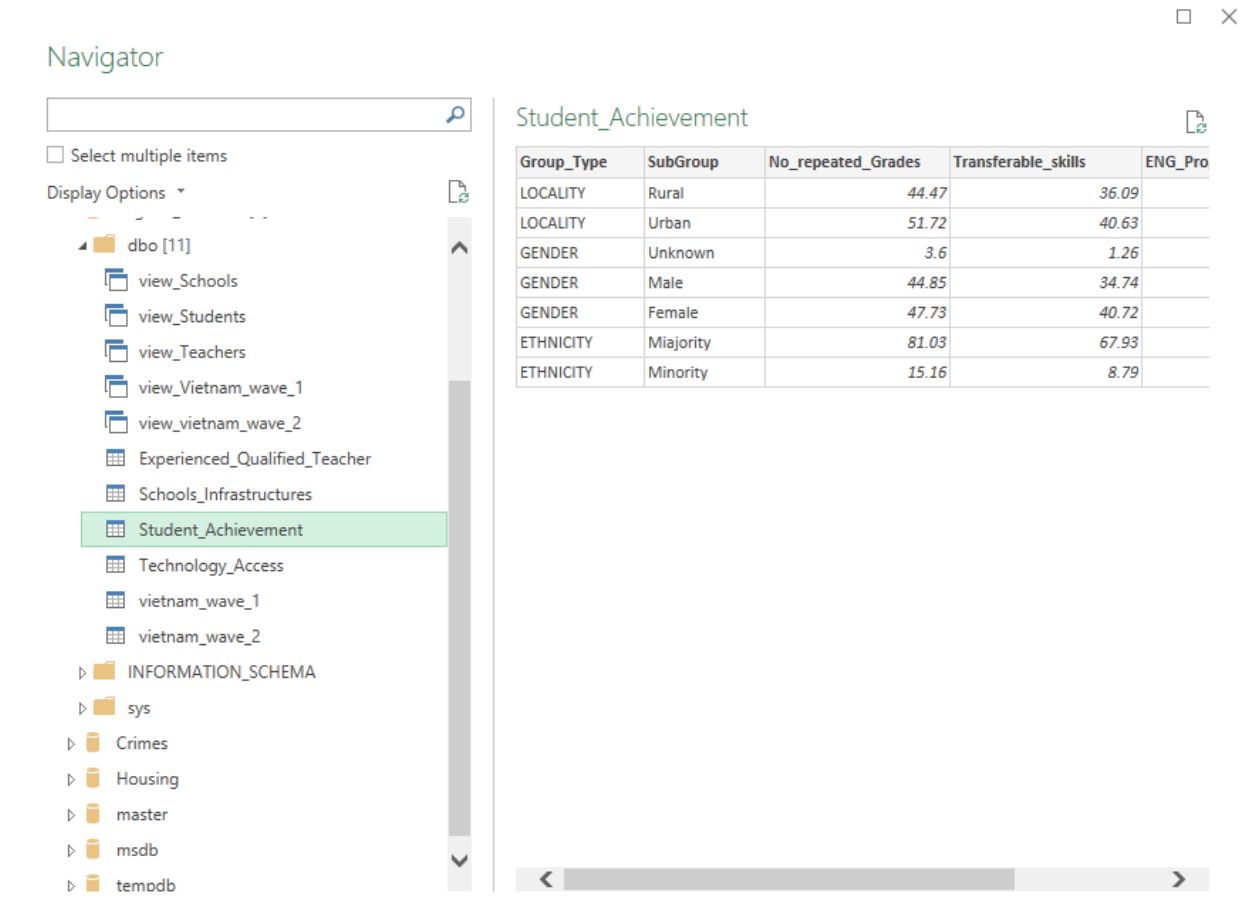
9 Business Intelligence Technics

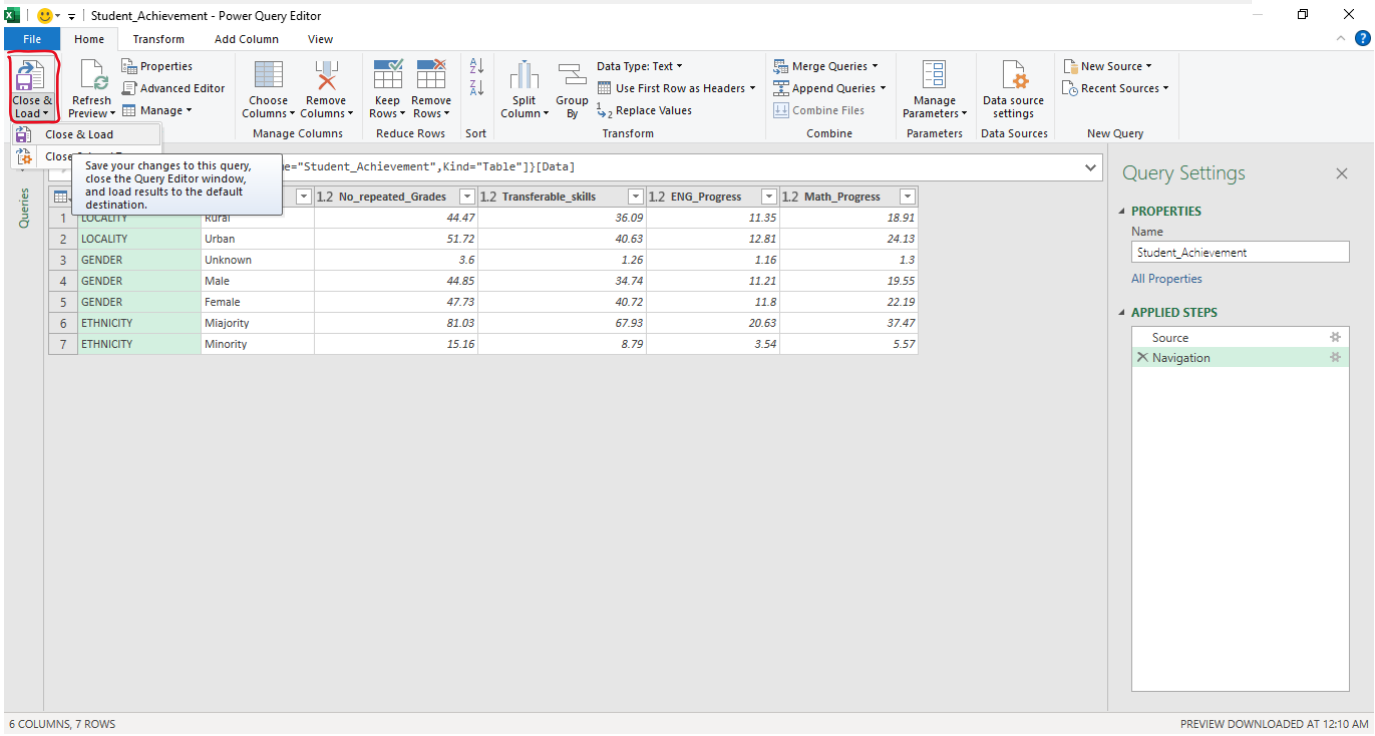
Computing the percentage of students in each assessment is the technic that is used to measure inequality in the education sector in Vietnam. Moreover, data visualization is one of the business intelligence technics which gives insight to decision-makers and this technic is used to show the result of reports to the client.

9.1 Visualization

In this project, the reports are visualized in Microsoft Excel. By creating an ODBC Connection, an excel file can connect to a database and fetch data. Then by using the charts, the result of each report is visualized. The steps of connection from an excel file to the database and fetching the data are shown below:




Navigator
Select multiple items
Display Options
dbo [11]
view_Schools
view_Students
view_Teachers
view_Vietnam_wave_1
view_vietnam_wave_2
Experienced_Qualified_Teacher
Schools_Infrastructures
Student_Achievement
Technology_Access
vietnam_wave_1
vietnam_wave_2
INFORMATION_SCHEMA
sys
Crimes
Housing
master
msdb
tempdb
Student_Achievement
Group_Type | SubGroup | No_repeated_Grades | Transferable_skills | ENG_Pro
LOCALITY | Rural | 44.47 | 36.09
LOCALITY | Urban | 51.72 | 40.63
GENDER | Unknown | 3.6 | 1.26
GENDER | Male | 44.85 | 34.74
GENDER | Female | 47.73 | 40.72
ETHNICITY | Miajority | 81.03 | 67.93
ETHNICITY | Minority | 15.16 | 8.79
Select Related Tables
Load
Transform Data
Cancel


Student_Achievement - Power Query Editor
File
Home
Transform
Add Column
View
Close & Load
Refresh Preview
Properties
Advanced Editor
Manage
Choose Columns
Remove Columns
Keep Rows
Remove Rows
Split Column
Group By
Data Type: Text
Use First Row as Headers
Replace Values
Merge Queries
Append Queries
Combine Files
Manage Parameters
Data source settings
New Source
Recent Sources
Close & Load
Save your changes to this query, close the Query Editor window, and load results to the default destination.
Queries
1.2 No_repeated_Grades
1.2 Transferable_skills
1.2 ENG_Progress
1.2 Math_Progress
1 LOCALITY Rural 44.47 36.09 11.35 18.91
2 LOCALITY Urban 51.72 40.63 12.81 24.13
3 GENDER Unknown 3.6 1.26 1.16 1.3
4 GENDER Male 44.85 34.74 11.21 19.55
5 GENDER Female 47.73 40.72 11.8 22.19
6 ETHNICITY Miajority 81.03 67.93 20.63 37.47
7 ETHNICITY Minority 15.16 8.79 3.54 5.57
Query Settings
PROPERTIES
Name
Student_Achievement
All Properties
APPLIED STEPS
Source
Navigation
6 COLUMNS, 7 ROWS
PREVIEW DOWNLOADED AT 12:10 AM

10 Data Privacy, Ethical and legal issues

As a result of the use of Young Lives: Young Lives: School Survey, Vietnam, 2016-2017, all ethical and legal concerns from https://www.younglives.org.uk/use-our-data have been met, including registration, citing and acknowledging the data.

11 Conclusion

Based on School Infrastructure Report, the access to a school with acceptable infrastructures is less than 50%. The majority ethnic group who has the highest level of access to a good school are 21% of students while minority ethnic group with 2.84% have the least access. In the study, over 50% of students in the majority group had access to qualified and experienced teachers, while the minority students had the least access to them. These numbers ranged from 30% to 37% for other groups. Students from the majority group showed the most growth based on the results. Additionally, rural students got better grades than their urban counterparts. Female students made better progress than male students.

According to the results, The majority group has the most access to acceptable school infrastructure and experienced and qualified teachers. Therefore, the most student achievement is in these ethnic groups. While, the minority group, has the least access to school and teachers so the student has the least achievement. Although the minority has the most achievement, the progress of a student in English and Math is still less than 50 per cent.

Task3: Crimes in Greater Manchester

1 Abstract :

In this section, an overview of crime in Greater Manchester between January 2017 and December 2018 has been compiled. Excel has been used in this report to visualize the number of crimes, crime growth rate, and the percentage of crime in Greater Manchester cities based on Lower Layer Super Output Areas (LSOAs) and local populations. In addition, the Vehicle Crime in Greater Manchester and anti-social behaviour crime in Salford has been visualized in ArcGIS with Open Street Map and Satellite Map.

2 Introduction:

In this section, a Crimes dataset for Greater Manchester between Jan 2017 and Dec 2018 and a LSOA population data will be analyzed. These datasets are based on LSOA codes. SOAs were designed to improve the reporting of small area statistics and are built up from groups of output areas (OA). Statistics for lower layer super output areas (LSOA) and middle layer super output areas (MSOA) were originally released in 2004 for England and Wales. Scotland also released statistics for data zones (DZ), that were equivalent to LSOAs, in 2004 and intermediate geographies (IG), that were equivalent to MSOAs, in 2005. Northern Ireland introduced LSOAs in 2005 but do not have an MSOA geography. [11]

3 Design Rationale

In This section, a database has been designed that consists of the following objects:

- A table for Crimes dataset (Greater Manchester between Jan 2017 and Dec 2018)
- Five tables for LSOA population data
- A Views to show crime growth rate and percentage of crime in each LSOA code between 2017 and 2018 in Greater Manchester
- Five stored procedures to search the data based on Age group, city, LSOA code, crime level, Crime type
- Three stored procedures to compute crime growth rate and percentage of crime based on Age group, city, LSOA code

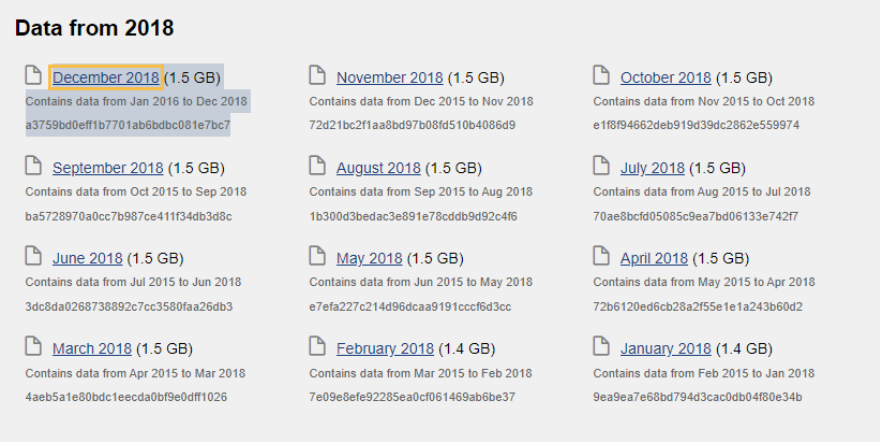
4 Design Considerations

4.1 Datasets and Data validation

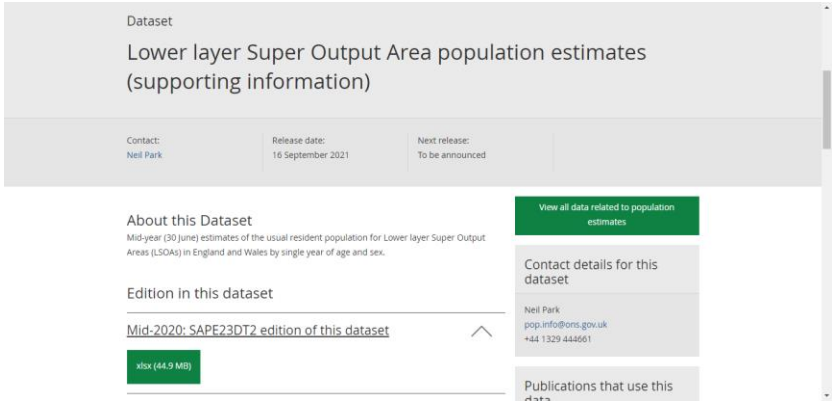
This section is based on two datasets:

1. **Crimes dataset** for Greater Manchester between Jan 2017 and Dec 2018 is downloaded from: https://data.police.uk/data/archive/ [10]. These CSV files provide street-level crime, outcome, and stop and search information, broken down by police force and 2011 lower layer super output area (LSOA). [12]

This data set is downloaded from the Archive tab, Data from 2018, December 2018 (1.5 GB) which Contains data from Jan 2016 to Dec 2018. The data for the year 2016 has been removed from the dataset and all the files with the name greater-manchester-street.csv from January 2017 to December 2018 are selected, combined and then imported to SQL Server.

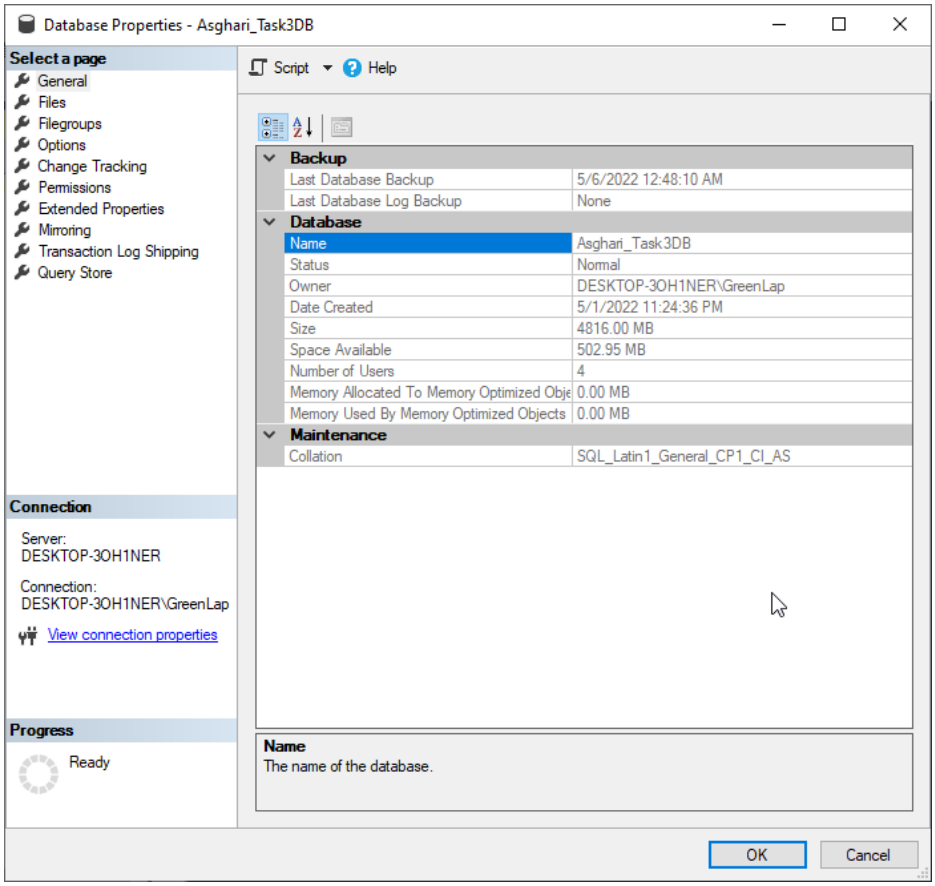


1. **LSOA population data** has been downloaded from: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/lowersuperoutputareamidyearpopulationestimates [10]



4.2 Database

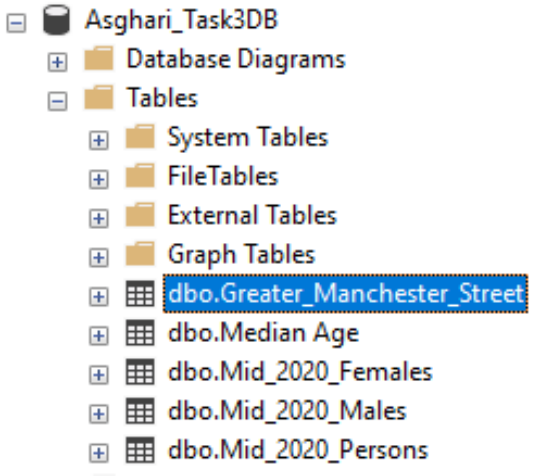
For the Task3 section of this project, a new database named Asghari_Task3DB has been created.



4.3 Import datasets to SQL server

All CSV files from Jan 2017 to Dec 2018 (24 CSV files) have been combined with Ablebits software and a CSV file has been created and imported to a table named [dbo].[Greater_Manchester_Street].

Regarding LSOA population data, the excel file is a .xlsx file so it is needed to save this file as a .xls file to be imported to the database. Since this xls file has four sheets, all these sheets have been imported into different tables. After importing all two datasets (Crime and LSOA population data), there are five tables in the database.



5 T-SQL Statements

5.1 Tables

In LSOA tables the first seven columns are selected and inserted into a new table called [dbo].[Mid_2020_All_Ages].

```
use [Asghari_Task3DB]
--------------Create Tables From crime and LSOA datasets---------------------
-----------Joining LSOA tables------------------
if object_id('[dbo].[Mid_2020_All_Ages]') is not null
drop table [dbo].[Mid_2020_All_Ages]

SELECT p.[LSOA Code]
      ,p.[LSOA Name]
      ,p.[LA Code (2018 boundaries)]
      ,p.[LA name (2018 boundaries)]
      ,p.[LA Code (2021 boundaries)]
      ,p.[LA name (2021 boundaries)]
      ,p.[All Ages] Persons
      ,m.[All Ages] Males
      ,f.[All Ages] females
      ,med.[Median Age][MedianAge]
      into [Asghari_Task3DB].[dbo].[Mid_2020_All_Ages]
  FROM [Asghari_Task3DB].[dbo].[Mid_2020_Persons] p--34753
  left join [dbo].[Mid_2020_Males] m
  on p.[LSOA Code]=m.[LSOA Code]
  left join [dbo].[Mid_2020_Females] f
  on p.[LSOA Code]=f.[LSOA Code]
  left join [dbo].[Median_Age] med
  on p.[LSOA Code]=med.[LSOA Code]
  --34753
 GO
```

AS in the following steps the Geographical Location will be needed (to show the data on the ArcGIS software), and a new field has been added to [dbo].[Greater_Manchester_Street] named [GeoLocation]. These codes codes

```
-----------Add [GeoLocation] to Greater_Manchester_Street----------------------------
--*******Reference: Workshop-Week8.pdf. page 18***------
--Add a Primary key column
ALTER TABLE [dbo].[Greater_Manchester_Street]
ADD ID INT IDENTITY;

--Add a Primary key column
ALTER TABLE [dbo].[Greater_Manchester_Street]
ADD CONSTRAINT PK_Id PRIMARY KEY NONCLUSTERED (ID);
GO
--Add a new column where we will store the geography points.
ALTER TABLE [dbo].[Greater_Manchester_Street]
ADD [GeoLocation] GEOGRAPHY
Go
--create a geography POINT using Latitude and Longitude columns
UPDATE [dbo].[Greater_Manchester_Street]
SET [GeoLocation] = geography::Point([Latitude], [Longitude], 4326)
WHERE [Longitude] IS NOT NULL
AND [Latitude] IS NOT NULL
AND cast([Latitude] as decimal(10, 6)) BETWEEN -90 AND 90
```

```
AND cast([Longitude] as decimal(10, 6)) BETWEEN -90 AND 90
    Go [13]
```

In the next stage, crime dataset ([dbo].[Greater_Manchester_Street]) has been joined with LSOA dataset([dbo].[Mid_2020_All_Ages]) and a new table has been created named dbo. Greater_Manchester_Street_LSOA. As the number of rows in the tables is more than in the previous sections (Task1 and Task2), instead of creating views some tables have been created to increase the performance of the queries. Each time that a view is called in a query, all the joining processes have to be executed, but when a table is created the join query only runs one time, and data is physically stored in the database.

```
49  ----------Join Crime dataset and LSOA dataset ------------------
50  if OBJECT_id ('[dbo].[Greater_Manchester_Street_LSOA]') is not null
51  drop table [dbo].[Greater_Manchester_Street_LSOA]
52  select
53  c.Id
54  ,c.Month
55  ,[Longitude]
56  ,[Latitude]
57  ,[GeoLocation]
58  ,[Location]
59  ,c.[LSOA code]
60  ,c.[LSOA name]
61  ,c.[Crime type]
62  ,c.[Last outcome category]
63  ,l.Persons
64  ,l.Males
65  ,l.females
66  ,l.[MedianAge]
67  into [dbo].[Greater_Manchester_Street_LSOA]
68  from[dbo].[Greater_Manchester_Street] c
69  left join [dbo].[Mid_2020_All_Ages] l
70  on c.[LSOA code]=l.[LSOA Code]
71
```

5.2 Views

To analyse and present data of crime dataset using LSOA population data three views have been created.

5.2.1 dbo.view_LSOAcode_Crime_Rate

In this view the following columns are computed:

- City: The city name has been extracted from [LSOA name] for each LSOA code.
- crime_cnt_2017: The number of crimes has been computed in each LSOA code in the year 2017
- crime_cnt_2018: The number of crimes has been computed in each LSOA code in the year 2018
- crime_cnt: The number of crimes in each LSOA code between 2017 and 2018.
- PerCapita: The number of crimes per person has been computed in each LSOA code.
- Crime_level: Based on PerCapita, the level of crime has been computed in each LSOA code. This measure is ranging from 1 to 4:

```
case when PerCapita < 0.01 then 0
when PerCapita >= 0.01 and PerCapita <1.00 then 1
when PerCapita >= 1.00 and PerCapita <2.00 then 2
when PerCapita >= 2.00 and PerCapita <3.00 then 3
when PerCapita >= 3.00 then 4 end Crime_level
```

- Age_Group: To present data based on the MedianAge, Age_Group is created.

```
case when MedianAge <20 then '10'
```

```
when MedianAge >=20 and MedianAge <30 then '20'
when MedianAge >=30 and MedianAge <40 then '30'
when MedianAge >=40 and MedianAge <50 then '40'
when MedianAge >=50 and MedianAge <60 then '50'
when MedianAge >=60 and MedianAge <70 then '60'
when MedianAge >=70 then '70' end Age_Group
```

```
GO
CREATE view [dbo].[view_LSOAcode_Crime_Rate]
as
select city,[LSOA code],[LSOA name],Persons,MedianAge,crime_cnt_2017,crime_cnt_2018,crime_cnt,PerCapita
,case when isnull(crime_cnt_2018,0)<>0 then
cast(cast(isnull(crime_cnt_2018,0)-isnull(crime_cnt_2017,0) as decimal(38,2))*100/isnull(crime_cnt_2018,0)as decimal(38,2))
else 0 end [crime_rate] --the crime growth rate in 2018 compared to 2017
,case when PerCapita < 0.01 then 0
when PerCapita  >= 0.01 and PerCapita <1.00 then 1
when PerCapita >= 1.00 and PerCapita <2.00 then 2
when PerCapita >= 2.00 and PerCapita <3.00 then 3
when PerCapita >= 3.00  then 4
end Crime_level----Level of of number of crime per person between  2017 and 2018
,case when MedianAge <20 then '10'
when MedianAge >=20 and MedianAge <30 then '20'
when MedianAge >=30 and MedianAge <40 then '30'
when MedianAge >=40 and MedianAge <50 then '40'
when MedianAge >=50 and MedianAge <60 then '50'
when MedianAge >=60 and MedianAge <70 then '60'
when MedianAge >=70 then '70'
end Age_Group--Age groups based on MedianAge in each SLOA Code
from(select left([LSOA name],charindex(' 0', [LSOA name])-1) city--The city name
,a.[LSOA code],a.[LSOA name],Persons,MedianAge
,sum(crime_cnt_2017)crime_cnt_2017--The number of crime in 2017
,sum(crime_cnt_2018)crime_cnt_2018--The number of crime in 2018
,sum(crime_cnt)crime_cnt --The number of crime between 2017 and 2018
,cast(cast(sum(crime_cnt) as decimal(38,2))/Persons as decimal(38,2)) PerCapita--the number of crime per person between  2017 and 2018
from (select  a.[LSOA code]
,a.[LSOA name]
,Persons--All popolation
,Males--The number of Males in each SLOA Code
,females--The number of Males in each SLOA Code
,MedianAge--The median age in each SLOA Code
,case when left(Month,4)='2017' then count([crime type]) else 0 end crime_cnt_2017--The number of crime in 2017
,case when left(Month,4)='2018' then count([crime type]) else 0 end crime_cnt_2018--The number of crime in 2018
,count([crime type])crime_cnt--The number of crime between 2017 and 2018
  from [dbo].[Greater_Manchester_Street_LSOA] a
  group by a.[LSOA code],a.[LSOA name]
,Persons
,Males
,females
,MedianAge,Month)a
group by left([LSOA name],charindex(' 0', [LSOA name])-1)
,a.[LSOA code],a.[LSOA name],Persons,MedianAge)k
GO
```

68 %

5.2.2 dbo. view_Vehicle_crime_Greater_Manchester

The purpose of this view is to illustrate vehicle crime across Greater Manchester. This view will be shown on ArcGIS.

```sql
USE [Asghari_Task3DB]
GO

/****** Object:  View [dbo].[view_Vehicle_crime_Greater_Manchester]    Script Date: 5/6/2022 11:27:53 AM ******/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO
--LSOA code GeoLocation for Vehicle crime in Greater Manchester to show in the map
create view [dbo].[view_Vehicle_crime_Greater_Manchester]
WITH SCHEMABINDING
as

select  Id
,[Longitude]
,[Latitude]
,[GeoLocation]
,[LSOA code]
,[LSOA name]
,Location
,[Crime type]
from [dbo].[Greater_Manchester_Street_LSOA]
where [Crime type]='Vehicle crime'
GO
```

5.2.3 dbo.view_Anti_social_behaviour_Salford

The purpose of this view is to illustrate Anti-social behaviours in Salford This view will be shown on ArcGIS

```sql
USE [Asghari_Task3DB]
GO

/****** Object:  View [dbo].[view_Anti_social_behaviour_Salford]    Script Date: 5/6/2022 11:34:54 AM ******/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO
----LSOA code GeoLocation for Anti-social behaviour in Salford to show in the map
CREATE view [dbo].[view_Anti_social_behaviour_Salford]
WITH SCHEMABINDING
as

select  Id
,[Longitude]
,[Latitude]
,[GeoLocation]
,[LSOA code]
,[LSOA name]
,[Crime type]
,[Persons]
,[MedianAge]
from [dbo].[Greater_Manchester_Street_LSOA]
where [Crime type]='Anti-social behaviour'
and left([LSOA name],charindex(' 0', [LSOA name])-1) ='Salford'
GO
```

5.3 Stored Procedures

5.3.1 [dbo].[sp_CrimeRate_By_AgeGroup]

This procedure computes the crime growth rate based on the age groups. It has a parameter which can give input from 10 to 50 to show the crime data for the selected age group. If the parameter value is ‘All’, all the data will be shown.

```
 8
 9  -------------CrimeRate by AgeGroup ----------------------------------------
10 ALTER procedure [dbo].[sp_CrimeRate_By_AgeGroup](@AgeGroup as varchar(50))
11 --if all data are needed the parameter value have to be 'All'----------------------
12  --execute dbo.sp_CrimeRate_By_AgrGroup 'All'
13  --execute dbo.sp_CrimeRate_By_AgrGroup '10'
14
15  as
16 Begin
17 select
18  Age_Group
19  ,Persons
20  ,[crime_cnt_2017]
21  ,[crime_cnt_2018]
22  ,crime_cnt
23  ,cast(cast([crime_cnt_2018]-[crime_cnt_2017] as decimal(38,2))*100/[crime_cnt_2018]as decimal(38,2))Crime_Rate
24   from
25  (select
26  Age_Group
27  ,sum(isnull(Persons,0))Persons
28  ,sum(isnull([crime_cnt_2017],0))[crime_cnt_2017]
29  ,sum(isnull([crime_cnt_2018],0))[crime_cnt_2018]
30  ,sum(isnull(crime_cnt,0))crime_cnt
31  from [dbo].[view_LSOAcode_Crime_Rate]
32  where Age_Group=@AgeGroup --Displays a specific data.
33  or 'All'=@AgeGroup--Displays all data.
34  group by Age_Group
35  )k
36  order by Age_Group
37  end
38
```

99 %

5.3.2 [dbo].[sp_CrimeRate_By_City]

This procedure computes the crime growth rate and percentage of crime in each city. This procedure has a parameter which can give the name of the city and shows the crime growth rate for the selected city. If the parameter value is 'All', all the data will be shown. The result of this procedure is stored in a table named [dbo].[view_LSOAcode_Crime_Rate_City].

```
 8  -------------CrimeRate by city name---------------------------------
 9 ALTER procedure [dbo].[sp_CrimeRate_By_City](@City as varchar(50))
10 --if all data are needed the parameter value have to be 'All'
11  --execute dbo.sp_CrimeRate_By_City 'Salford'
12  --execute dbo.sp_CrimeRate_By_City 'All'
13  as
14 Begin
15  declare @sum_cnt_greater_Manchester as decimal(38,2) =(select sum(crime_cnt) from [dbo].[view_LSOAcode_Crime_Rate])
16 if OBJECT_ID('[dbo].[view_LSOAcode_Crime_Rate_City]') is not null
17  drop table [dbo].[view_LSOAcode_Crime_Rate_City]
18 select city
19  ,Persons
20  ,[crime_cnt_2017]
21  ,[crime_cnt_2018]
22  ,crime_cnt
23  ,cast(cast([crime_cnt_2018]-[crime_cnt_2017] as decimal(38,2))*100/[crime_cnt_2018]as decimal(38,2))Crime_Rate
24  ,cast(cast(crime_cnt as decimal(38,2))*100/@sum_cnt_greater_Manchester as decimal(38,2))Crime_perc--percentage of crime
25   into [dbo].[view_LSOAcode_Crime_Rate_City]
26  from
27  (select
28  city
29  ,sum(isnull(Persons,0))Persons
30  ,sum(isnull([crime_cnt_2017],0))[crime_cnt_2017]
31  ,sum(isnull([crime_cnt_2018],0))[crime_cnt_2018]
32  ,sum(isnull(crime_cnt,0))crime_cnt
33  from [dbo].[view_LSOAcode_Crime_Rate]
34  where city=@City --Displays a specific data.
35  or 'All'=@City--Displays all data.
36  group by  city
37  )k
38  order by cast(cast([crime_cnt_2018]-[crime_cnt_2017] as decimal(38,2))*100/[crime_cnt_2018]as decimal(38,2)) desc
39 select * from [dbo].[view_LSOAcode_Crime_Rate_City]
40  order by Crime_perc desc
41  end
42
```

75 %

5.3.3 [dbo].[sp_CrimeRate_By_LSOAcode]

This procedure computes the crime growth rate based on the LSOA code. It has a parameter which can take an LSOA code to show the crime data for the selected LSOA code. If the parameter value is 'All', all the data will be shown.

```
USE [Asghari_Task3DB]
GO
/****** Object:  StoredProcedure [dbo].[sp_CrimeRate_By_LSOAcode]    Script Date: 5/6/2022 3:49:20 PM ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
------------------------
ALTER procedure [dbo].[sp_CrimeRate_By_LSOAcode](@LSOAcode as varchar(50))
--exec  dbo.sp_CrimeRate_By_LSOAcode 'All'
 --exec  dbo.sp_CrimeRate_By_LSOAcode 'E01004766'
 as
begin
select * from [dbo].[view_LSOAcode_Crime_Rate]
 where [LSOA code]=@LSOAcode or 'All'=@LSOAcode
 end

```

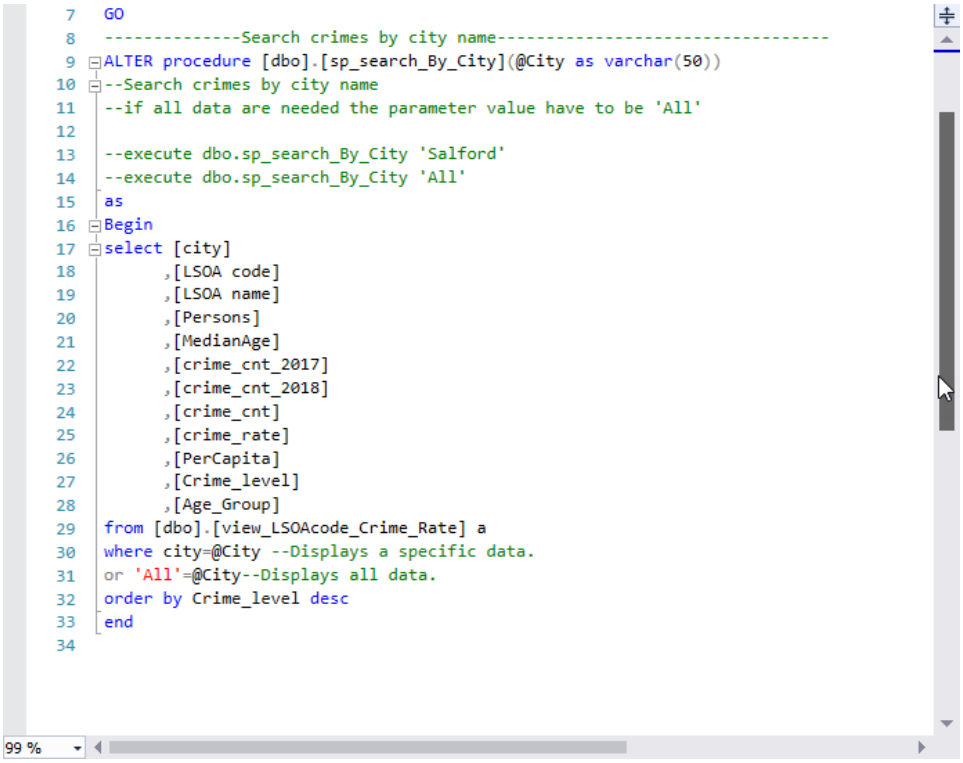
5.3.4 [dbo].[sp_search_By_AgeGroup]

This procedure shows the detail of data based on the selected age group.

```
GO
 -------------search Crimes by AgeGroup ---------------------------------------
ALTER procedure [dbo].[sp_search_By_AgeGroup](@AgeGroup as varchar(50))
--search Crimes by AgeGroup
 --if all data are needed the parameter value have to be 'All'---------------------

 --execute dbo.sp_search_By_AgrGroup 'All'

 as
Begin
select [city]
      ,[LSOA code]
      ,[LSOA name]
      ,[Persons]
      ,[MedianAge]
      ,[crime_cnt_2017]
      ,[crime_cnt_2018]
      ,[crime_cnt]
      ,[crime_rate]
      ,[PerCapita]
      ,[Crime_level]
      ,[Age_Group]
 from [dbo].[view_LSOAcode_Crime_Rate] a --Age_Groupdbo.view_LSOAcode_Frequency a
 where a.Age_Group=@AgeGroup --Displays a specific data.
 or 'All'=@AgeGroup--Displays all data.
 order by Crime_level desc, PerCapita desc,city
 end

99 %
```

5.3.5 dbo. sp_search_By_City

This procedure shows the detail of data based on the selected age group.



```
GO
--------------Search crimes by city name----------------------------------
ALTER procedure [dbo].[sp_search_By_City](@City as varchar(50))
--Search crimes by city name
--if all data are needed the parameter value have to be 'All'

--execute dbo.sp_search_By_City 'Salford'
--execute dbo.sp_search_By_City 'All'
as
Begin
select [city]
      ,[LSOA code]
      ,[LSOA name]
      ,[Persons]
      ,[MedianAge]
      ,[crime_cnt_2017]
      ,[crime_cnt_2018]
      ,[crime_cnt]
      ,[crime_rate]
      ,[PerCapita]
      ,[Crime_level]
      ,[Age_Group]
from [dbo].[view_LSOAcode_Crime_Rate] a
where city=@City --Displays a specific data.
or 'All'=@City--Displays all data.
order by Crime_level desc
end

```

99 %

5.3.6 [dbo].[sp_search_By_Crime_Level]

This procedure shows the detail of data based on the selected crime level. The crime level is a column that gives us the chance to measure the crime per capita.

```
GO
---------------search Crimes by Crime_Level (from 1 to 4 )
ALTER procedure [dbo].[sp_search_By_Crime_Level](@Crime_Level as tinyint)
--search Crimes by Crime_Level (from 1 to 4 )
--if all data are needed the parameter value have to be 99
--execute dbo.sp_search_By_Crime_Level 4

as
Begin
select [city]
      ,[LSOA code]
      ,[LSOA name]
      ,[Persons]
      ,[MedianAge]
      ,[crime_cnt_2017]
      ,[crime_cnt_2018]
      ,[crime_cnt]
      ,[crime_rate]
      ,[PerCapita]
      ,[Crime_level]
      ,[Age_Group]
from [dbo].[view_LSOAcode_Crime_Rate] a
where a.Crime_level=@Crime_Level --Displays a specific data.
or 99=@Crime_Level--Displays all data.
order by Crime_level desc, PerCapita desc,city
end
```

99 %

5.3.7 [dbo].[sp_search_By_CrimeType]

This procedure shows the detail of data based on the selected crime type.

```
USE [Asghari_Task3DB]
GO
/****** Object:  StoredProcedure [dbo].[sp_search_By_CrimeType]    Script Date: 5/6/2
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
ALTER procedure [dbo].[sp_search_By_CrimeType] (@Crimetype as varchar(50))
--exec [dbo].[sp_search_By_CrimeType] 'Anti'
As
begin

select * from [dbo].[Greater_Manchester_Street_LSOA]
where [Crime type] like '%'+ @Crimetype+'%'
end
```

5.3.8 [dbo].[sp_search_By_LSOAcode]

This procedure shows the detail of data based on the selected LSOA code.

```
GO
--------------Search crimes byLSOAcode-----------------------------------
ALTER procedure [dbo].[sp_search_By_LSOAcode](@LSOAcode as varchar(50))
--Search crimes byLSOAcode
--if all data are needed the parameter value have to be 'All'

--execute dbo.sp_search_By_LSOAcode 'E01005147'

as
Begin
select [city]
      ,[LSOA code]
      ,[LSOA name]
      ,[Persons]
      ,[MedianAge]
      ,[crime_cnt_2017]
      ,[crime_cnt_2018]
      ,[crime_cnt]
      ,[crime_rate]
      ,[PerCapita]
      ,[Crime_level]
      ,[Age_Group]
from [dbo].[view_LSOAcode_Crime_Rate] a
where a.[LSOA code]=@LSOAcode  --Displays a specific data.
or 'All'=@LSOAcode--Displays all data.
order by Crime_level desc, PerCapita desc,city
end
```

6 Report Design

6.1 summarized report

In this section, a summarized report has been created to show the number of crimes between 2017 and 2018, the crime growth rate and the percentage of crime in each city. This report has been produced by [dbo].[sp_CrimeRate_By_City] and the parameter is 'All'. The result is stored in a table named [dbo].[view_LSOAcode_Crime_Rate_City].

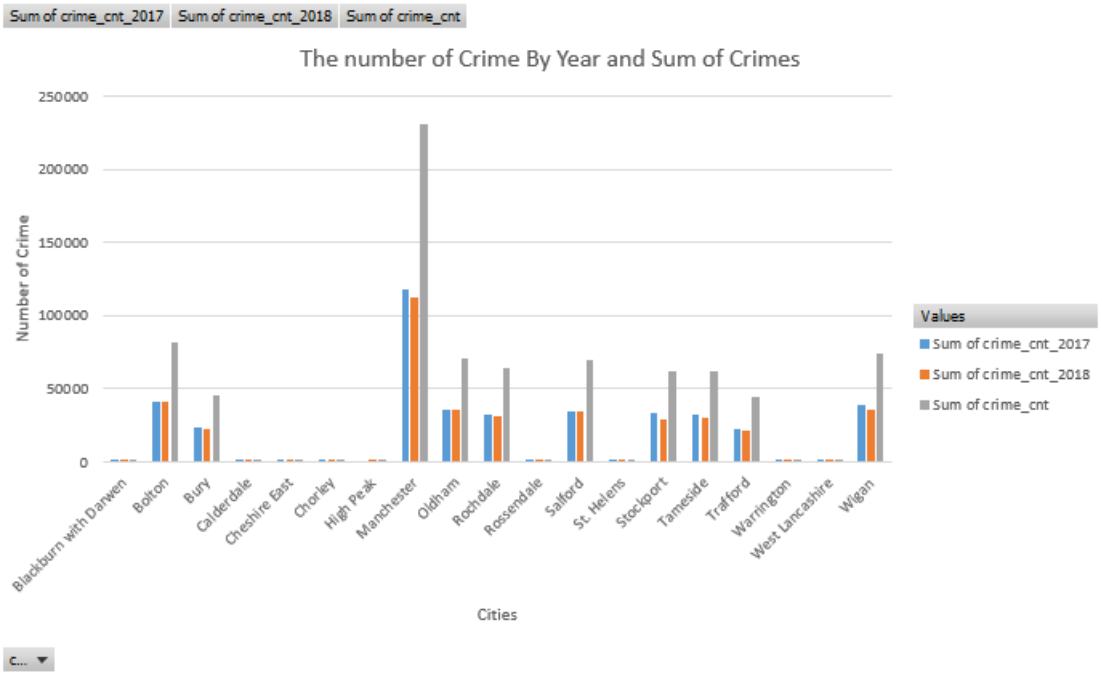
```
1
2  execute dbo.sp_CrimeRate_By_City 'All'
```

0 %

Results | Messages

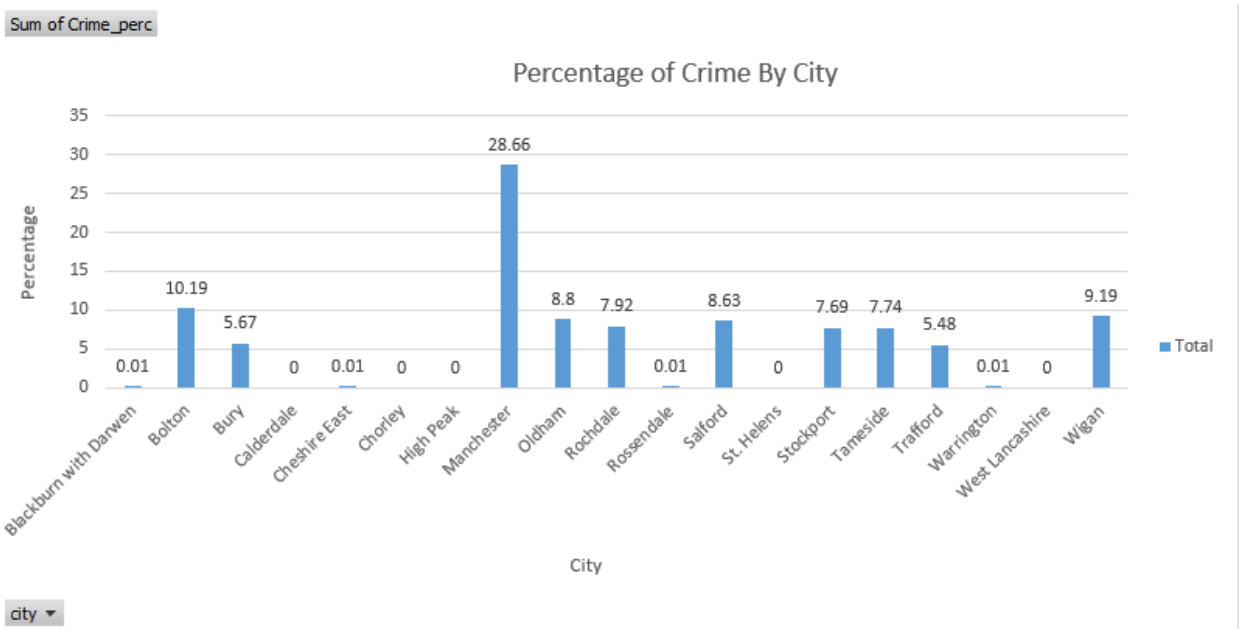
	city	Persons	crime_cnt_2017	crime_cnt_2018	crime_cnt	Crime_Rate	Crime_perc
1	Manchester	555741	118249	112485	230734	-5.12	28.66
2	Bolton	288248	41135	40912	82047	-0.55	10.19
3	Wigan	330712	38704	35294	73998	-9.66	9.19
4	Oldham	237628	35609	35213	70822	-1.12	8.80
5	Salford	262697	34532	34938	69470	1.16	8.63
6	Rochdale	223659	32610	31152	63762	-4.68	7.92
7	Tameside	227117	31906	30396	62302	-4.97	7.74
8	Stockport	294197	33103	28797	61900	-14.95	7.69
9	Bury	190708	23346	22269	45615	-4.84	5.67
10	Trafford	237579	22531	21565	44096	-4.48	5.48
11	Warrington	7873	34	44	78	22.73	0.01
12	Cheshire East	7122	55	38	93	-44.74	0.01
13	Rossendale	5248	31	15	46	-106.67	0.01
14	Blackburn ...	1163	29	17	46	-70.59	0.01
15	St. Helens	4518	10	12	22	16.67	0.00
16	Chorley	5109	4	1	5	-300.00	0.00
17	Calderdale	2679	1	4	5	75.00	0.00
18	High Peak	2040	0	1	1	100.00	0.00
19	West Lanca...	1475	5	8	13	37.50	0.00

The result has been visualized in Excel. The following chart shows the number of crimes in the years 2017 and 2018 and the total number of crimes between 2017 and 2018 in Greater Manchester. Results show, Manchester with the most population, has the highest level of crime. In addition, those cities with the highest level of crime, such as Manchester, Bolton, and Wigan, experienced a decrease in crimes in the year 2018.



This second chart illustrates the crime growth rate between the years 2017 and 2018 in Greater Manchester. The results show an increase in crime growth in High Peak and Calderdale West Lancashire, Warrington, St. Helens, and Salford. As a result, this figure decreased in other cities, such as Chorley, Rossendale, Blackburn with Darwen, and Chester.

The next chart describes the percentage of total crimes between 2017 and 2018 in Greater Manchester. Manchester with 28.66% of victims is the most crime-ridden city according to the report. Both Bolton and Wigan come in second and third place with 10.19% and 9.19% respectively.



6.2 The Vehicle crime in Greater Manchester

To present this report a view named dbo.view_Vehicle_crime_Greater_Manchester has been designed.

```
USE [Asghari_Task3DB]
GO

/****** Object:  View [dbo].[view_Vehicle_crime_Greater_Manchester]    Script Date: 5/6/2022 7:47:02 PM ******/
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO

--LSOA code GeoLocation for Vehicle crime in Greater Manchester to show in the map
CREATE view [dbo].[view_Vehicle_crime_Greater_Manchester]
WITH SCHEMABINDING
as

select  Id
,[Longitude]
,[Latitude]
,[GeoLocation]
,[LSOA code]
,[LSOA name]
,Location
,[Crime type]
from [dbo].[Greater_Manchester_Street_LSOA]
where [Crime type]='Vehicle crime'
GO
```

```
1  select top 10 * from [dbo].[view_Vehicle_crime_Greater_Manchester]
```

90 %

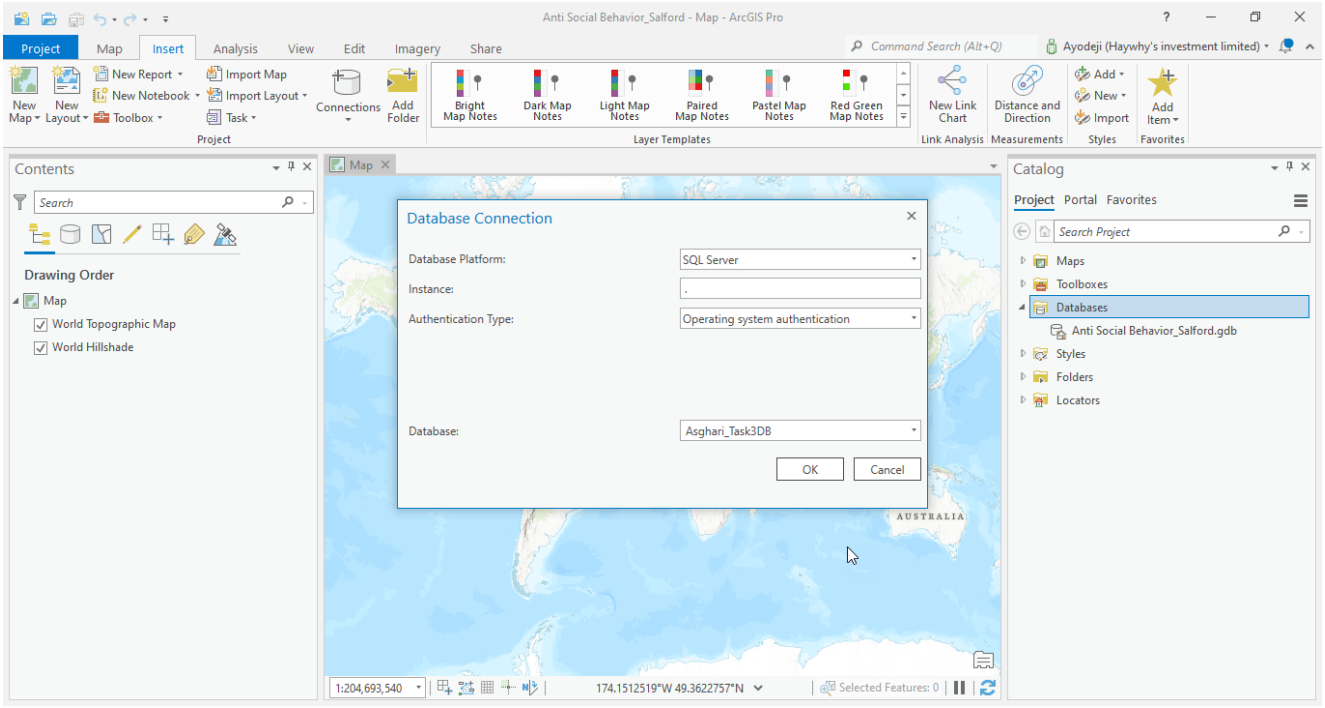
Results | Spatial results | Messages

	Id	Longitude	Latitude	GeoLocation	LSOA code	LSOA name	Location	Crime type
1	1636	-2.599553	53.52281	0xE6100000010CC9022670EBC24A40DFBF7971E2CB04C0	E01006218	Wigan 024D	On or near Neville Street	Vehicle crime
2	1637	-2.605461	53.522465	0xE6100000010CFE261422E0C24A401407D0EFFBD704C0	E01006218	Wigan 024D	On or near Darington Road	Vehicle crime
3	1638	-2.600613	53.522058	0xE6100000010CBE4EEACBD2C24A406A6B44300ECE04C0	E01006218	Wigan 024D	On or near Walthew Lane	Vehicle crime
4	1639	-2.603796	53.523148	0xE6100000010CE17B7F83F6C24A401AA54BFF92D404C0	E01006218	Wigan 024D	On or near Crystal Close	Vehicle crime
5	52	-2.505353	53.497196	0xE6100000010CDCD9571EA4BF4A40E17B7F83F60A04C0	E01006332	Wigan 031E	On or near Drummond Way	Vehicle crime
6	1712	-2.449412	53.515595	0xE6100000010C957D5704FFC14A408B709351659803C0	E01006377	Wigan 025D	On or near Carswell Close	Vehicle crime
7	1719	-2.445063	53.516492	0xE6100000010CA452EC681CC24A40F646AD307D8F03C0	E01006378	Wigan 025E	On or near Bourton Court	Vehicle crime
8	1722	-2.59317	53.514015	0xE6100000010CA453573ECBC14A401FBFB7E9CFBE04C0	E01006212	Wigan 026A	On or near Erskine Place	Vehicle crime
9	109	-2.640832	53.496547	0xE6100000010CA5F622DA8EBF4A4099D711876C2005C0	E01006268	Wigan 032E	On or near Nicol Road	Vehicle crime
10	110	-2.643924	53.494678	0xE6100000010C7D06D49B51BF4A4044E048A0C12605C0	E01006268	Wigan 032E	On or near Ashland Avenue	Vehicle crime

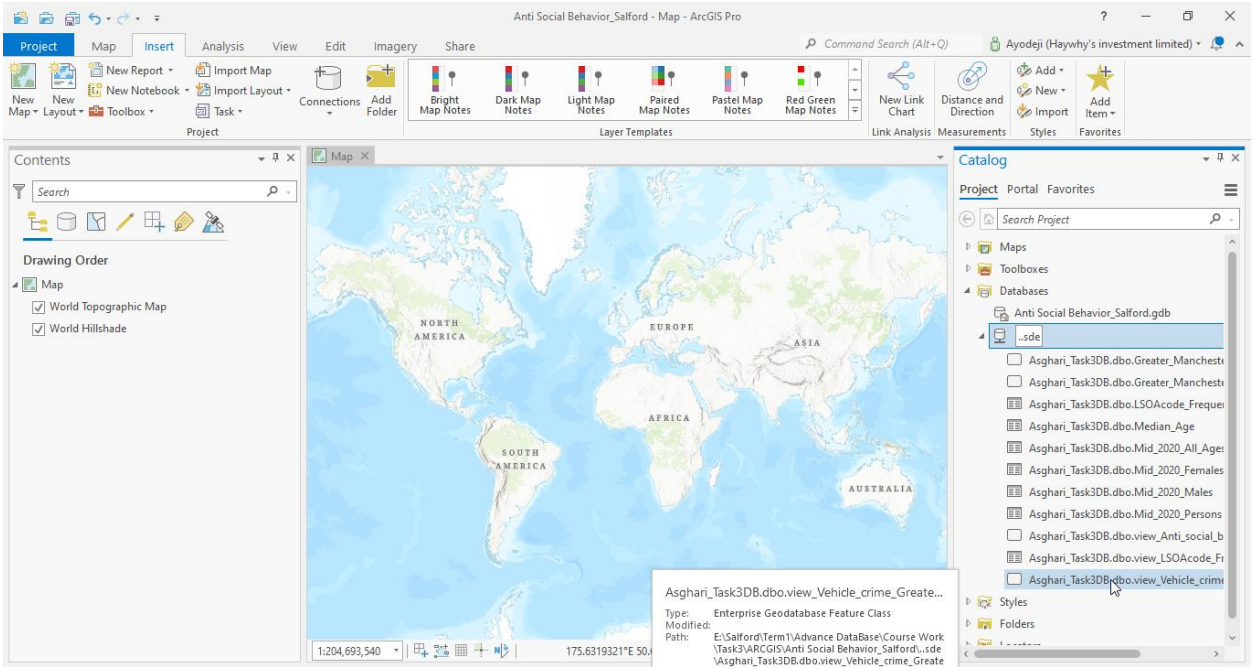
6.2.1 Visualisation by ArcGIS

Since dbo.view_Vehicle_crime_Greater_Manchester consists of the geographical location of each LSOA code, This view has been visualized with ArcGIS using MSSQL Connector and OpenStreetMap layer.

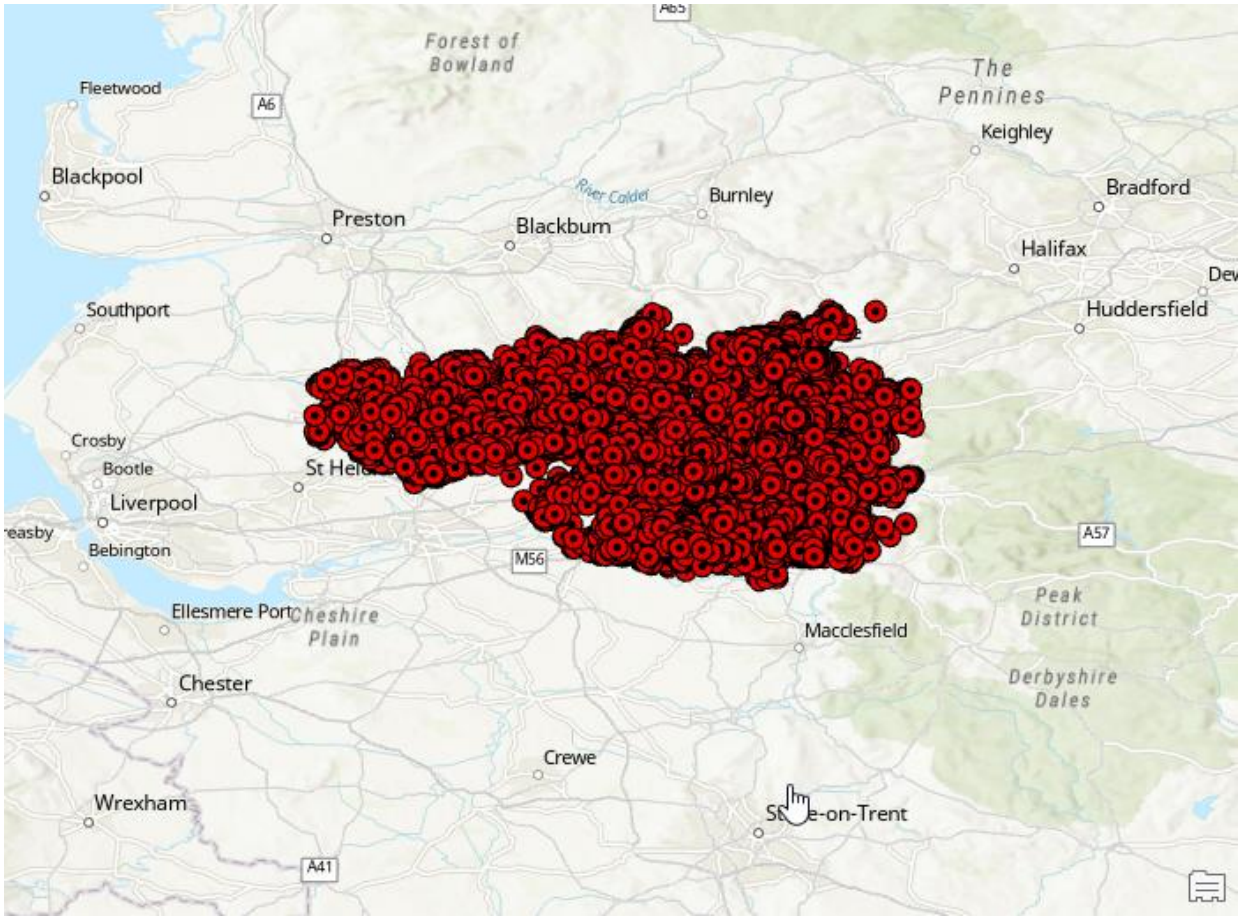
In the first step, an MSSQL Connector has been created to connect to the database (Asghari_Task3DB).



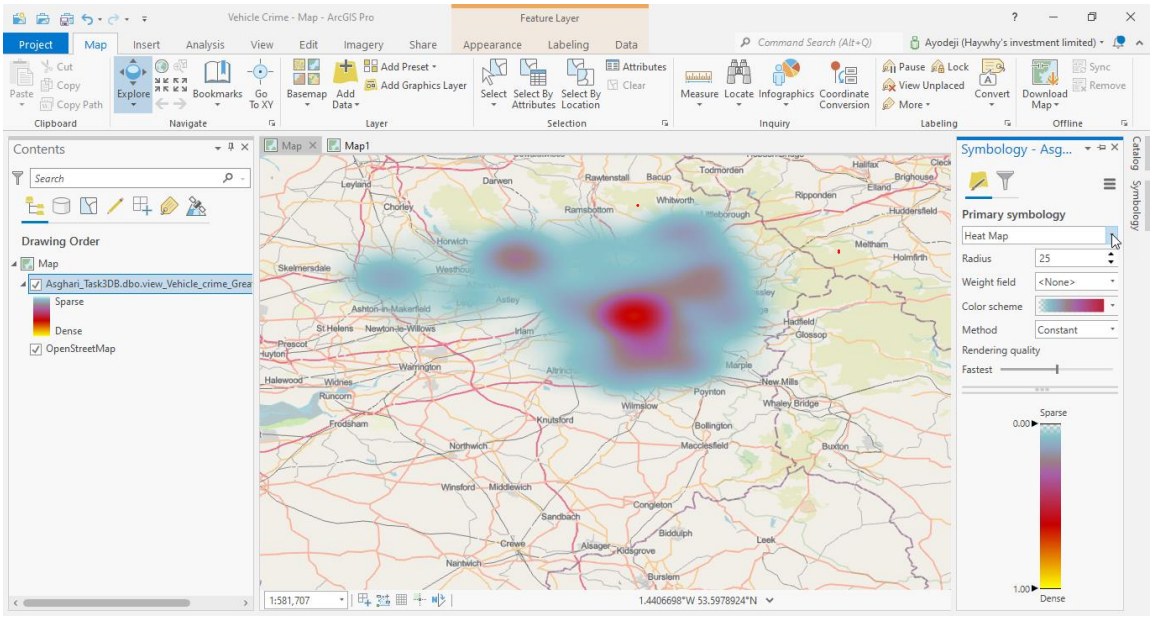
In the next step, dbo.view_Vehicle_crime_Greater_Manchester has been imported into the map environment.



The Open Street map has been selected as a base map. The result is as follows.

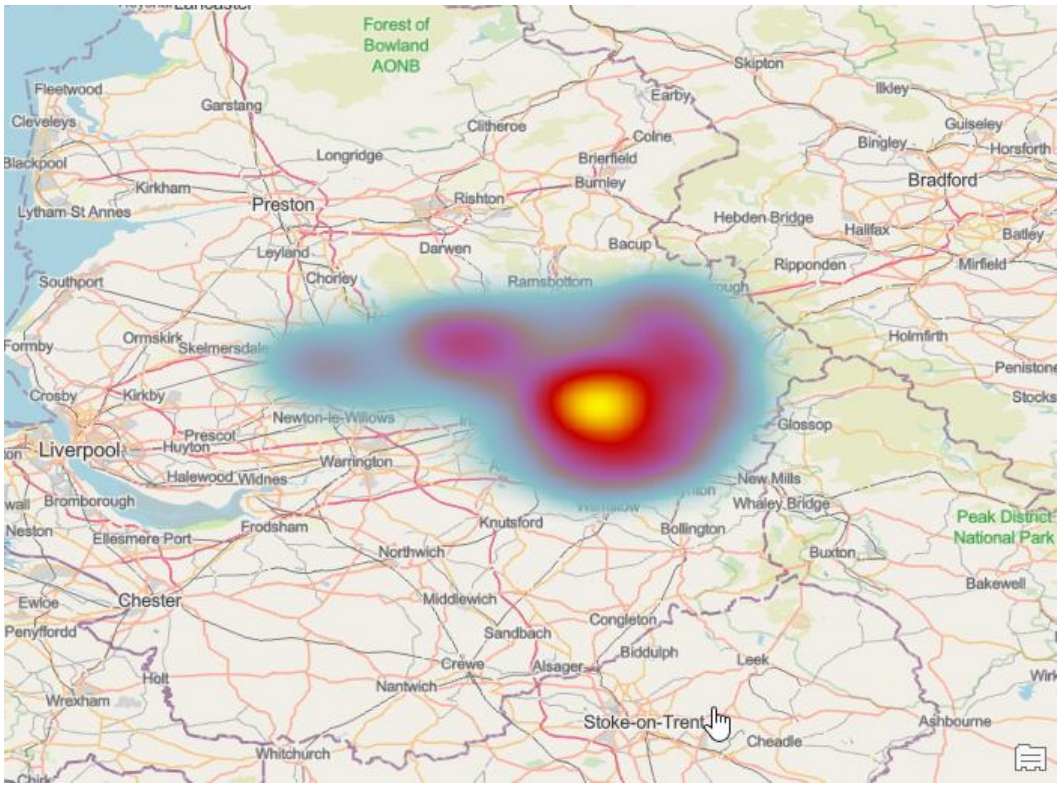


In the final step, the vehicle crime data layer has been converted to a heatmap using a symbology interface.



The next image is the result of Vehicle crime in Greater Manchester that has been visualized with ArcGIS.

Vehicle crime in Greater Manchester



6.3 The Anti-social behaviours crimes in Salford

To present this report a view named dbo.view_Anti_social_behaviour_Salford has been designed.

```
USE [Asghari_Task3DB]
GO

/****** Object:  View [dbo].[view_Anti_social_behaviour_Salford]    Script Date: 5/6/2
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO

----LSOA code GeoLocation for Anti-social behaviour in Salford to show in the map
CREATE view [dbo].[view_Anti_social_behaviour_Salford]
WITH SCHEMABINDING
as

select  Id
,[Longitude]
,[Latitude]
,[GeoLocation]
,[LSOA code]
,[LSOA name]
,[Crime type]
,[Persons]
,[MedianAge]
from [dbo].[Greater_Manchester_Street_LSOA]
where [Crime type]='Anti-social behaviour'
and left([LSOA name],charindex(' 0', [LSOA name])-1) ='Salford'
GO
```

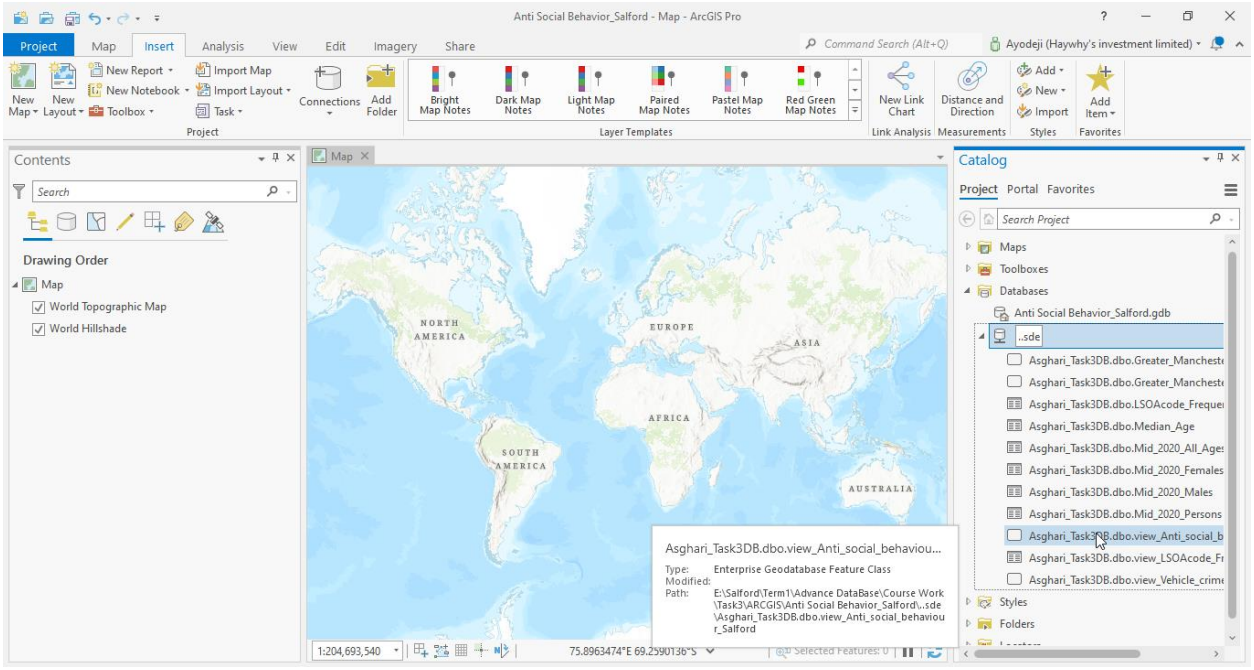
```
select top 10 * from [dbo].[view_Anti_social_behaviour_Salford]
```

Results | Spatial results | Messages

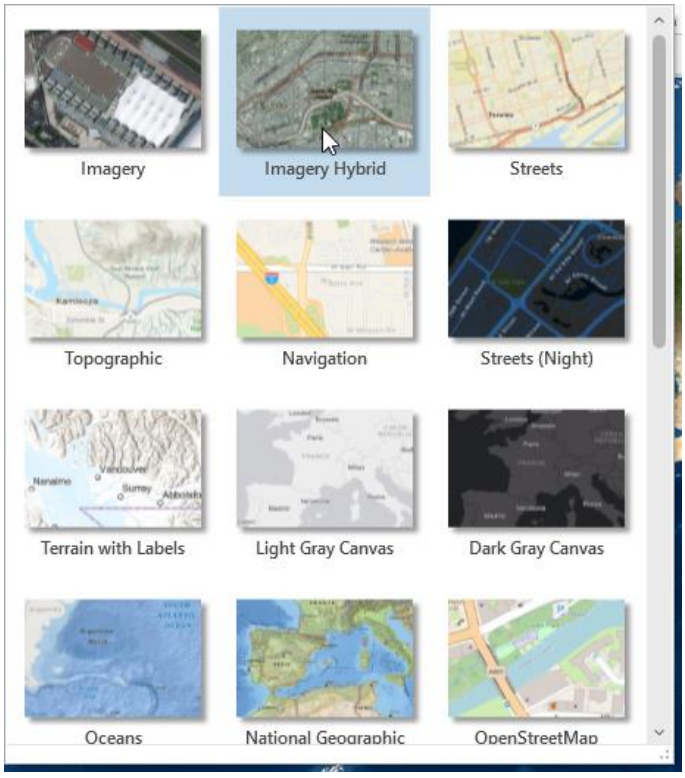
	Id	Longitude	Latitude	GeoLocation	LSOA code	LSOA name	Crime type	Persons	MedianAge
1	16060	-2.43317	53.536355	0xE6100000010CE605D847A7C44A40D7DD3CD5217703C0	E01005664	Salford 001D	Anti-social behaviour	1681	30.7
2	16061	-2.432135	53.536898	0xE6100000010CD7A4DB12B9C44A40DBA7E331037503C0	E01005664	Salford 001D	Anti-social behaviour	1681	30.7
3	16062	-2.433139	53.537766	0xE6100000010C4B732B84D5C44A4027FA7C94117703C0	E01005664	Salford 001D	Anti-social behaviour	1681	30.7
4	16063	-2.433139	53.537766	0xE6100000010C4B732B84D5C44A4027FA7C94117703C0	E01005664	Salford 001D	Anti-social behaviour	1681	30.7
5	16079	-2.418094	53.535995	0xE6100000010CE6E8F17B9BC44A40083BC5AA415803C0	E01005665	Salford 001E	Anti-social behaviour	1823	31.5
6	16080	-2.423157	53.539914	0xE6100000010C8753E6E61BC54A4078962023A06203C0	E01005665	Salford 001E	Anti-social behaviour	1823	31.5
7	16081	-2.416373	53.535956	0xE6100000010C280CCA349AC44A40D07F0F5EBB5403C0	E01005665	Salford 001E	Anti-social behaviour	1823	31.5
8	16082	-2.420666	53.538224	0xE6100000010C0EF62686E4C44A402750C422865D03C0	E01005665	Salford 001E	Anti-social behaviour	1823	31.5
9	16121	-2.408166	53.528219	0xE6100000010C1B1021AE9CC34A408DB62A89EC4303C0	E01005706	Salford 002C	Anti-social behaviour	1533	35
10	16122	-2.41025	53.526881	0xE6100000010C20F12BD670C34A40D578E926314803C0	E01005706	Salford 002C	Anti-social behaviour	1533	35

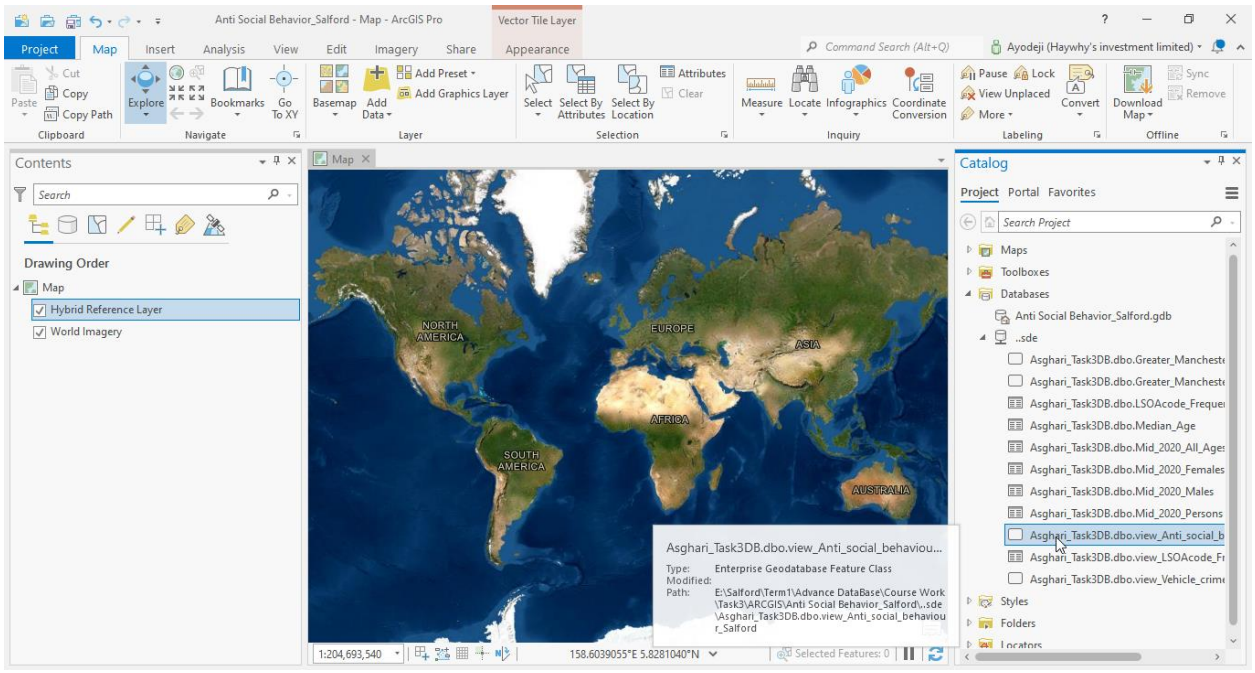
6.3.1 7-3-1. Visualization by ArcGIS

This view has been visualized with ArcGIS. All the steps are similar to the previous report. In this report dbo.view_Anti_social_behaviour_Salford imported to map environment.

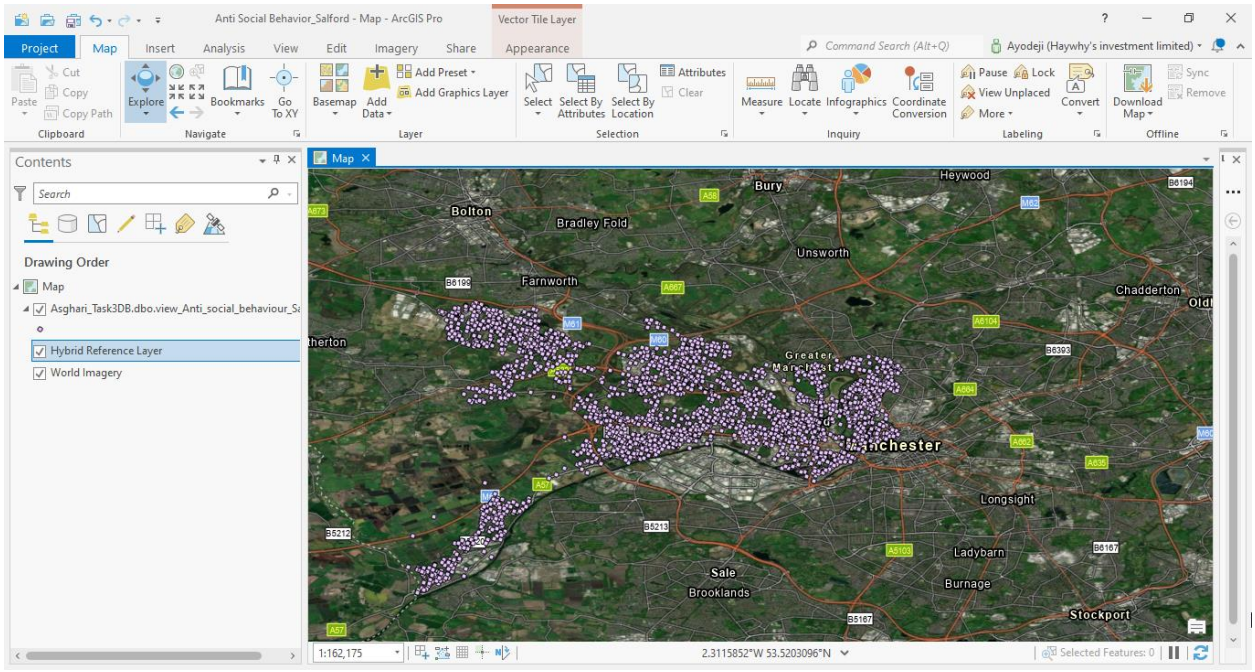


In addition, the Imagery Hybrid (Satellite Map) has been used as a base map.

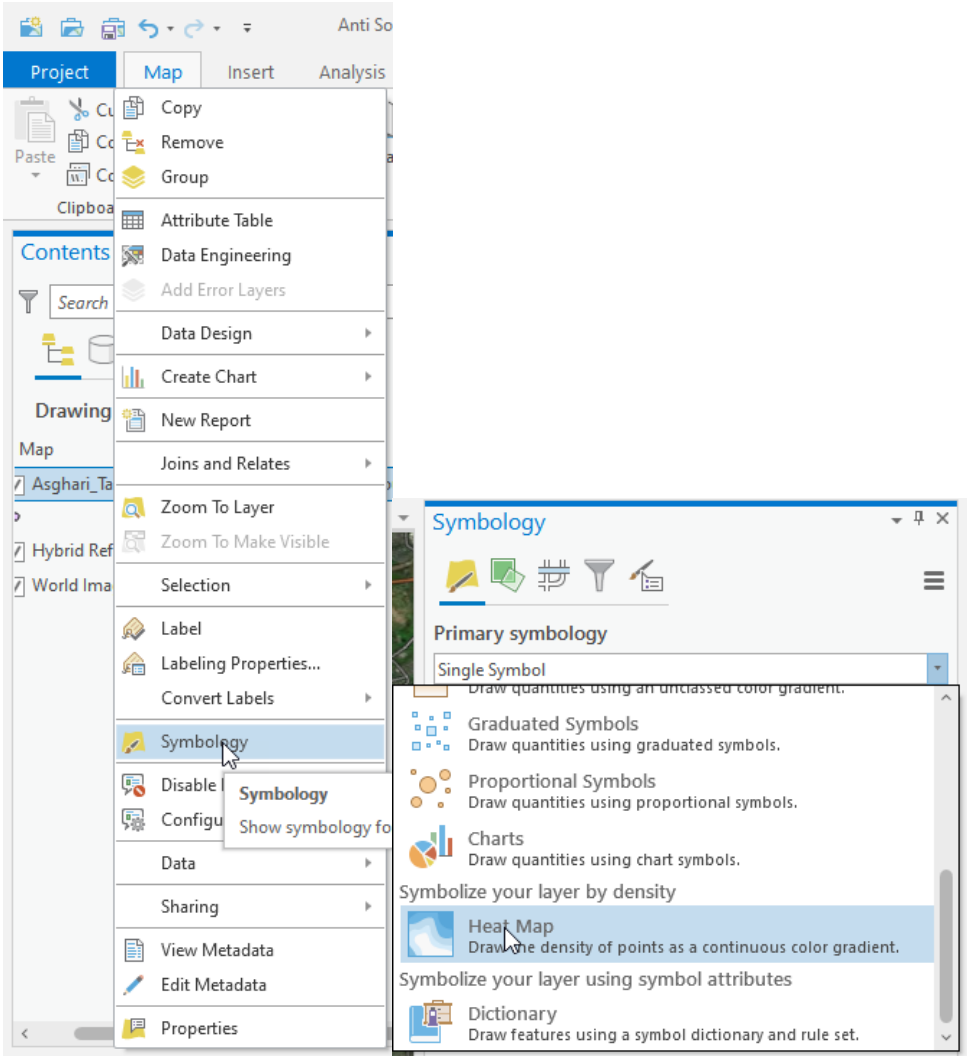


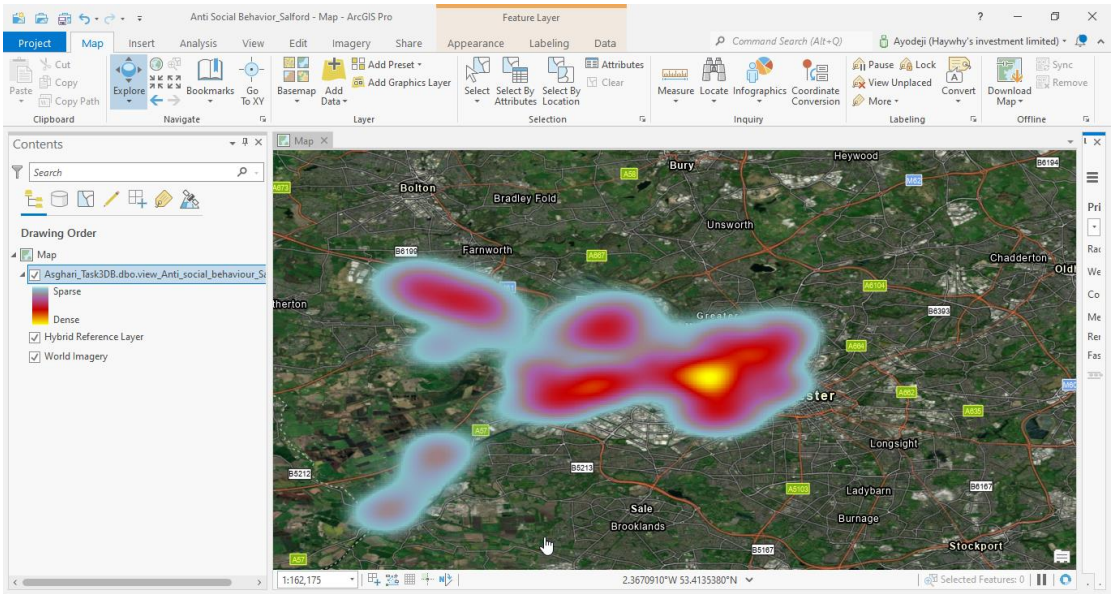


The result of visualization of [dbo].[view_Anti_social_behaviour_Salford] with Satellite Map is as follows.



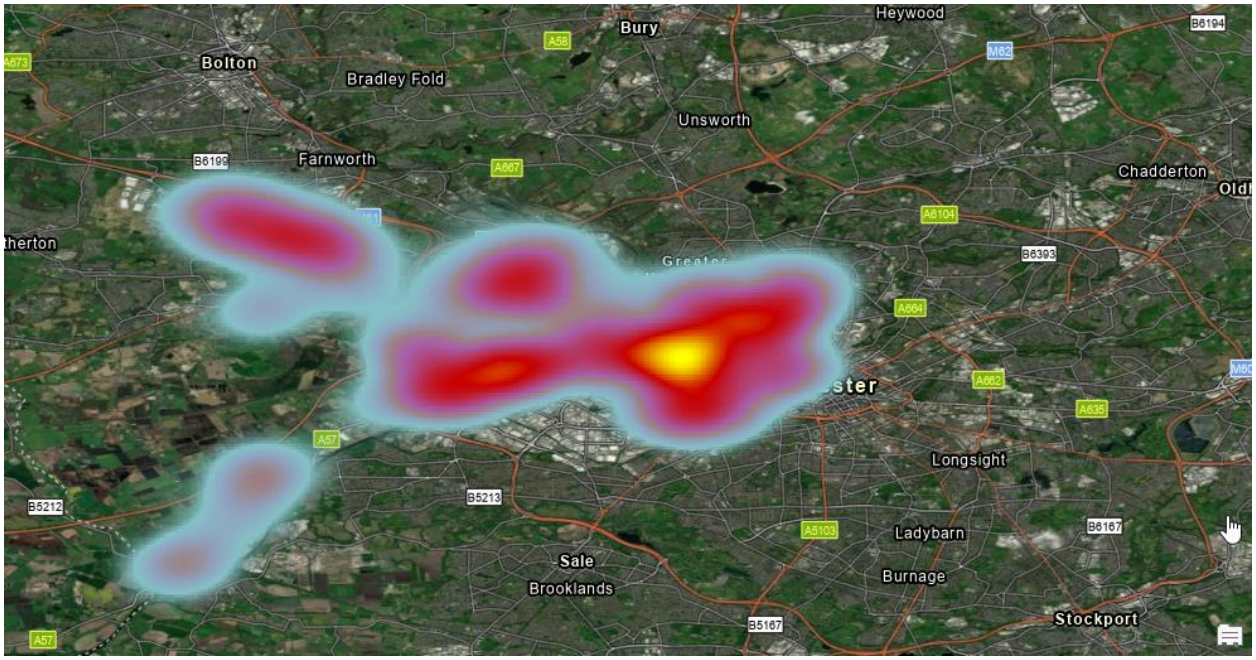
In this step, the data layer is converted to a heatmap using a symbology interface.


Project
Map
Insert
Analysis
Copy
Remove
Group
Attribute Table
Data Engineering
Add Error Layers
Data Design
Create Chart
New Report
Joins and Relates
Zoom To Layer
Zoom To Make Visible
Selection
Label
Labeling Properties...
Convert Labels
Symbology
Data
Sharing
View Metadata
Edit Metadata
Properties
Contents
Drawing
Map
Symbology
Primary symbology
Single Symbol
Graduated Symbols
Draw quantities using graduated symbols.
Proportional Symbols
Draw quantities using proportional symbols.
Charts
Draw quantities using chart symbols.
Symbolize your layer by density
Heat Map
Symbolize your layer using symbol attributes
Dictionary
Draw features using a symbol dictionary and rule set.


Anti Social Behavior_Salford - Map - ArcGIS Pro
Feature Layer
Project
Map
Insert
Analysis
View
Edit
Imagery
Share
Appearance
Labeling
Data
Contents
Drawing Order
Map
Sparse
Dense
Hybrid Reference Layer
World Imagery
Bolton
Bradley Fold
Bury
Heywood
Unsworth
Farnworth
Chadderton
Longsight
Ladybarn
Sale
Brooklands
Burnage
Stockport

The final result of the visualization of Anti-social behaviors in Salford using ArcGIS and a Satellite map has been presented in the following image.

Anti-social behaviors in Salford

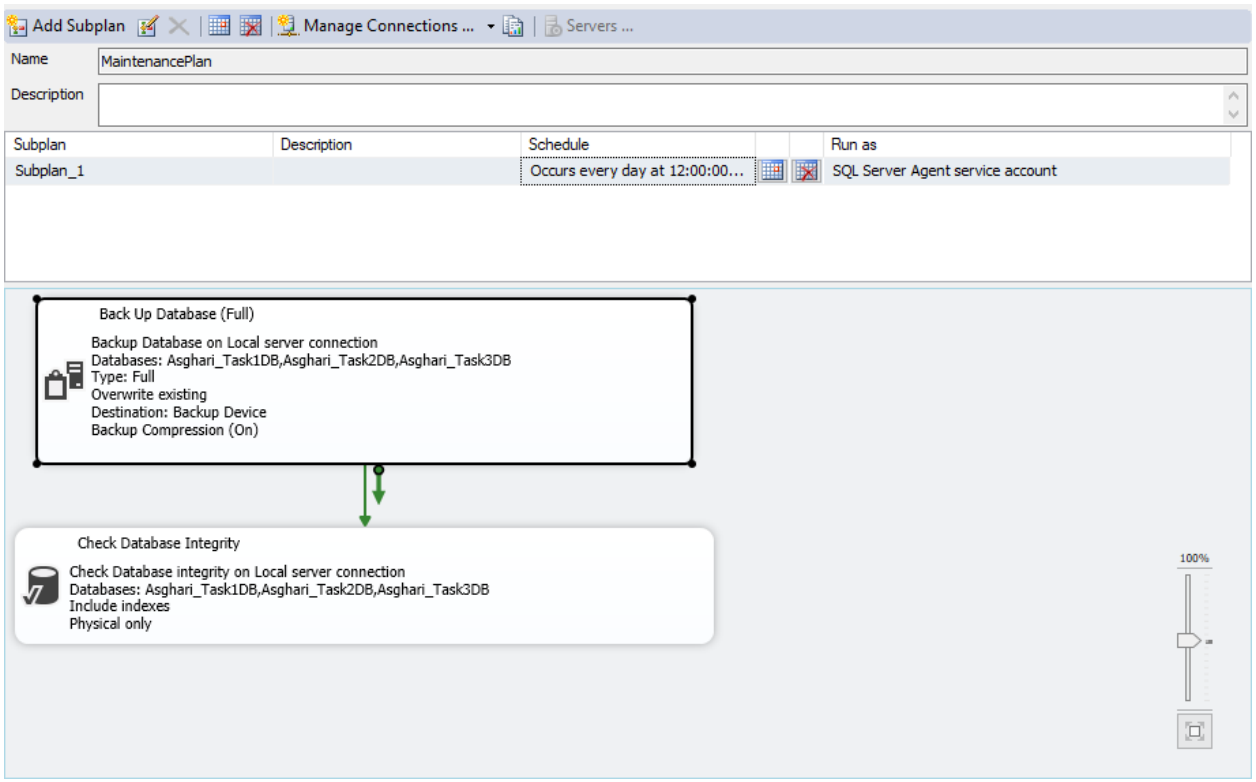


7 Database Security

To prevent direct access to tables, views and procedures have been created. Data access and database security can be controlled by creating different users with different access rights.

8 Database Backup and Restore Strategy

Database Backup and Restore Strategy have been implemented in the Task1 of this project. The database backup is created automatically every day at 12:00:00AM.



9 Conclusion

According to the Summarized report, Manchester with 28.66% of victims is the most crime-ridden city. Bolton and Wigan come in second and third place with 10.19% and 9.19% respectively. In addition, those cities with the highest level of crime, such as Manchester, Bolton, and Wigan, experienced a decrease in crimes in the year 2018. While the crime growth rate increased in High Peak and Calderdale West Lancashire, Warington, St. Helens and Salford.

References

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[13] D. C. Silva, "Workshop 8:Understanding Spatial Data and Postcode Mapping. page 18".