Business Intelligence and Analytics and Data Visualization for Efficient Business Management

Some people will be using Business Intelligence without even knowing it.

- Kurt Schlegel

What is Business Intelligence?

USED FOR

Business Intelligence is not just about turning data into information, rather organizations need that data to impact how their business operates and responds to the changing marketplace.

- Gerald Cohen

Why Business Intelligence?

Helps in defining growth strategies

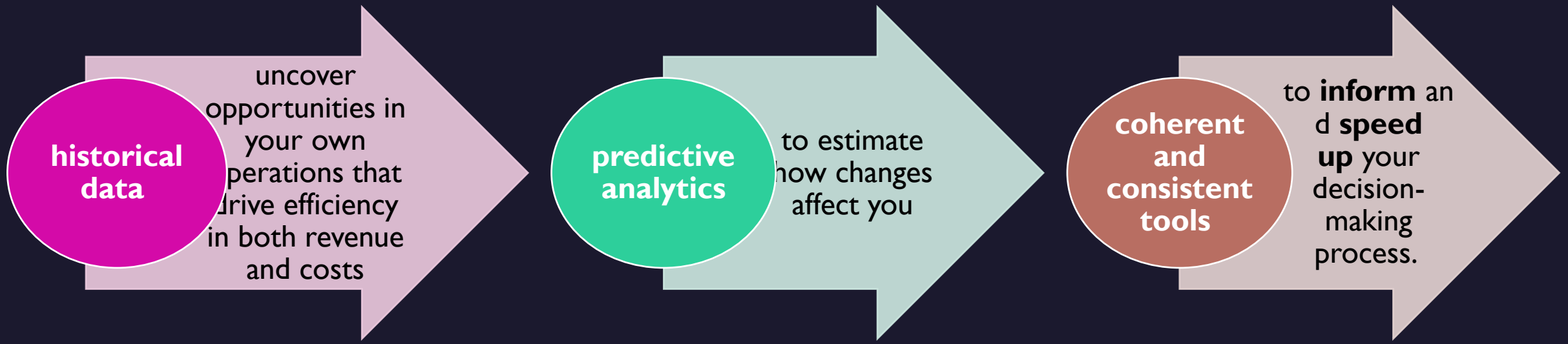
Gaining insights from huge data sets

Better decision making leading to higher revenue

Better understanding of customers

Competitive advantage

Business Intelligence Process

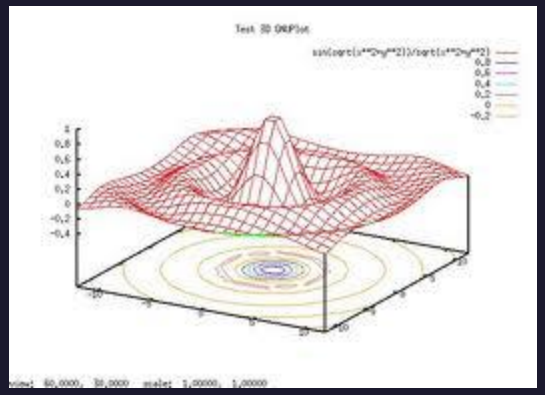


Business Intelligence functions

- Reporting
- Business Performance
- Data Mining
- Process Mining
- Complex event processing
- Text Mining
- Descriptive Analysis
- Predictive Analysis
- Prescriptive Analysis

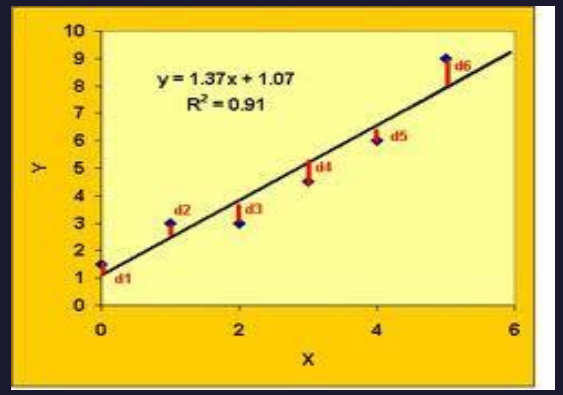
Descriptive Analytics

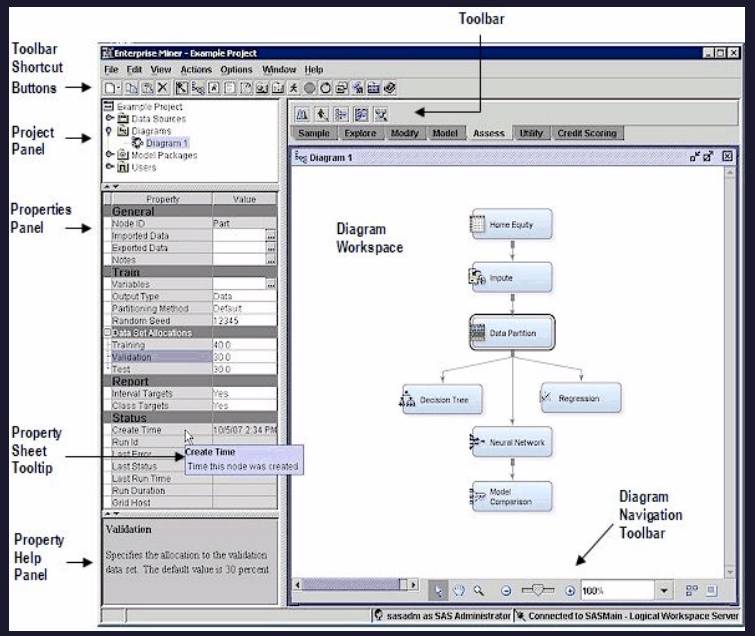
Year	2000			
	Audio Division		Video Division	
Line Items	Budget	Actual	Budget	Actual
Cost of Goods Sold	$6,851,006.49	$7,132,961.38	$4,322,514.74	$4,526,954.71
Marketing Expense	$750,179.20	$756,596.17	$455,048.05	$462,815.40
Research and Development Expense	$538,243.39	$538,014.73	$329,890.95	$336,808.13
Selling Expense	$1,632,921.64	$1,579,790.18	$986,887.49	$927,970.90
Taxes	$314,659.05	$319,390.19	$202,636.67	$200,205.01
Year	2001			
	Audio Division		Video Division	
Line Items	Budget	Actual	Budget	Actual
Cost of Goods Sold	$2,554,556.31	$2,700,773.16	$1,726,031.16	$1,773,448.08
Marketing Expense	$294,766.22	$290,696.70	$187,757.29	$176,778.55
Research and Development Expense	$200,719.90	$193,236.83	$134,270.95	$125,725.88
Selling Expense	$620,427.30	$611,649.47	$405,092.93	$400,181.91
Taxes	$130,926.70	$122,526.31	$82,450.78	$80,671.87



What has occurred?

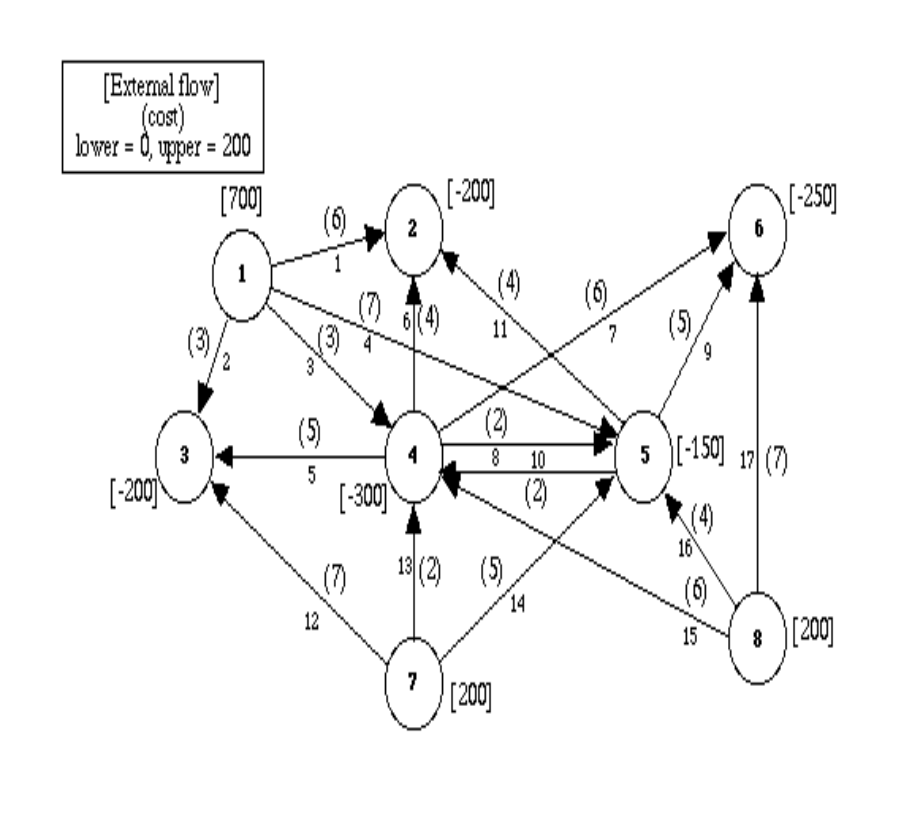
Predictive Analytics

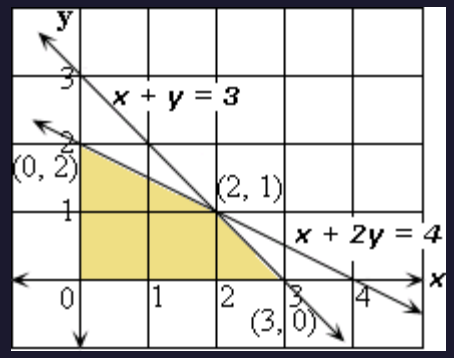




What will occur?

Prescriptive Analytics





What should occur?

Business Intelligence vs Business Analytics

Business Intelligence

- Deals with *what* happened in the past and *how* it happened leading up to the present moment.
- It identifies big trends and patterns without digging too much into the *why's* or predicting the future.

Business Analytics

- Deals with the *why's* of what happened in the past by breaking it down into contributing factors.
- It uses these *why's* to make predictions of what will happen in the future.

Business Intelligence vs Business Analytics

	Business Intelligence	Business Analytics
Descriptive analytics: Creates summary of historical data to visualize	✓	✗
Diagnostic analytics: Determines the source of issues discovered by Descriptive analytics	✓	✗
Predictive analytics: Makes predictions based on collected data	✗	✓
Prescriptive analytics: Offers solutions for issues found by descriptive analytics	✗	✓

Pervasive BI

Big Data

Data Appliances

BI in the Cloud

Mobile BI

Predictive Analytics

Real Time BI

Columnar Databases

BI Based Organizations

BI Governance

Advanced Data Visualization

Data Scientists

In-Memory Analytics

Rules Engines

SaaS

BI Competency Centers

Hadoop/MapReduce

BI 2.0 Software

BI Search

Agile

Open Source BI Software

Master Data Management

Event Analytics

Text Analytics

Importance of Data Driven Insights in Effective Decision Making

The goal is to turn data into information, and information into insight.

- Carly Fiorina

Act today for better results tomorrow

Early View

Customer first

Data vs. Gut

Identify pattern

Any Guesses?

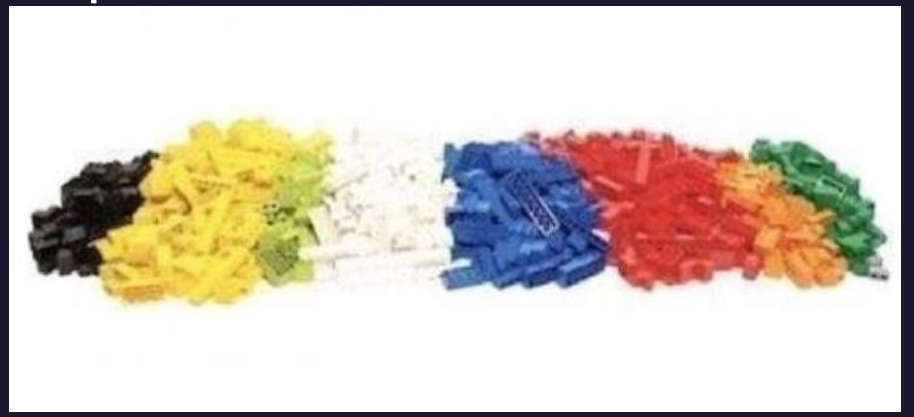
Information is the oil of the 21st century, and analytics is the combustion engine.

- Peter Sondergaard

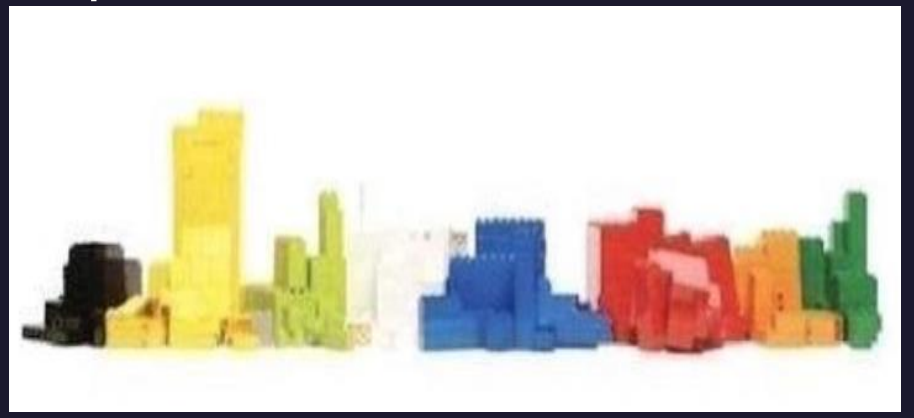
Data will talk if you're willing to listen!

Step 1

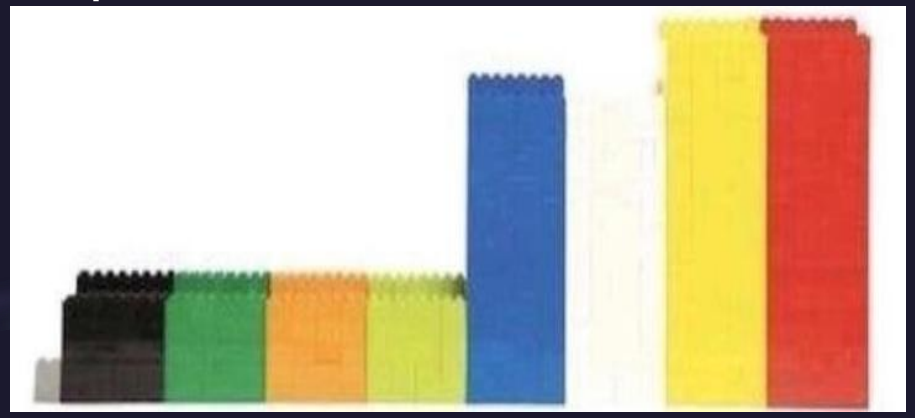
Step 2



Step 3



Step 4



Hypothesis

- Dummy data that talks about a bank's customers
- Tool used: Power BI
- 4 steps to represent our data and analyze
- Unfolding the advantages of Data Driven Insights

Step 1: Understanding the data

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Customer 1		Customer 2		Customer 3		Customer 4		Customer 5		Customer 6		Customer 7		Customer 8	
2	Balance	Age	Balance	Age	Balance	Age	Balance	Age	Balance	Age	Balance	Age	Balance	Age	Balance	Age
3	$10,000	20	$20,000	30	$30,000	40	$40,000	45	$50,000	50	$60,000	55	$70,000	60	$80,000	70

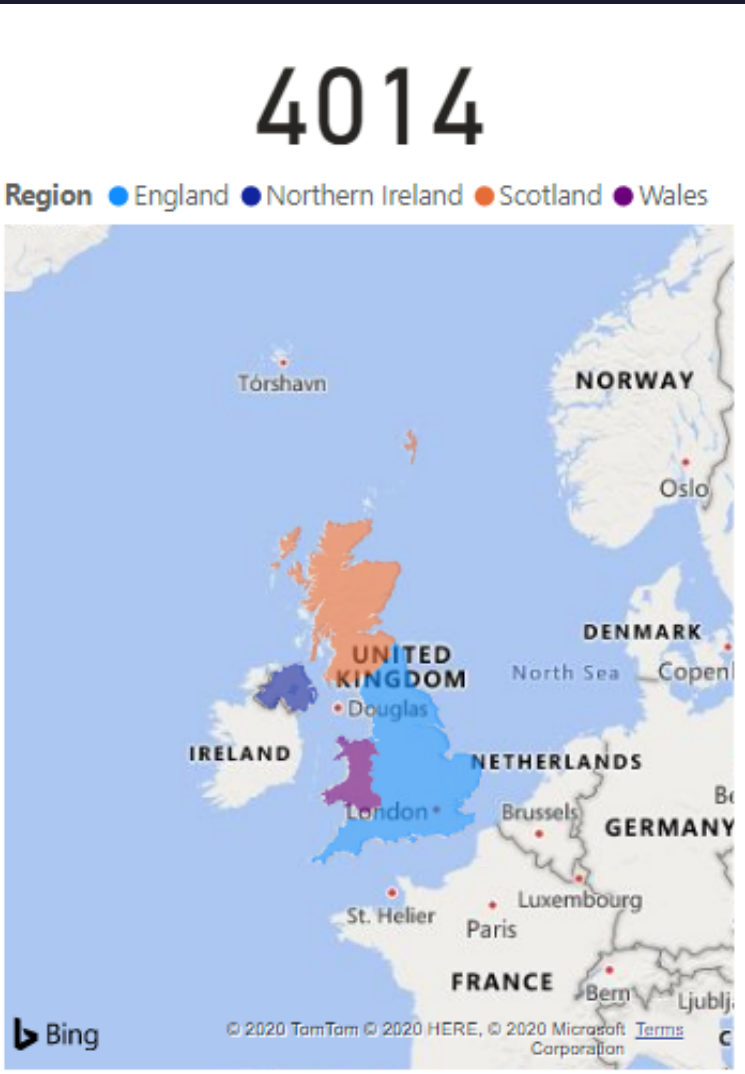
Step 2: Re-arranging the data

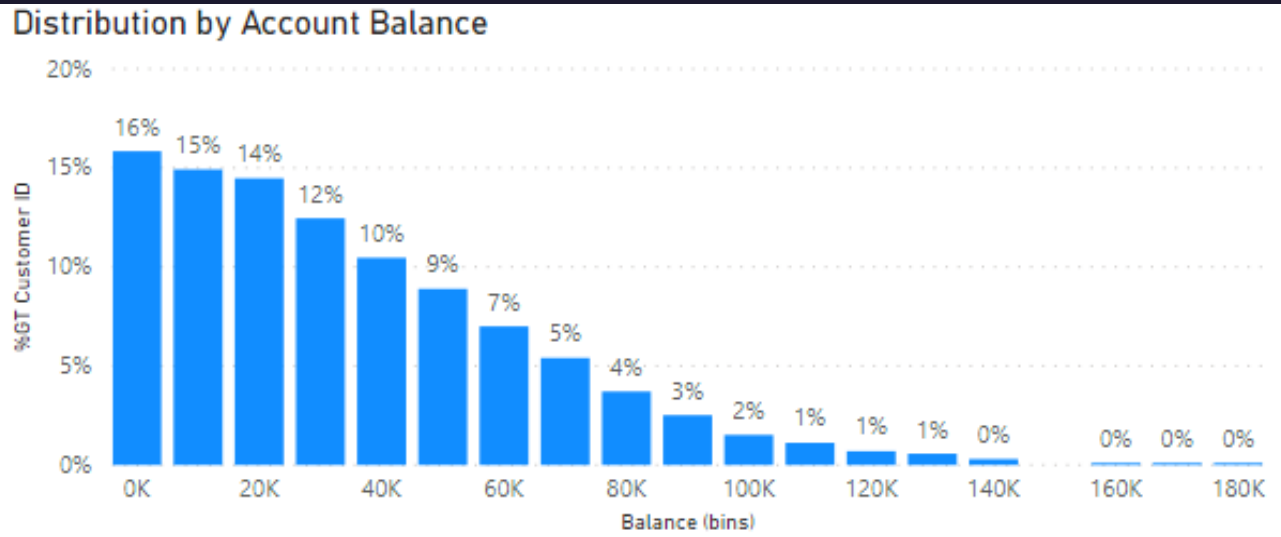
	A	B	C
1	Customer Name	Balance	Age
2	Customer 1	$10,000	20
3	Customer 2	$20,000	30
4	Customer 3	$30,000	40
5	Customer 4	$40,000	45
6	Customer 5	$50,000	50
7	Customer 6	$60,000	55
8	Customer 7	$70,000	60
9	Customer 8	$80,000	70

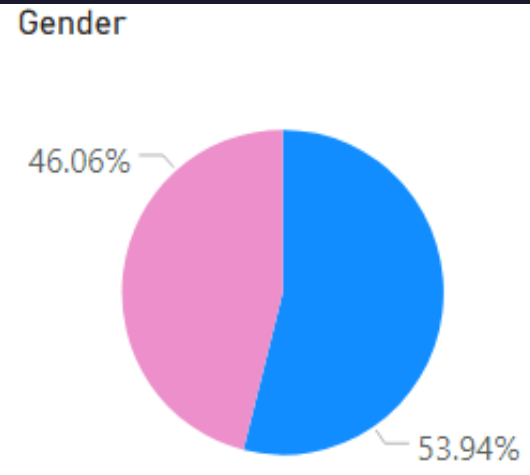
Step 3: Analysing the data

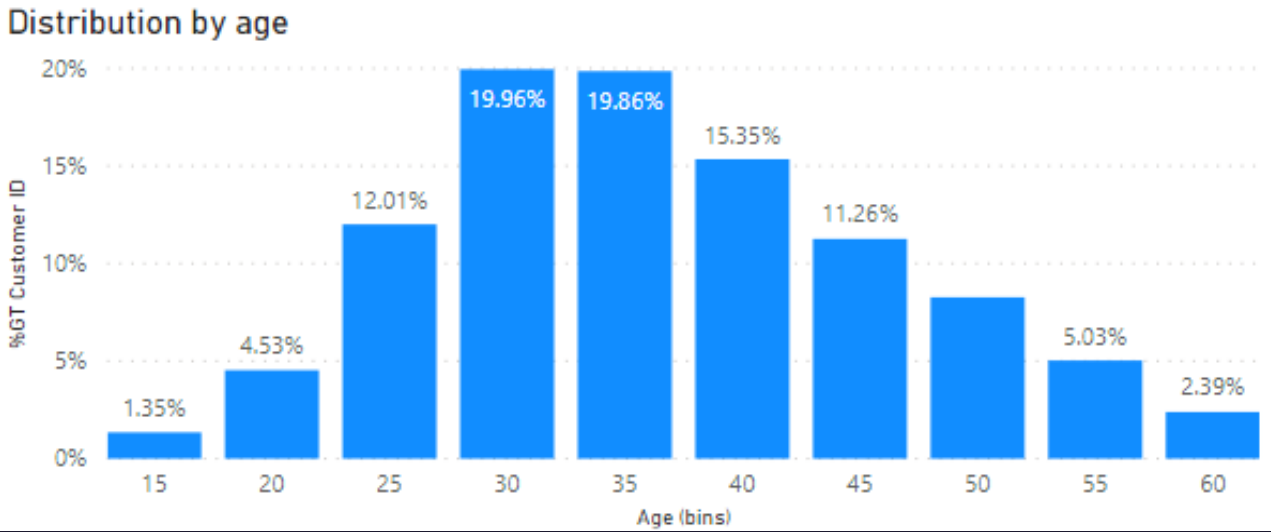
- Geographical concentration
- Distribution by Balance
- Distribution by Age
- Distribution by Gender
- Distribution by Profession

Step 4: Representation of data









Act today for better results tomorrow

Early View

- React in advance
- Act swiftly
- Plan better
- Mitigate risk

Customer first

- Changing customer needs
- Enhanced servicing

Data vs. Gut

- Dynamic environment
- Analysis vs. Instincts

Identify pattern

- Connecting the dots
- Understanding the linkages

Data visualization tools

	Tableau	Power BI	Qlik BI
Ease of use	Very intuitive and user friendly (Non technical users can use easily)	User friendly – Knowledge of Microsoft Excel is enough	Easy to learn for people with Data Science background
Free version	Tableau Public is free, Tableau Server is licensed.	Desktop version is free, Power BI Pro is pay per month	Qlik Personal is free, Qlik Sense is paid
Advantage	Flexibility to create custom visuals gives it an edge	Inexpensive, complex visuals are easy to create	Provide deep range analytics and dataset support