ORACLE

Donnez vie à vos Données
L'Analytique de nouvelle génération

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En un mot…

1. La plateforme Oracle met à disposition une large variété de techniques analytiques de plus en plus intégrées…

2. … et les rend de plus en plus accessibles aux utilisateurs business, de façon robuste, libérant une importante valeur ajoutée analytique

1 ★

2 ★

3 ★

4 ★

5 ★

6 ★

7 ★

8 ★

9 ★

10 ★

11 ★

12 ★

The Hackett Group
World Class Defined and Enabled

I believe a user can perform machine learning tasks directly in Oracle's Cloud Analytics within half the time taken to hand code it in Python, and get to same results

Hypothesis

The Toolkit

Contents, Tech, Scoring.

Problem

kaggle

Go-to data science playground.

Technology

ORACLE

ORACLE ANALYTICS CLOUD

VS.

python™ jupyter

Evaluation

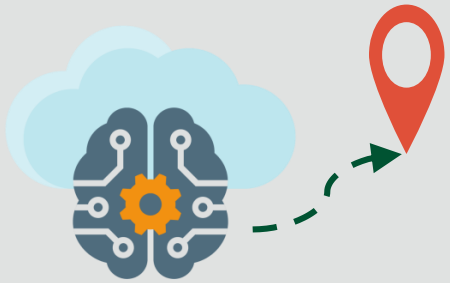
$$\mathrm{RMSD}(\hat{\theta}) = \sqrt{\mathrm{MSE}(\hat{\theta})} = \sqrt{\mathrm{E}((\hat{\theta} - \theta)^2)}.$$

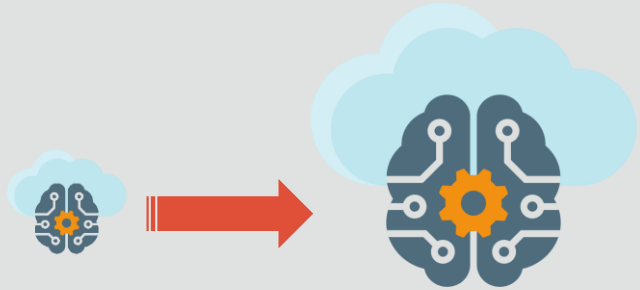
Models trained using both Python and Cloud-Analytics Technologies will be scored independently by Kaggle.

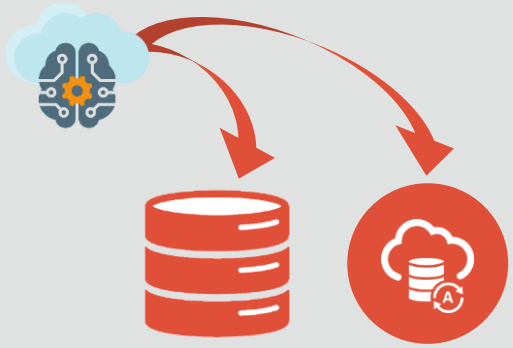
The generated predictions on the test dataset will be scored using **Root Mean Squared Error.**

	python	ORACLE ANALYTICS CLOUD	
Time to Complete Experiment (Hours)	8	4	No skills needed
Accuracy (RMSE)	0.124	0.128	
Can iterate through columns with a FOR Loop	✓	✓	Useful functionality such as narratives and point and click colours
Ability to use different imputation methods for different columns	⚙	⚙	‘Explain’ functionality augments manual data exploration activities

Oracle Machine Learning Key Attributes







Automated

Get better results faster with less effort – even non-expert users

Scalable

Handle big data volumes using parallel, distributed algorithms – no data movement

Production-ready

Deploy and update data science solutions faster with integrated ML platform

Increase productivity | Achieve enterprise goals | Innovate More

Oracle In Database Analytics – Machine Learning

Classification
- Naïve Bayes
- Logistic Regression (GLM)
- Decision Tree
- Random Forest
- Neural Network
- Support Vector Machine (SVM)
- Explicit Semantic Analysis

Clustering
- Hierarchical K-Means
- Hierarchical O-Cluster
- Expectation Maximization (EM)

Anomaly Detection
- One-Class SVM

Time Series
- Forecasting - Exponential Smoothing
- Includes popular models
  - e.g. Holt-Winters with trends, seasonality, irregularity, missing data

Regression
- Linear Model
- Generalized Linear Model (GLM)
- Support Vector Machine (SVM)
- Stepwise Linear regression
- Neural Network
- LASSO

Attribute Importance
- Minimum Description Length
- Principal Component Analysis (PCA)
- Unsupervised Pair-wise KL Div
- CUR decomposition for row & AI

Association Rules
- A priori/ market basket

Predictive Queries
- Predict, cluster, detect, features

SQL Analytics
- SQL Windows
- SQL Patterns
- SQL Aggregates

Feature Extraction
- Principal Comp Analysis (PCA)
- Non-negative Matrix Factorization
- Singular Value Decomposition (SVD)
- Explicit Semantic Analysis (ESA)

Text Mining Support
- Algorithms support text columns
- Tokenization and theme extraction
- Explicit Semantic Analysis (ESA) for document similarity

Statistical Functions
- Basic statistics: min, max, median, stdev, t-test, F-test, Pearson's, Chi-Sq, ANOVA, etc.

R and Python Packages
- Third-party R and Python Packages through Embedded Execution
- Spark MLlib algorithm integration

Oracle In Database Network & Graph Analytics

Property Graph Model

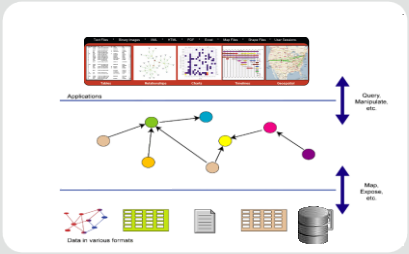
- Path Analytics
- Graph Analytics
- Detect patterns and anomalies

- Financial
- Retail, Marketing
- Public Safety
- Smart Manufacturing

Shipping for 3+ years

RDF Graph Model

- Data federation
- Knowledge representation
- Semantic Web



- Life Sciences
- Health Care
- Publishing
- Finance

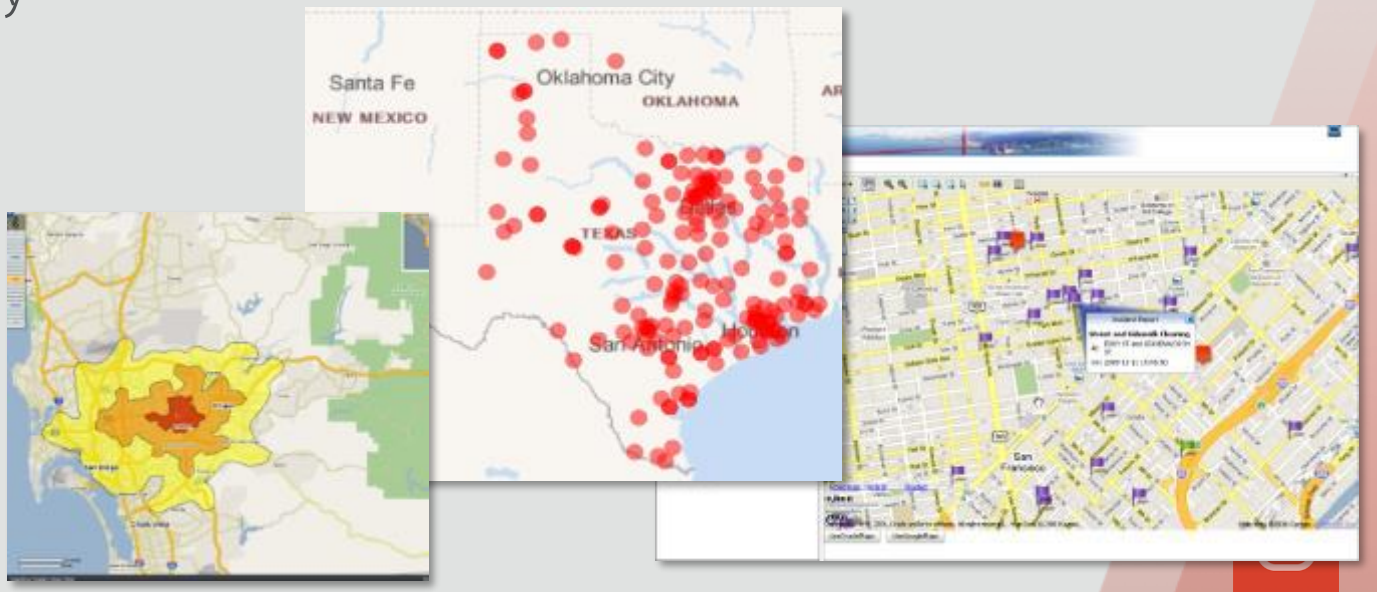
Shipping for 12+ years

Graph Model	Use Cases	Industry Domain

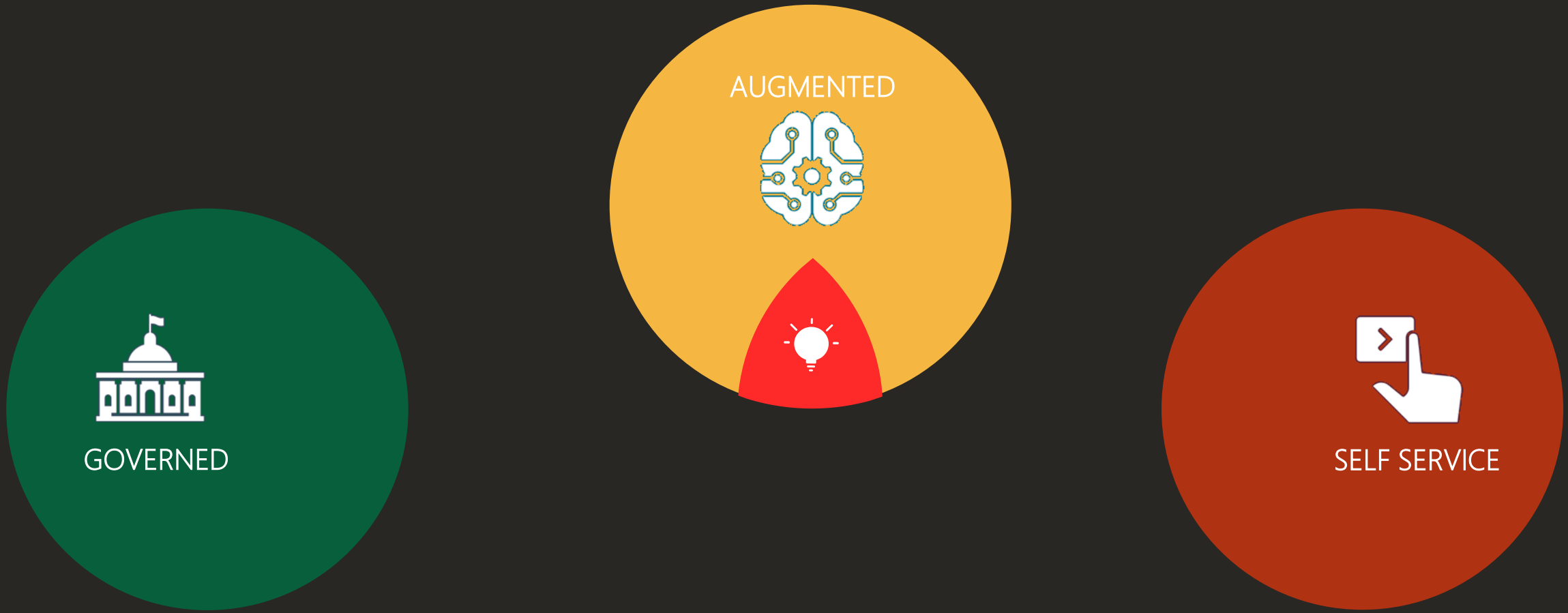
Oracle In Database Spatial Analytics

- Vector Data (Points, Lines, Linestrings, Areas)
- Geo-referenced Raster Imagery (Orthophotos, Satellite Images, …)
- 3D Point Cloud Data (Laserscanning, Photogrammetry)
- Network Data (Road Networks, Utility Networks)
- Topology Data (Land management)
- Streaming Point Data (Location tracking)

- Map visualization
- Geocoding
- Routing
- Publishing (OGC Web Services)
- Spatial Studio end user Interface
- …



Oracle Analytics Multiple Axis



Oracle Analytics

Comprehensive Analytics Platform for Business Users, Developers & IT

Governed Analytics	Self-Service Analytics	Augmented Analytics
Dashboards	Data Visualization	Natural Language
Reporting	Data Preparation	Machine Learning
Semantic Models	Mobile	Discovery and Enrichment

Open Connectivity

Oracle SaaS, Autonomous Database, Big Data
Third Party Cloud, Database
On-Premises Apps, Database

AI Powered Analytics

ML/NL infused into every aspect of the product

- Ask Anything
  - Interact with your data using Natural Language in the browser, mobile device, messaging app, or digital assistant

- Data Enrichment
  - ML algorithms analyze your data and suggest rules and transforms to improve data quality and reduce data risks

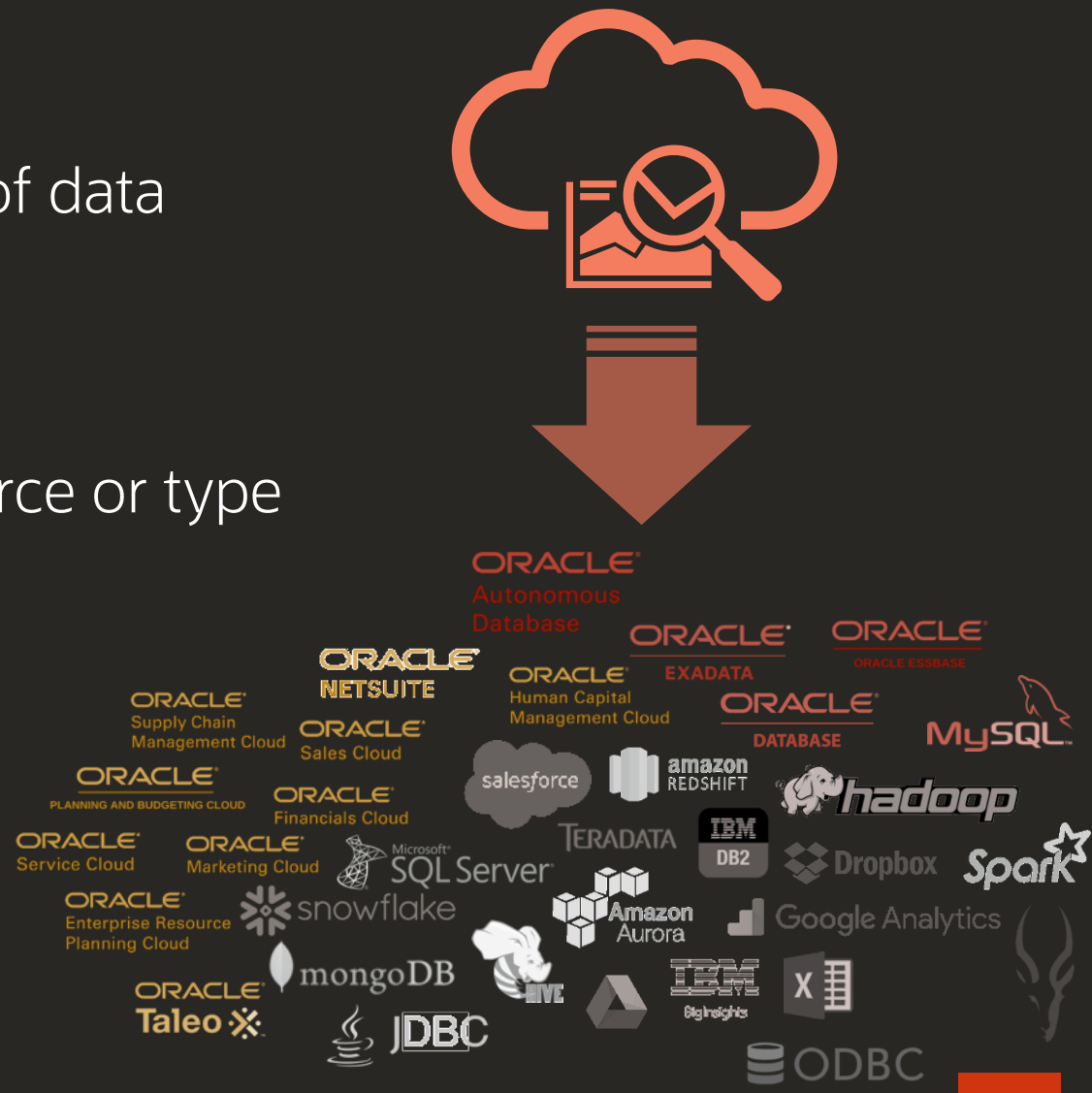
- Uncover Hidden Insights
  - ML algorithms analyze your data and offer visual insights and predictions

- Adaptive & Personalized
  - Insights and alerts adapt to user/group behavior learned over time

Open Connectivity

Connect to Any Data Source

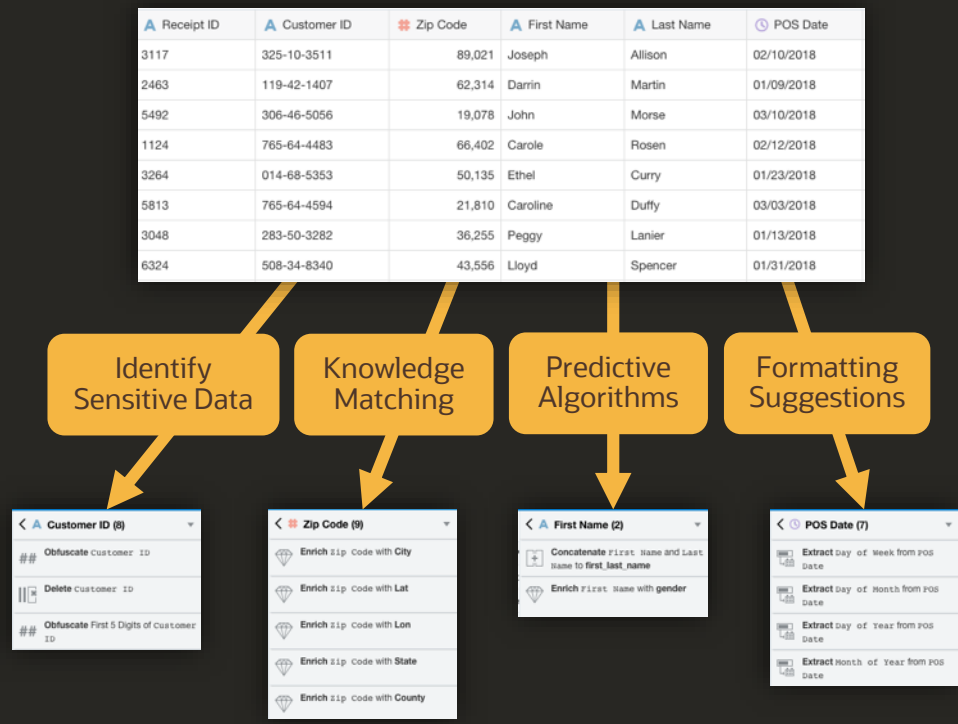
- Dozens of built in connectors to all types of data
  - Relational, NoSQL, big data
  - SaaS applications
  - Oracle Cloud, third party clouds, on-premises
- Blend any data together regardless of source or type
- Smart connectors to Fusion apps
- Secure access to on-premises data
- Performant, scalable and resilient



Data Enrichment

Understanding the Semantics and Context of your data

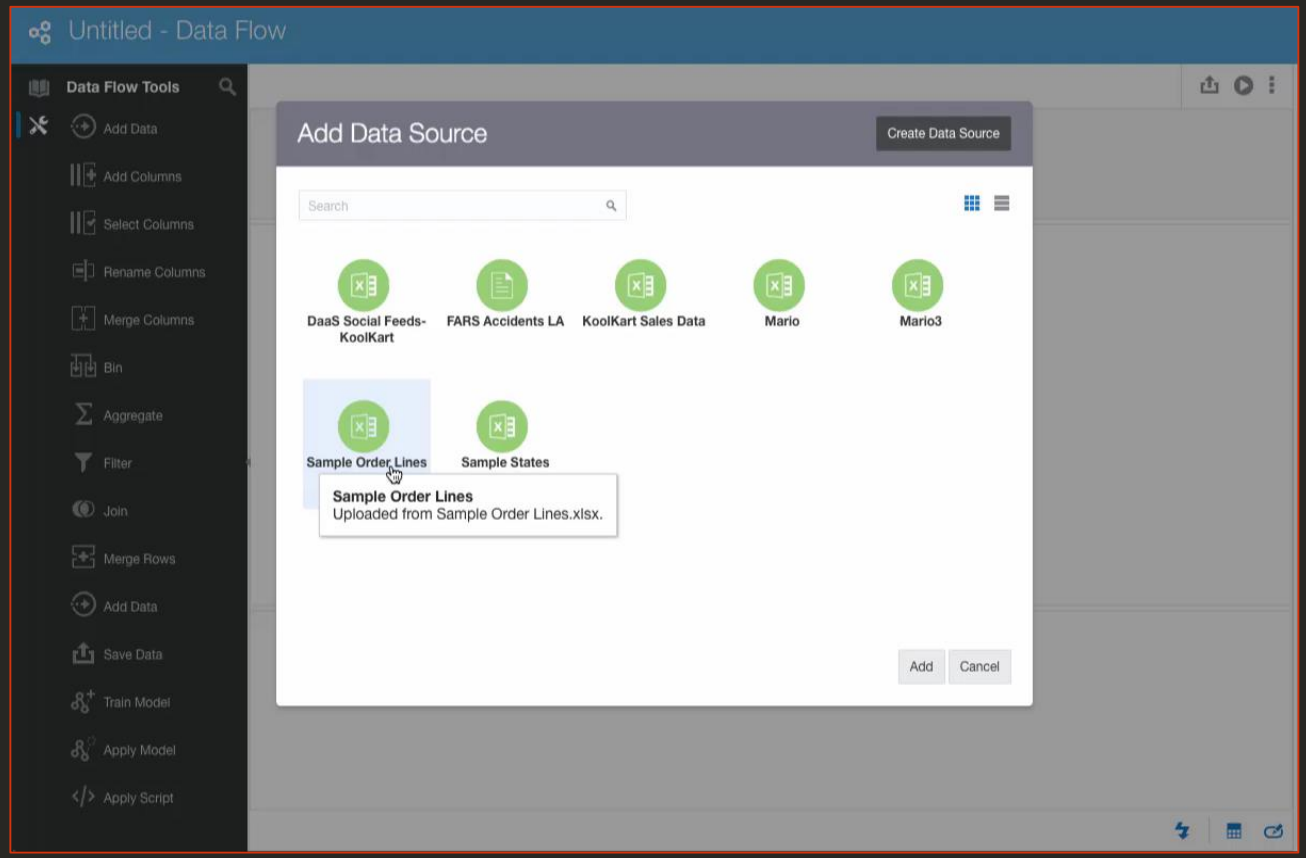
- Patented deep data profiling identifies the specific role of each column
  - >30 built in semantic data types
- Deliver rich data transform and enrichment recommendations
  - Formatting, knowledge-based enrichments, obfuscation.
  - 20+ different enrichments built in
- Enforce sensitive data security on any sources including personal files



Integrated Data Preparation

Transform your data in a visual and intuitive experience

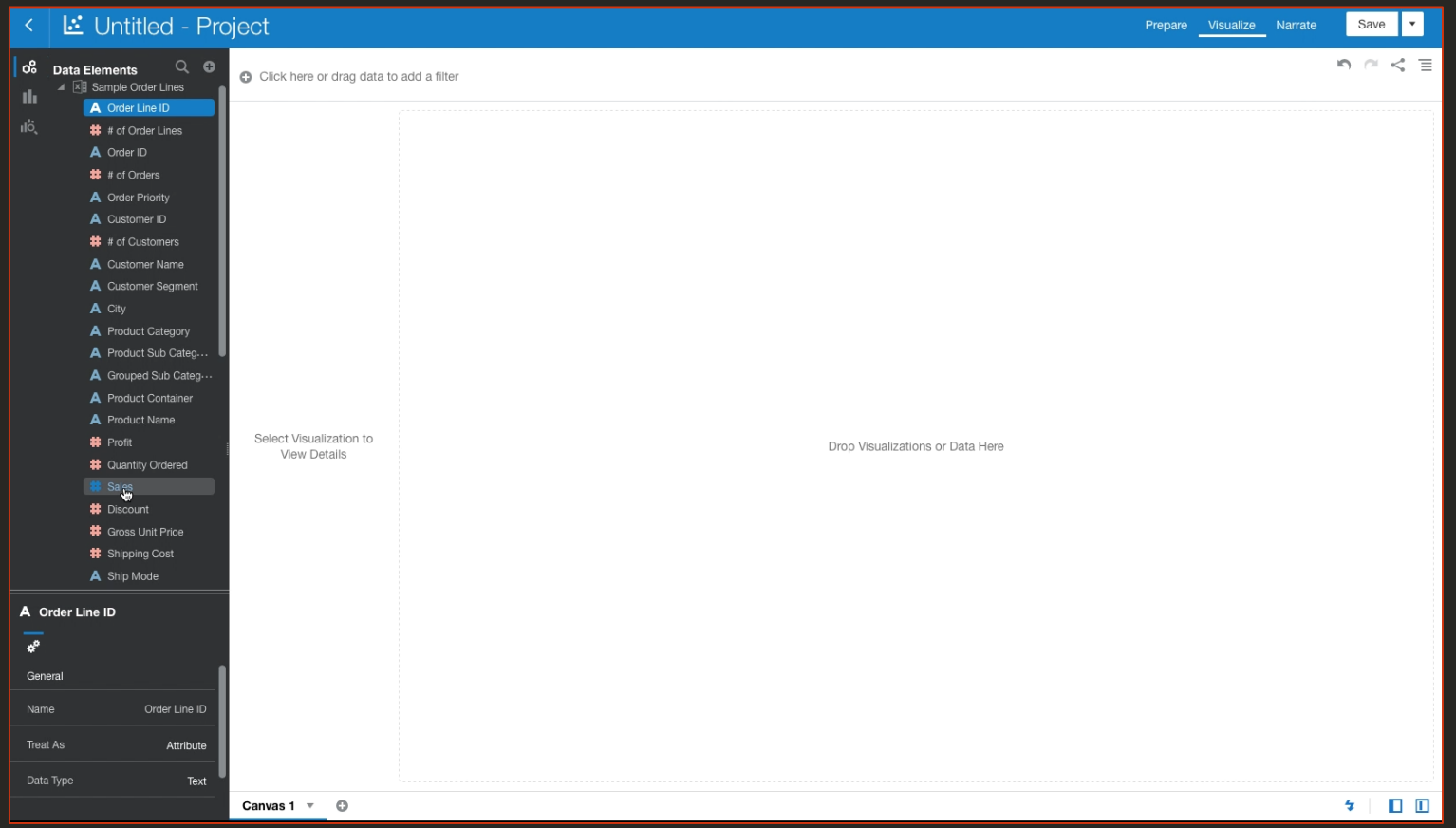
- Ingest, cleanse and transform data from multiple sources
- Empower analysts to prepare data in a visual experience and avoid Excel clutter
- No coding skills required
- Group values, join data sets, sub-select rows/columns, aggregate, calculated fields, etc.
- Schedule and trace your Data Flows in production



Intuitive and Interactive Analytics

From Simple Charts to Custom Visuals and Multi-layered Maps

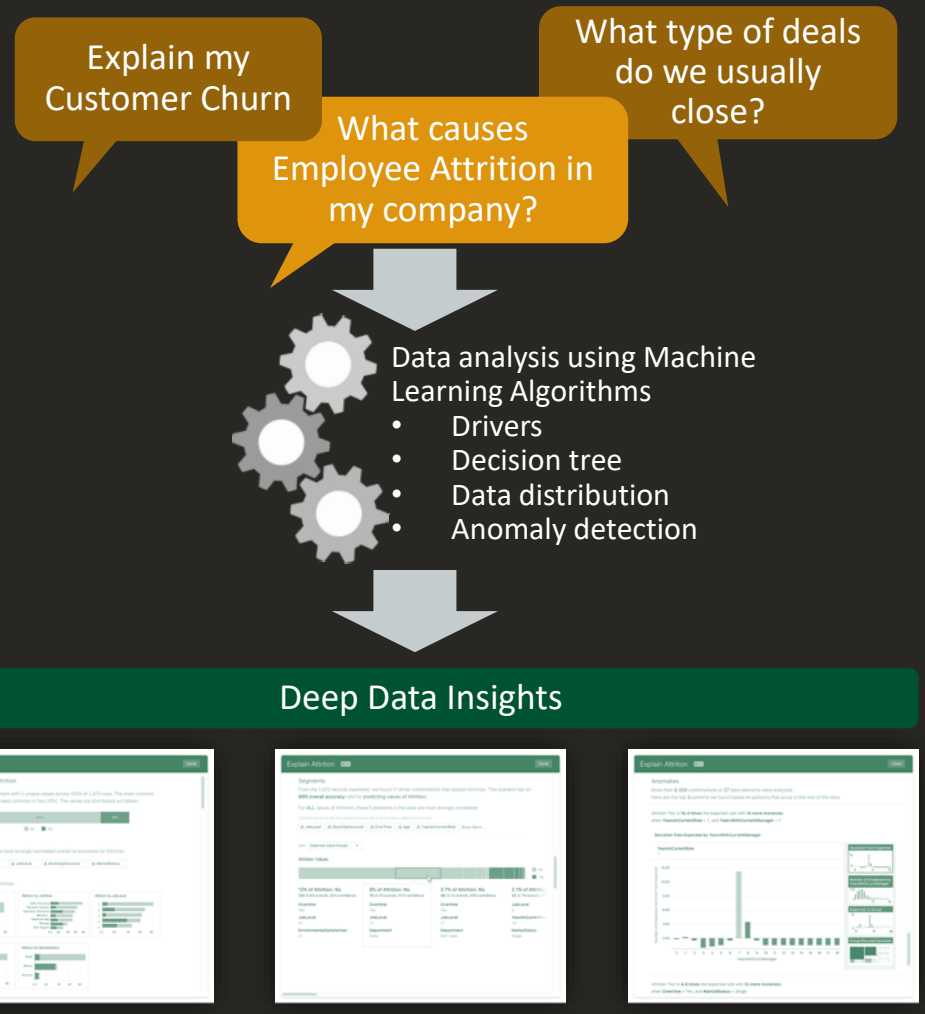
- Stunning visualizations and interactive presentations
- 50+ built-in visualizations
- Adaptive chart type suggestions
- Single-click trending and forecasting, clustering and outliers
- Geospatial analysis with built-in and custom map layers
  - Function-ship geospatial queries into the Autonomous Database
- Optimized for web and mobile



Uncover Hidden Insights

Machine Learning Driven Analysis and Insights

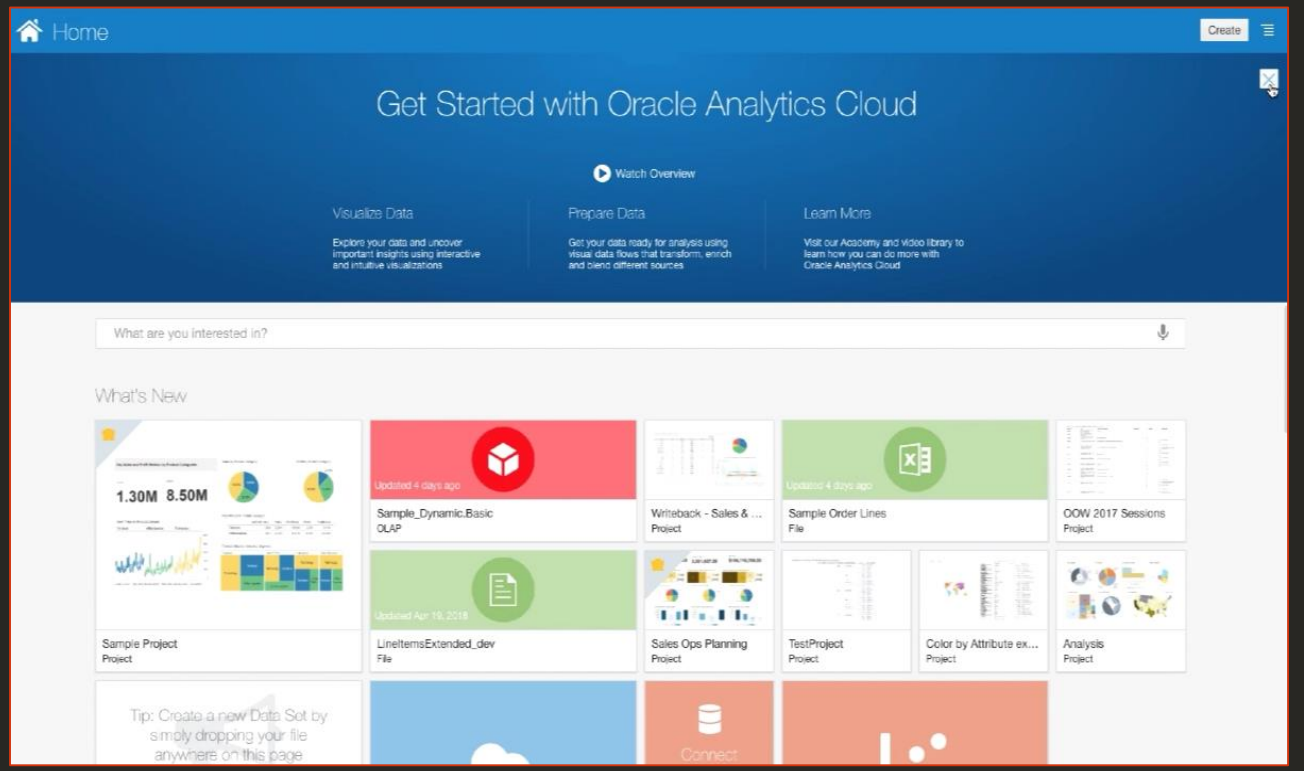
- With one click, ML algorithms analyze your data to create predictive models
  - Identify behavioral correlations between columns
  - Segmentation and market basket analysis
  - Anomalies and outliers
- No PhD Required
  - Explain is designed for users of any level
- Got a PhD?
  - Bring or train your own models in OAC



Ask Anything - NLP

Interact with your data using Natural Language

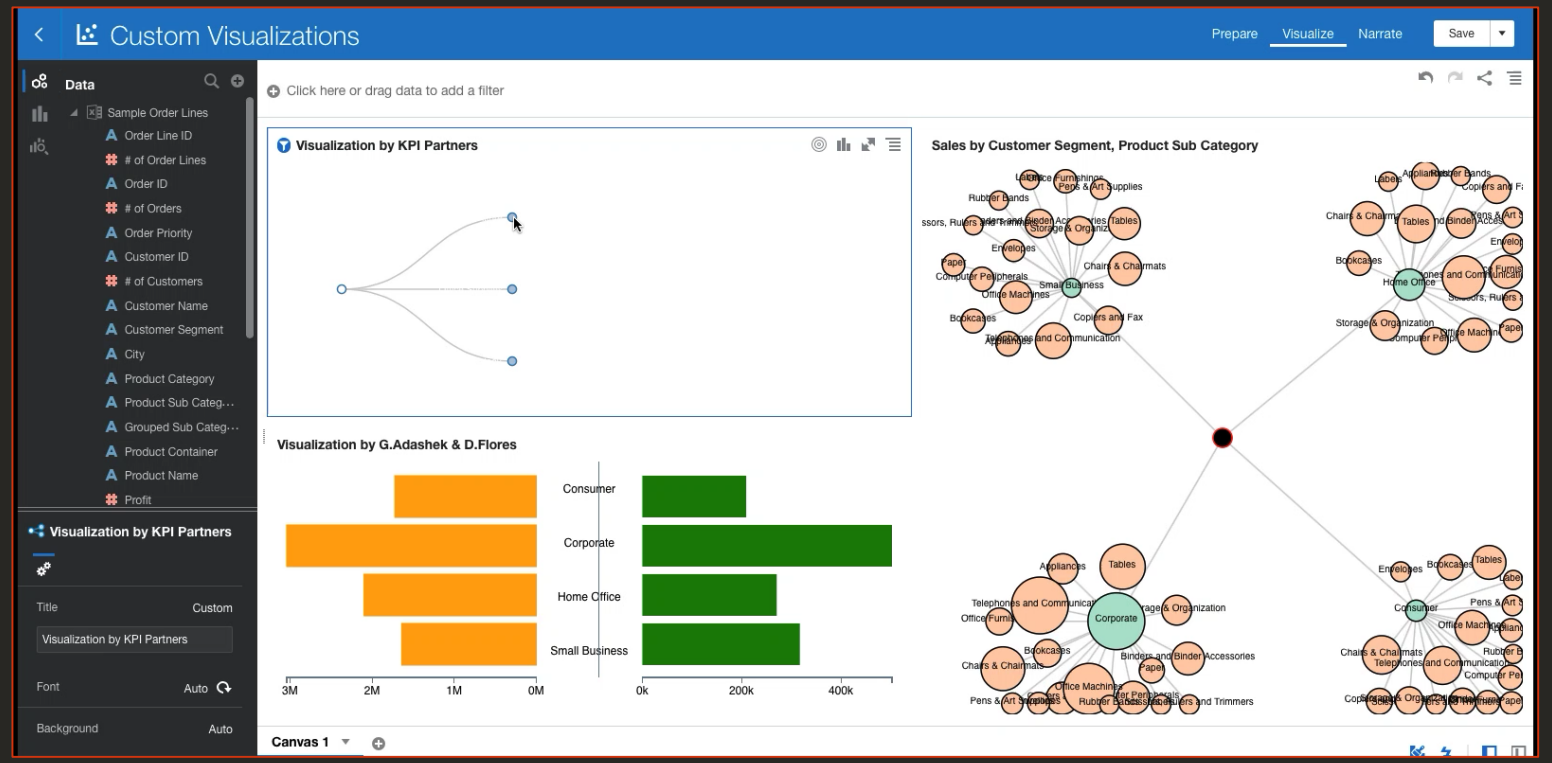
- Intuitive and natural way to interact with data
- Voice-enabled, 28 supported languages
- Integrated into the Oracle Digital Assistant
- APIs to integrate into 3rd party messaging apps
- Upcoming support for Plurals and auto corrections



Build Your Own Rich Visualizations

Design a Truly Unique Experience

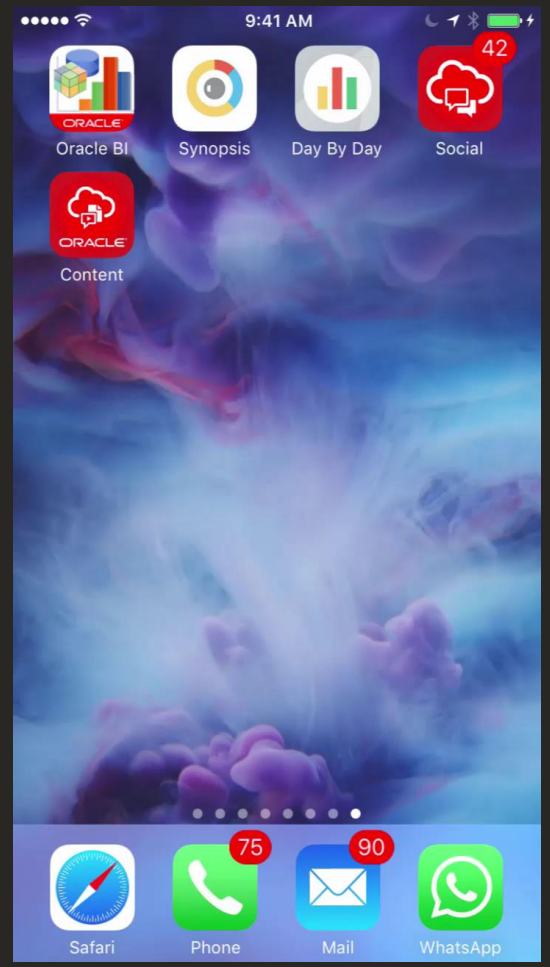
- Dozens of free custom visualizations contributed by the community
  - Open JavaScript SDK to develop custom visualizations
- Build your own or work with our partners
- Visit: bit.ly/OACLibrary



Adaptive & Personalized

Customized alerts and insights based on your interests

- Predictive, personalized, and proactive analytics alerts directly to your mobile device
- Infuse insights into daily activities based on your interests, when and where you are, and who you collaborate with
- Anticipates your needs and delivers appropriate information throughout the day
- Use your voice to obtain answers



Oracle Analytics

Oracle Analytics Cloud

Oracle Analytics Server

Oracle Analytics for Applications

Oracle Analytics for Applications

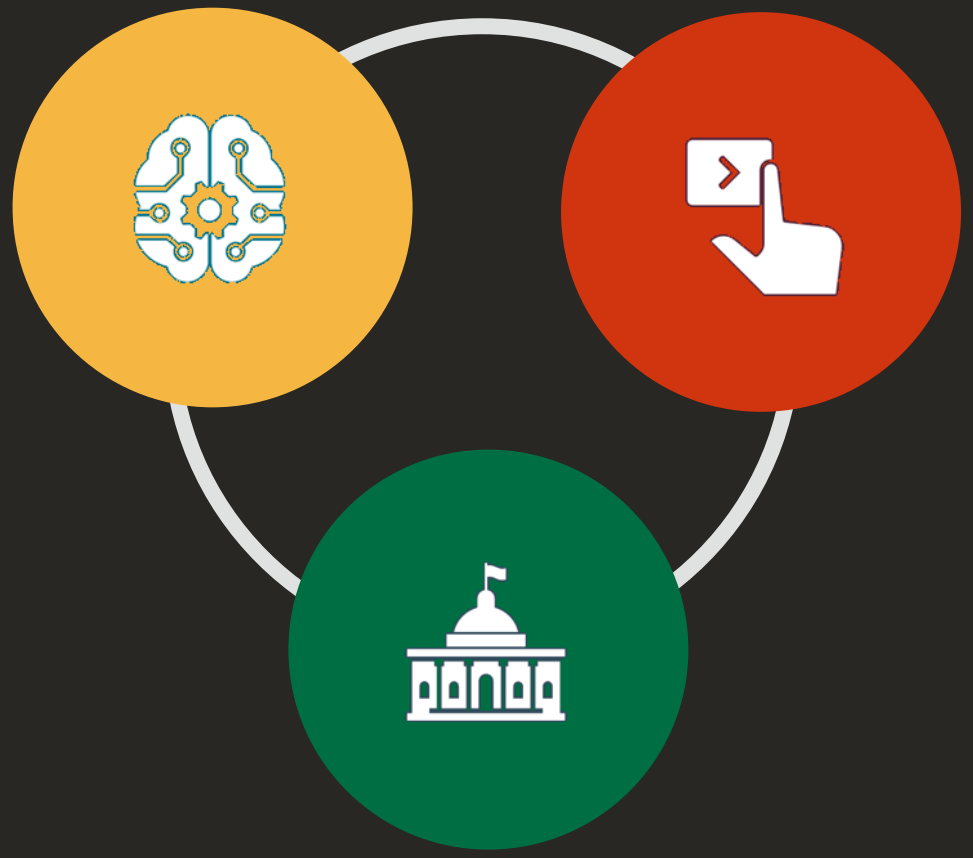
Packaged analytics for Fusion Apps

- No database design, tuning, ETL, modeling, etc.
- Just “turn it on” and start analyzing your Fusion data
- Ready-to-use dashboards, reports, KPIs

Fully extensible & customizable

- Bring additional data into Autonomous Data Warehouse
- Extend semantic model and content using Oracle Analytics Cloud

Oracle Analytics



Oracle Analytics is the industry's most complete augmented analytics solution combining self-service, data preparation, mobile, collaboration, dashboards, reporting and packaged applications. Access any data and deploy anywhere you choose: cloud, on-premises or hybrid.