ANALYSIS OF UNEMPLOYMENT IN REBUBLIC OF INDIA USING DATA ANALYTICS WITH POWER BI

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ABSTRACT

Today, enterprises are looking for innovative ways to digitally transform their businesses - a crucial step forward to remain competitive and enhance profitability. There are key technology enablers that support an enterprise's digital transformation efforts, including analytics. Real-time insights and data in motion via analytics helps organizations to gain the business intelligence they need for digital transformation. From a business perspective, the potential benefits it can offer an organization are many - you can use location and contextual data to create better customer experiences; create radically new databased products for your business; make more informed decisions in complex scenarios; carry out effective monitoring and analysis;detect even the smallest change and trigger immediate action; and extend your solutions to analyze thepast, present, and the future. While these benefits are applicable to most organizations across diverse industries, a key advantage of analytics is that it can be customized to create solutions to meet the specific requirements of a particular industry.This white paper will focus on the business benefits extended to the banking & finance industry and discuss some common use cases within this domain.

INDEX

CHAPTER 1

INTRODUCTION

1.1 Problem Statement

Unemployment is a major economic benchmark because it shows the capacity (or incapacity) of healthy, educated, and willing respective to gain a livelihood. People unable to work for several reasons such as retirement, disability, pursuing higher study, etc. are excluded from this. The higher the country's unemployment rate, its economic growth is less productive. Even without employment, people still manage a steady utilization of resources. Voluntary unemployment refers to an individual's decision to leave previous employment to look for other forms of work out of their own volition with no outside circumstances. Involuntary unemployment is when an individual loses their job due to several reasons, such as being fired. Their employer is unable to manage employees and now must look for other sustenance. Unemployment can be a dangerous and atrocious life experience — like a serious automobile accident or a messy divorce—whose consequences only someone who has gone through it can fully understand.For unemployed respective and their families there is the day- to –day financial anxiety of not knowing from where the next paycheck is coming. There are painful adjustments, like watching your savings account diminish, selling a car and buying a cheaper one, or moving to a less expensive place tolive. Even when the unemployed person searches a new job, it may pay less than the previous one. For many people, their job is an important part of their self worth. When unemployment separates people from the workforce, it can affect domestic relationships as well as mental and physical health.

1.2 Proposed Solution

The proposed solution is to develop a PowerBI dashboard that can analyze and visualize real-time customer data. The dashboard will integrate data from various sources such as transaction history, customer feedback, and demographic data. It will provide a comprehensive view of customer behavior, preferences, and trends, enabling banks to make informed decisions. The dashboard will be interactive, user-friendly, and customizable, allowing banks to tailor it to their specific needs. The real-time analysis capability of the dashboard will enable banks to respond promptly to changes in customer behavior or preferences, identify opportunities for cross-selling and up-selling, and tailor their products and services to meet customer needs.

1.3 Feature

- **Real-Time Analysis**: The dashboard will provide real-time analysis of customer data.
- **Customer Segmentation**: It will segment customers based on various parameters like age, income, transaction behavior, etc.

- **Trend Analysis**: The dashboard will identify and display trends in customer behavior.
- **Predictive Analysis**: It will use historical data to predict future customer behavior.

1.4 Advantages

- **Data-Driven Decisions**: Banks can make informed decisions based on real-time data analysis.
- **Improved Customer Engagement**: Understanding customer behavior and trends can help banks engage with their customers more effectively.
- **Increased Revenue**: By identifying opportunities for cross-selling and up-selling, banks can increase their revenue.

1.5 Scope

Statistics on **unemployment in India** had traditionally been collected, compiled and disseminated once every ten years by the Ministry of Labour and Employment (MLE), primarily from sample studies conducted by the National Sample Survey Office.[1][2] Other than these 5-year sample studies, India has – except since 2017 – never routinely collected monthly, quarterly or yearly nationwide employment and unemployment statistics. In 2016, the Centre for Monitoring Indian Economy, a non- governmental entity based in Mumbai, started sampling and publishing monthly unemployment in India statistics.[3][4]

CHAPTER 2

SERVICES AND TOOLS REQUIRED

2.1 Services Used

- **Data Collection and Storage Services**: Banks need to collect and store customer data in real-time. This could be achieved through services like Azure Data Factory, Azure Event Hubs, or AWS Kinesis for real-time data collection, and Azure SQL Database or AWS RDS for data storage.

- **Data Processing Services**: Services like Azure Stream Analytics or AWS Kinesis Data Analytics can be used to process the real-time data.

- **Machine Learning Services**: Azure Machine Learning or AWS SageMaker can be used to build predictive models based on historical data.

2.2 Tools and Software used

Tools:

- **PowerBI**: The main tool for this project is PowerBI, which will be used to create interactive dashboards for real-time data visualization.

- **Power Query**: This is a data connection technology that enables you to discover, connect, combine, and refine data across a wide variety of sources.

Software Requirements:

- **PowerBI Desktop**: This is a Windows application that you can use to create reports and publish them to PowerBI.

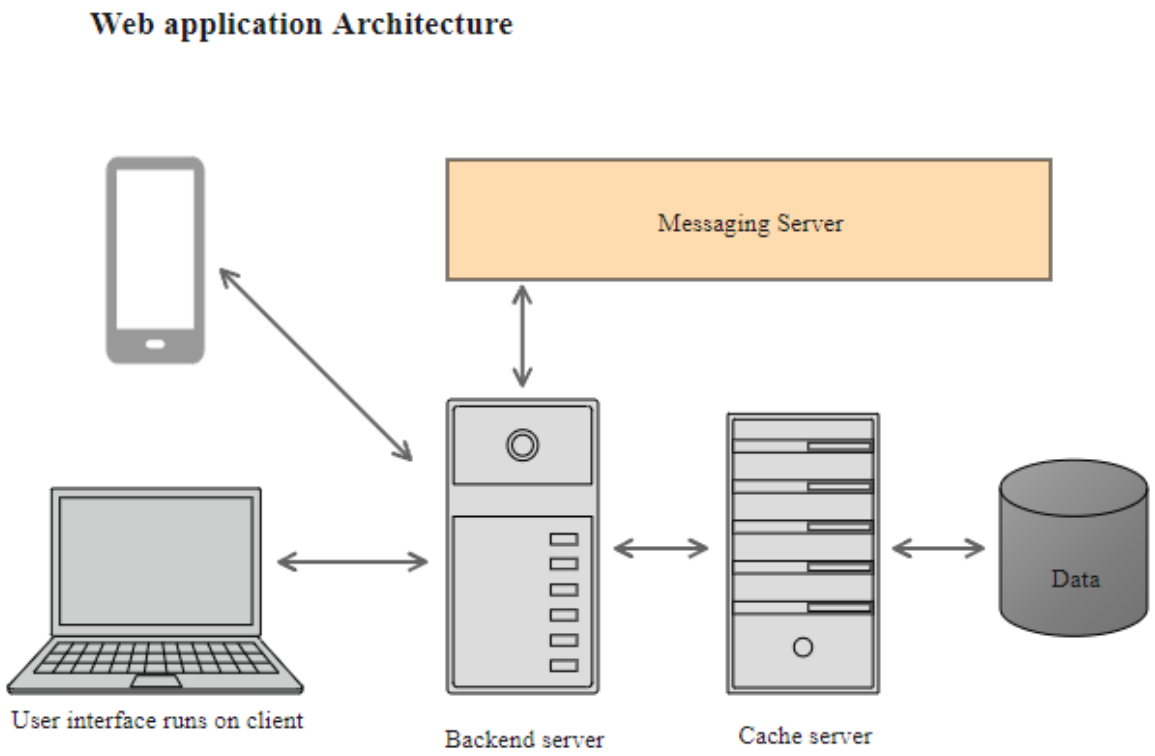
- **PowerBI Service**: This is an online SaaS (Software as a Service) service that you use to publish reports, create new dashboards, and share insights.

- **PowerBI Mobile**: This is a mobile application that you can use to access your reports and dashboards on the go.

CHAPTER 3

PROJECT ARCHITECTURE

3.1 Architecture



Here's a high-level architecture for the project:

1. **Data Collection**: Real-time customer data is collected from various sources like bank transactions, customer interactions, etc. This could be achieved using services like Azure Event Hubs or AWS Kinesis.

2. **Data Storage**: The collected data is stored in a database for processing. Azure SQL Database or AWS RDS can be used for this purpose.
3. **Data Processing**: The stored data is processed in real-time using services like Azure Stream Analytics or AWS Kinesis Data Analytics.
4. **Machine Learning**: Predictive models are built based on processed data using Azure Machine Learning or AWS SageMaker. These models can help in predicting customer behavior, detecting fraud, etc.
5. **Data Visualization**: The processed data and the results from the predictive models are visualized in real-time using PowerBI. PowerBI allows you to create interactive dashboards that can provide valuable insights into the data.
6. **Data Access**: The dashboards created in PowerBI can be accessed through PowerBI Desktop, PowerBI Service (online), and PowerBI Mobile.

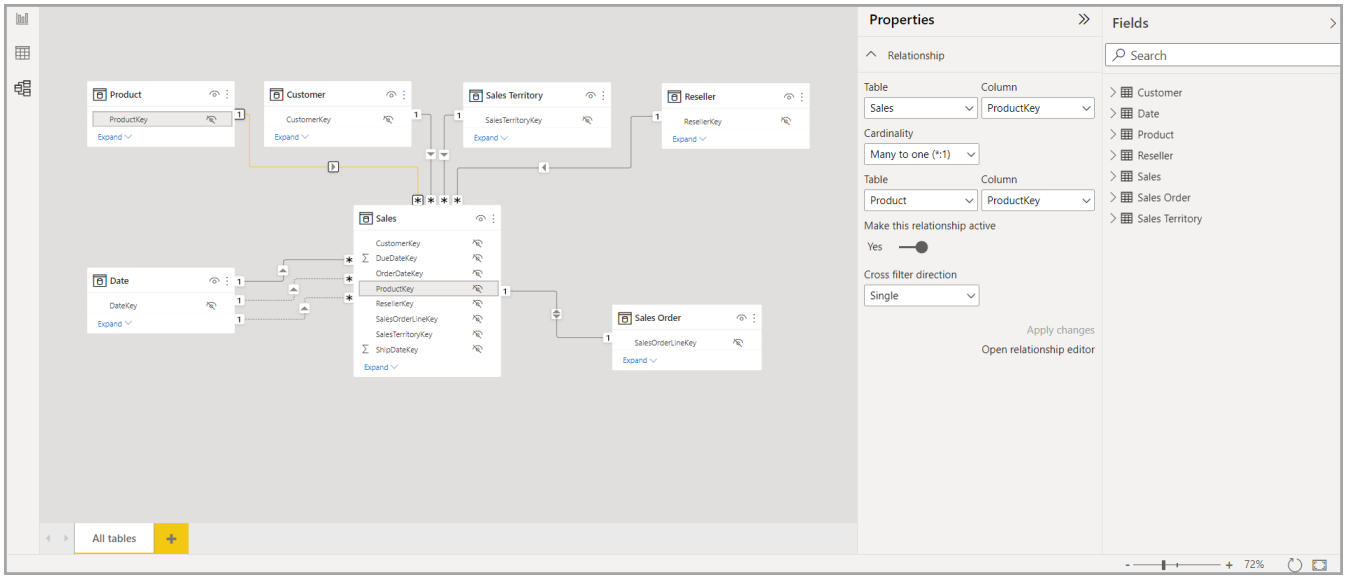
This architecture provides a comprehensive solution for real-time analysis of bank customers. However, it's important to note that the specific architecture may vary depending on the bank's existing infrastructure, specific requirements, and budget. It's also important to ensure that all tools and services comply with relevant data privacy and security regulations.

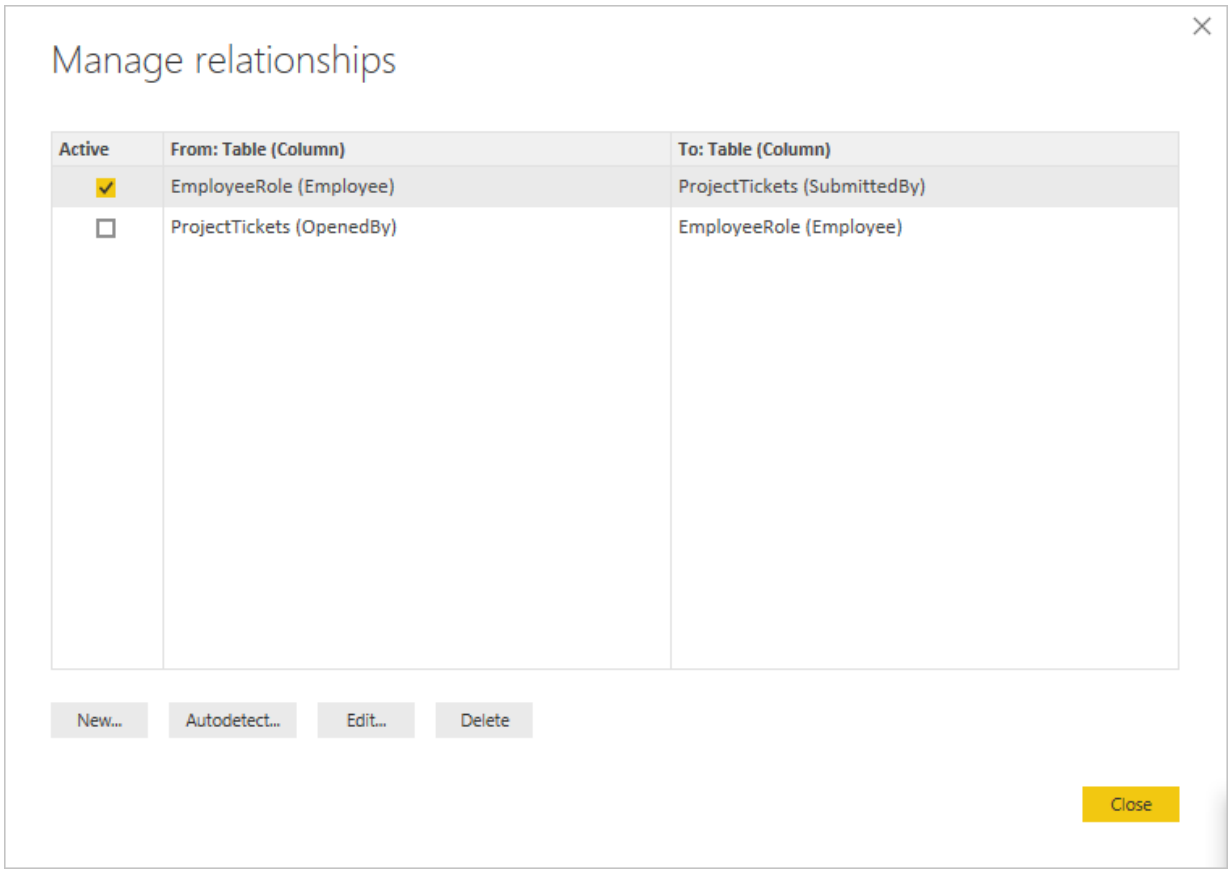
CHAPTER 4

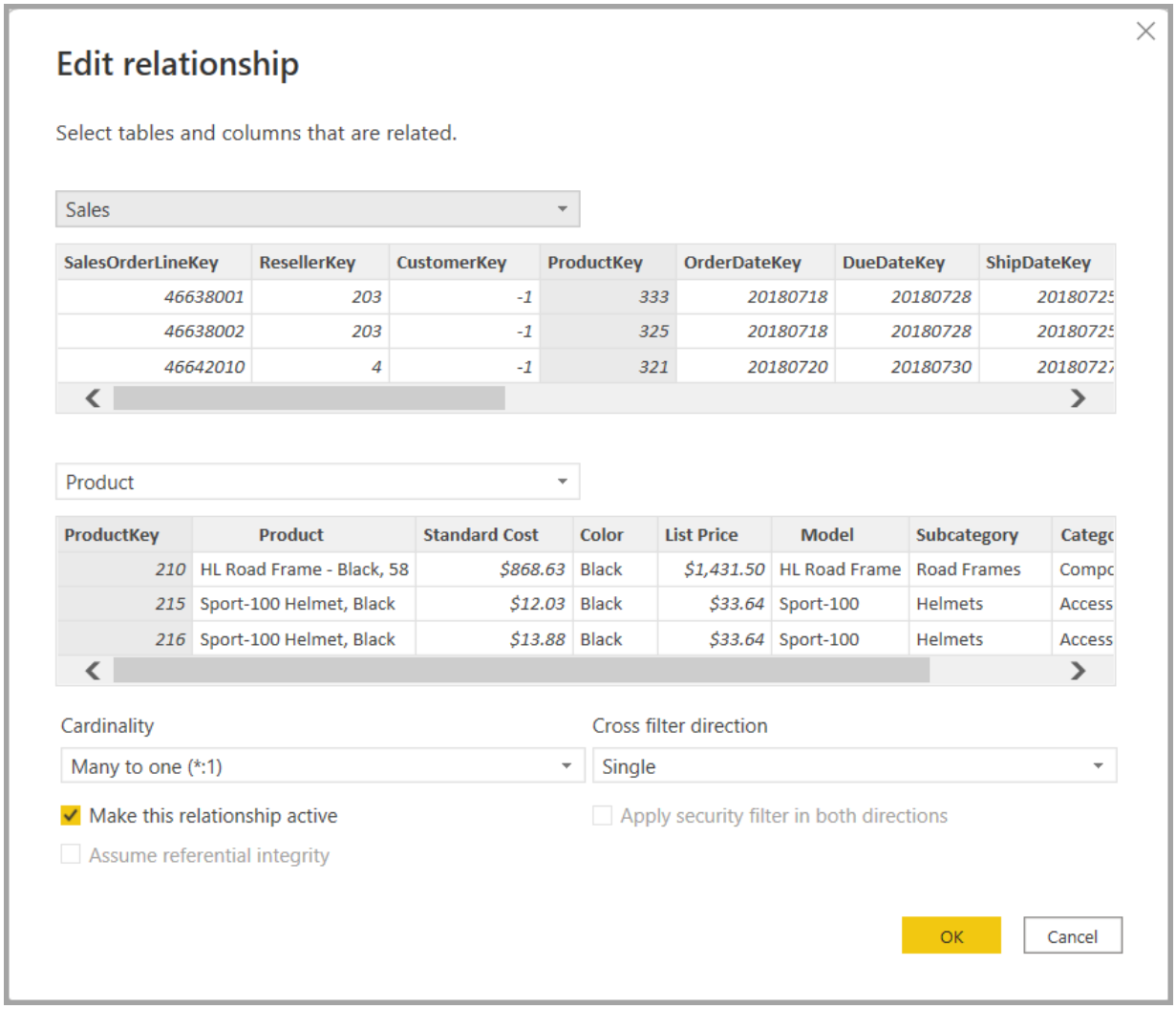
MODELING AND RESULT

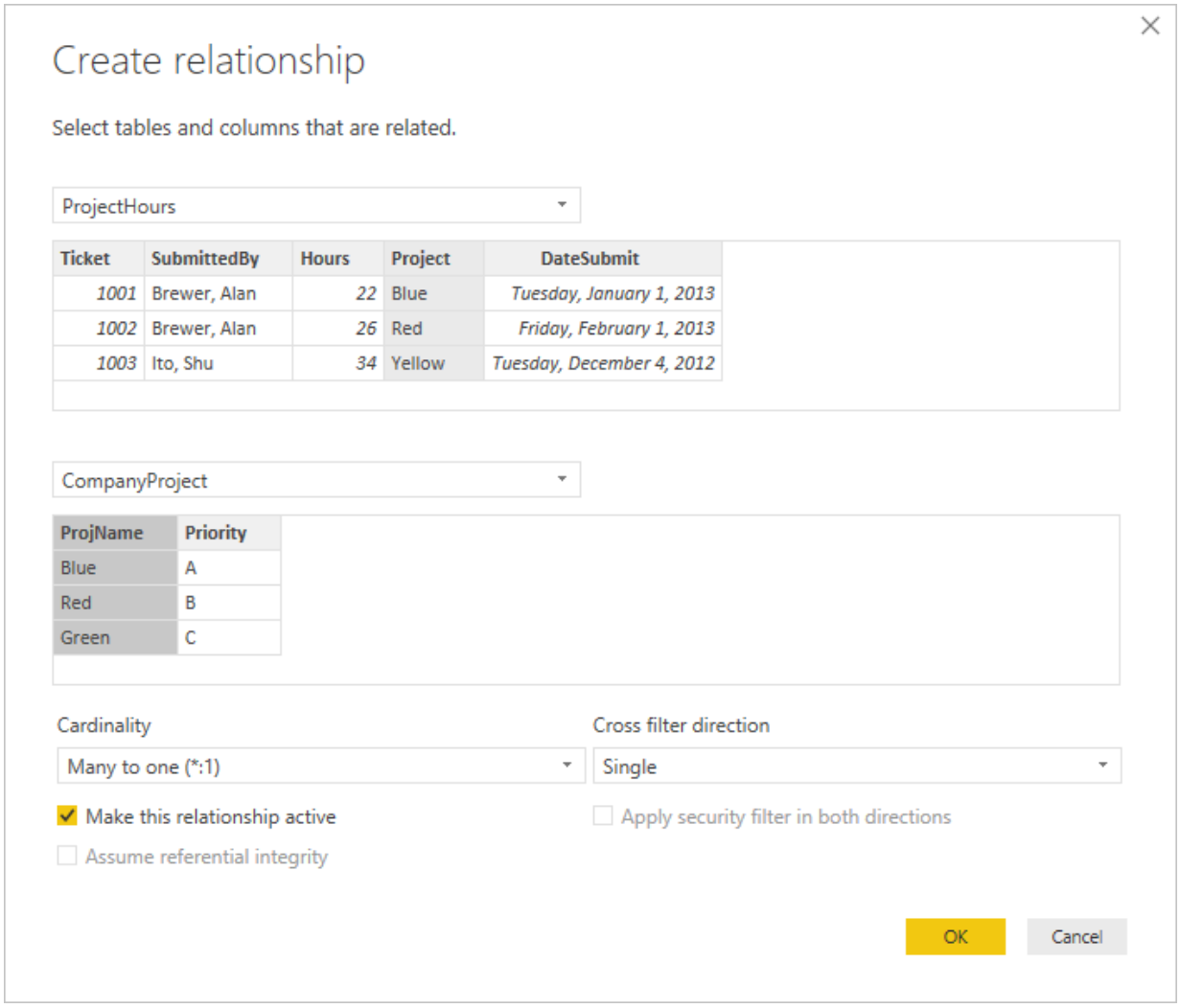
Manage relationship

The “disp” file will be used as the main connector as it contains most key identifier (account id, client id and disp id) which can be use to relates the 8 data files together. The “district” file is use to link the client profile geographically with “district id”

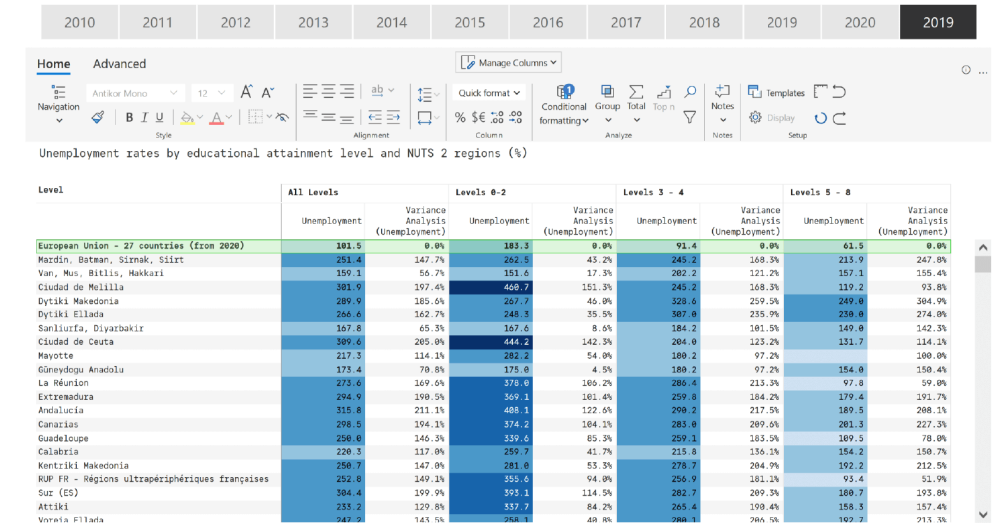

Product
ProductKey
Expand
Customer
CustomerKey
Expand
Sales Territory
SalesTerritoryKey
Expand
Reseller
ResellerKey
Expand
Sales
CustomerKey
DueDateKey
OrderDateKey
ProductKey
ResellerKey
SalesOrderLineKey
SalesTerritoryKey
ShipDateKey
Expand
Date
DateKey
Expand
Sales Order
SalesOrderLineKey
Expand
All tables
Properties
Relationship
Table
Column
Sales
ProductKey
Cardinality
Many to one (*:1)
Table
Column
Product
ProductKey
Make this relationship active
Yes
Cross filter direction
Single
Apply changes
Open relationship editor
Fields
Search
Customer
Date
Product
Reseller
Sales
Sales Order
Sales Territory
72%


Manage relationships
Active
From: Table (Column)
To: Table (Column)
EmployeeRole (Employee)
ProjectTickets (SubmittedBy)
ProjectTickets (OpenedBy)
EmployeeRole (Employee)
New...
Autodetect...
Edit...
Delete
Close


Edit relationship
Select tables and columns that are related.
Sales
SalesOrderLineKey ResellerKey CustomerKey ProductKey OrderDateKey DueDateKey ShipDateKey
46638001 203 -1 333 20180718 20180728 20180725
46638002 203 -1 325 20180718 20180728 20180725
46642010 4 -1 321 20180720 20180730 20180727
Product
ProductKey Product Standard Cost Color List Price Model Subcategory Categ
210 HL Road Frame - Black, 58 $868.63 Black $1,431.50 HL Road Frame Road Frames Compc
215 Sport-100 Helmet, Black $12.03 Black $33.64 Sport-100 Helmets Access
216 Sport-100 Helmet, Black $13.88 Black $33.64 Sport-100 Helmets Access
Cardinality
Many to one (*:1)
Cross filter direction
Single
Make this relationship active
Apply security filter in both directions
Assume referential integrity
OK
Cancel



n this report, we have performed an analysis of the Unemployment Rate in European Union over the last 10 years using features such as advanced conditional formatting - Segmentation and Heat Maps, Sorting, Variance Analysis and many more

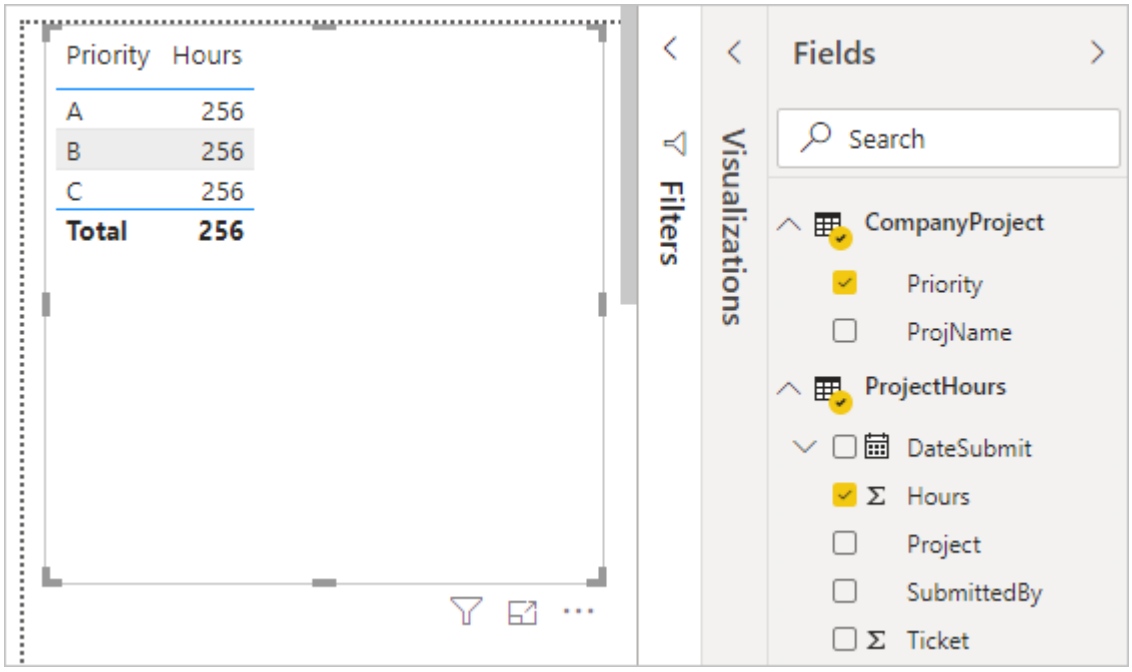


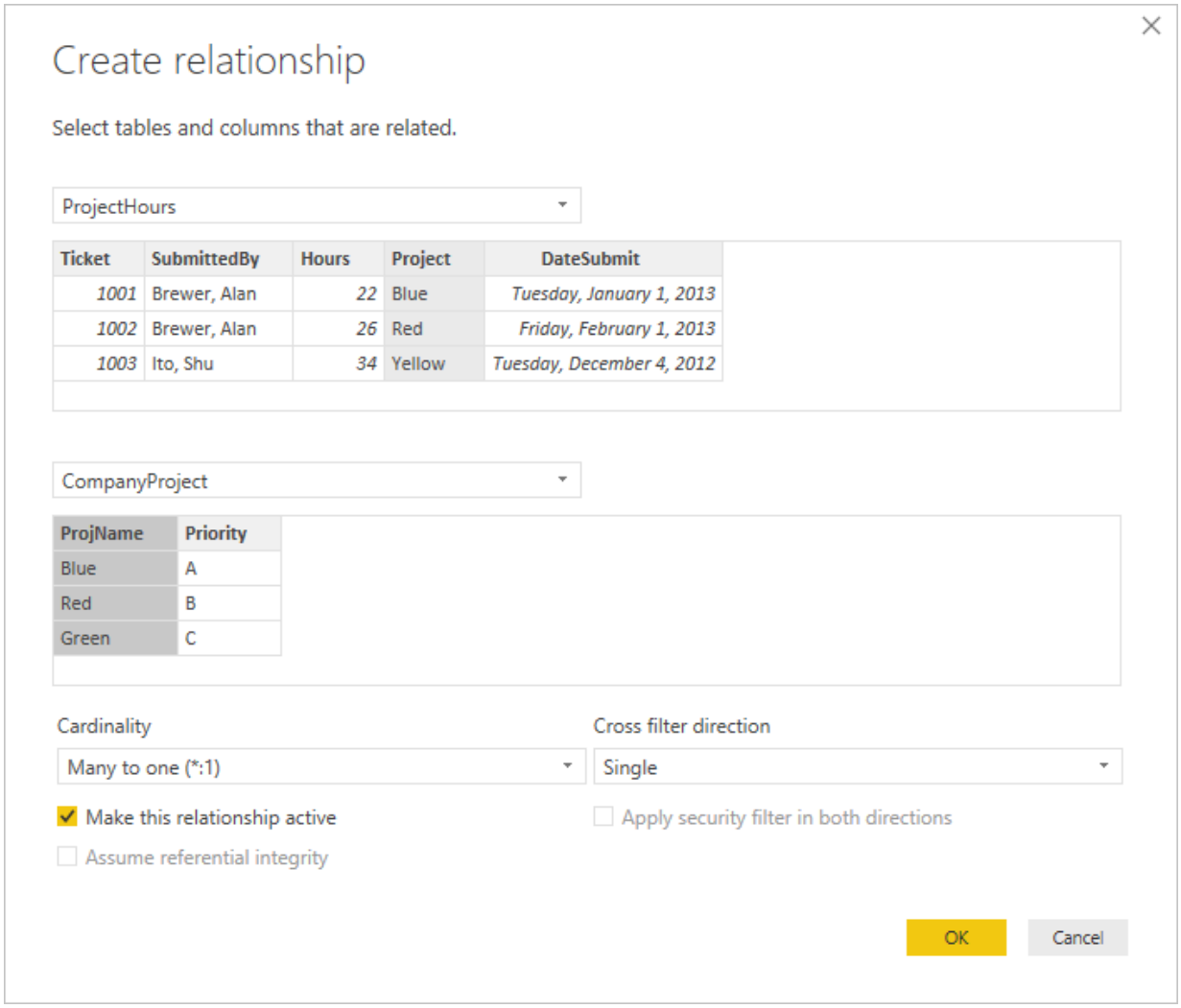
Unemployment rates by educational attainment level and NUTS 2 regions (%)

Level	All Levels		Levels 0-2		Levels 3 - 4		Levels 5 - 8	
	Unemployment	Variance Analysis (Unemployment)	Unemployment	Variance Analysis (Unemployment)	Unemployment	Variance Analysis (Unemployment)	Unemployment	Variance Analysis (Unemployment)
European Union - 27 countries (from 2020)	101.5	0.0%	183.3	0.0%	91.4	0.0%	61.5	0.0%
Mardin, Batman, Şirnak, Siirt	251.4	147.7%	262.5	43.2%	245.2	168.5%	213.9	247.8%
Van, Muş, Bitlis, Hakkari	159.1	56.7%	151.6	17.3%	202.2	121.2%	157.1	155.4%
Ciudad de Melilla	301.9	197.4%	408.7	151.3%	245.2	168.3%	119.2	93.8%
Dytiki Makedonia	289.9	185.6%	267.7	46.0%	328.6	259.5%	249.0	304.9%
Dytiki Ellada	266.6	162.7%	248.3	35.5%	307.0	235.9%	230.0	274.0%
Sanliurfa, Diyarbakir	167.8	65.3%	167.6	8.6%	184.2	101.5%	149.0	142.3%
Ciudad de Ceuta	309.6	205.0%	444.2	142.3%	204.0	123.2%	131.7	114.1%
Mayotte	217.3	114.1%	282.2	54.0%	180.2	97.2%		100.0%
Güneydogu Anadolu	173.4	70.8%	175.0	4.5%	180.2	97.2%	154.0	150.4%
La Réunion	273.6	169.6%	378.0	106.2%	286.4	213.3%	97.8	59.0%
Extremadura	294.9	190.5%	369.1	101.4%	259.8	184.2%	179.4	191.7%
Andalucía	315.8	211.1%	408.1	122.6%	298.2	217.5%	189.5	208.1%
Canarias	298.5	194.1%	374.2	104.1%	283.0	209.6%	201.3	227.3%
Guadeloupe	250.0	146.3%	339.6	85.3%	259.1	183.5%	109.5	78.0%
Calabria	220.3	117.0%	259.7	41.7%	215.8	136.1%	154.2	150.7%
Kentriki Makedonia	250.7	147.0%	281.0	53.3%	278.7	204.9%	192.2	212.5%
RUP FR - Régions ultrapériphériques françaises	252.8	149.1%	355.6	94.0%	256.9	181.1%	93.4	51.9%
Sur (ES)	304.4	199.9%	393.1	114.5%	282.7	209.3%	180.7	193.8%
Attiki	233.2	129.8%	337.7	84.2%	265.4	190.4%	158.3	157.4%
Voreia Ellada	247.2	143.5%	258.1	40.8%	280.1	206.5%	192.7	213.3%

type	+/- transaction	"PRIJEM" stands for credit "VYDAJ" stands for withdrawal

.




Create relationship
Select tables and columns that are related.
ProjectHours
Ticket SubmittedBy Hours Project DateSubmit
1001 Brewer, Alan 22 Blue Tuesday, January 1, 2013
1002 Brewer, Alan 26 Red Friday, February 1, 2013
1003 Ito, Shu 34 Yellow Tuesday, December 4, 2012
CompanyProject
ProjName Priority
Blue A
Red B
Green C
Cardinality
Many to one (*:1)
Cross filter direction
Single
Make this relationship active
Apply security filter in both directions
Assume referential integrity
OK
Cancel

Dashboard


Unemployment in India
31.55K
8.72K
741

CONCLUSION

Unemployment is a major economic benchmark because it shows the capacity (or incapacity) of healthy, educated, and willing respective to gain a livelihood. People unable to work for several reasons such as retirement, disability, pursuing higher study, etc. are excluded from this. The higher the country's unemployment rate, its economic growth is less productive. Even without employment, people still manage a steady utilization of resources. Voluntary unemployment refers to an individual's decision to leave previous employment to look for other forms of work out of their own volition with no outside circumstances. Involuntary unemployment is when an individual loses their job due to several reasons, such as being fired. Their employer is unable to manage employees and now must look for other sustenance. Unemployment can be a dangerous and atrocious life experience — like a serious automobile accident or a messy divorce—whose consequences only someone who has gone through it can fully understand.For unemployed respective and their families there is the day- to –day financial anxiety of not knowing from where the next paycheck is coming. There are painful adjustments, like watching your savings account diminish, selling a car and buying a cheaper one, or moving to a less expensive place tolive. Even when the unemployed person searches a new job, it may pay less than the previous one. For many people, their job is an important part of their self worth. When unemployment separates people from the workforce, it can affect domestic relationships as well as mental and physical health.

FUTURE SCOPE

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REFERENCES

https://www.novypro.com/project/unemployment-data-analysis-using-powerbi