ANALYTICAL-CRM Relationship Data Management, Data Mining & Data Warehouse

PGDM Group B & C Dr. Shivani Saini

DMPs CDPs

01

First-party Data: Data collected from website visits, <u>CRM systems</u>, social media, subscriptions, mobile, and apps.

02

Second-party Data: Someone else's first-party data. It is derived from a mutually beneficial relationship with another company (a partner, supplier, etc.) with whom you share data.

DSPs

SSPs PII

03

Third-party Data: This data comes from websites and social media platforms other than your own and can be used to reach a wider audience. It's needed to augment first-party data so that marketers can increase scale and reach and improve personalization

Cookies Data





Third-Party Data

The Top data management platforms in India are:

• Lotame

- Salesforce
- Nielsen
- Oracle
- Taboola
- Zeotap
- Zapr

ind.use_z = False
ind.use_x = False
ind.use_y = False
ind.use_y = False
ind.use_z = True
ition at the end -add
select= 1
b.select=1
ct.scene.objects.activ
lected + str(modific)
or_ob.select = 0
context.selected_ob
objects[one.name].sel
idition = 1
context.selected_ob
context.selec

ODERATOR CLASSES

https://www.socialbeat.in/blog/top-third-party-data-management-platforms-in-india/

Social Media Data

Walled Gardens

• A walled garden is essentially a closed platform controlled by the technology provider.



CRM and Purchase Data

- Personal Details
- Transactional Details
- Customer Intent Details
- Onboarding-email address to anonymous cookies

PRARAT PARATAL IIIIII



Data-Driven Marketing Applications

- Segmentation (Right Person)
- Activation (Right Place)
- Personalization (Right Message)
- Optimization (Right Time)
- Insight (Right Idea)

CRM Database

Central Database

- Operationalizing data quality
- Data Intelligent system

Data Expansion

- External Lists
- Internal Lists
- Trigger Lists

Customer Profiling

- Customer or Order Number
- Products/services profile
- Communication channels profile
- Customer value in terms of profitability (CLTV)
- RFM Profile
- Feedback Profile
- Experience Profile
- Customer Characteristics

Data Mining

- KDD (Knowledge Discovery in Databases)
- Data mining is the process of using statistical analysis, AI/ML and mathematical algorithms, such as neural networks or decision trees to discover hidden patterns, correlations, and anomalies within large datasets. Data Mining incorporates analysis and predictions.
- Data Lake
- Data Warehouse

Understanding of Target Market

+

0

MILLENNIALS, GEN Z & GEN ALPHA

- Digital Natives
- Brand Suspicion
- Values Oriented
- Focus on the Utility of Tech Tools & Applications

Social AI Influencers are Helping Samsung, Google To Push Wares. THE ET Feb. 7, 24





DATA MINING PROCESS



Source: https://www.spiceworks.com/tech/big-data/articles/what-is-data-mining/



	Data Lake	Data Warehouse
1. Data Storage	A data lake contains all an organization's data in a raw, unstructured form, and can store the data indefinitely — for immediate or future use.	A data warehouse contains structured data that has been cleaned and processed, ready for strategic analysis based on predefined business needs.
2. Users	Data from a data lake — with its large volume of unstructured data — is typically used by data scientists and engineers who prefer to study data in its raw form to gain new, unique business insights.	Data from a data warehouse is typically accessed by managers and business-end users looking to gain insights from business KPIs, as the data has already been structured to provide answers to pre-determined questions for analysis.
3. Analysis	Predictive analytics, machine learning, data visualization, BI, <u>big data analytics</u> .	Data visualization, BI, data analytics.
4. Schema	Schema is defined after the data is stored in a data lake vs data warehouse, making the process of capturing and storing the data faster.	In a data warehouse, the schema is defined before the data is stored. This lengthens the time it takes to process the data, but once complete, the data is at the ready for consistent, confident use across the organization.
5. Processing	ELT (Extract, Load, Transform). In this process, the data is extracted from its source for storage in the data lake, and structured only when needed.	ETL (Extract, Transform, Load). In this process, data is extracted from its source(s), scrubbed, then structured so it's ready for business-end analysis.
6. Cost	Storage costs are fairly inexpensive in a data lake vs data warehouse. Data lakes are also less time- consuming to manage, which reduces operational costs.	Data warehouses cost more than data lakes, and also require more time to manage, resulting in additional operational costs.

Data Mining Techniques

- 1. Association Rule
- 2. Classification
- 3. Clustering
- 4. Regression
- 5. Neural Networks
- 6. Sequence and Path Analysis
- 7. Prediction
- 8. Anomaly Detection
- 9. Decision Tree

Association

Understanding the Main Product and Complementary Buying Patterns





Happy Meal for Kids



Classification

- Classification in data mining is a technique used to assign labels or classify each instance, record, or data object in a dataset based on their features or attributes.
- Binary
- Multi-class

credit score check CRED pay



rewards for paying credit card bills.

join 9M+ members who win rewards and cashbacks everyday

Example: CRED Classification

• CRED RENT PAY

Customer Demographic data

- Income
- Age
- Gender
- Occupation
- Customer Lifestyle Data
 - Tech-Savvy

• CRED STORE

Buying Patterns data

- Brand Type
- Spending value

Clustering

- Retail Customer Location and Frequent visits
- Music Play Time and Playlist Preferences

Clustering by

• K-means, Hierarchical clustering, and Density-based clustering

Spotify Music Recommendation System

And the second s	ing 			(199 1)
	BILL PART AND			
	Colorente Parket	Cale C	i al	6
· Bud Speed Date	and a	16493 6 440	kon-seco	3.00
- Cough firms		Hung the Sam Special Sch.		1.40
 Purspet lip Roler 	1.000	date:	1010-00-00	4.00
- Texation	Course Division Filmpine	Greater	104.18.00	1.446
The sector The Sector	a statement of the	NUMBER AND	1019-001-00	2.00
and a state of a	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	High Million	IDenie De	300
- Devices Max	Non You	Patric Bloc Decentarios	000000	100
- Lawlaw	D'Henney and Mass	they Results, Inc. Sectored	ame serve	Letter
- Other Services	Manapelia Sala	Submittee .	and in the	4.00
- Genetice	Begard .	Barris Assep	1040401	100
- 1 NOTING	Manifest & Since	-	ana ka da	1.40



- Regression analysis helps organizations make sense of priority areas and what factors have the most impact and influence on their customer relationships.
- **Dependent variable:** The main factor you want to measure or understand.
- **Independent variables:** The secondary factors you believe to have an influence on your dependent variable

Regression Applications IN CRM

Independent variables

- pricing,
- customer service,
- and product quality

Dependent Variable

- Customer Retention
- Customer Loyalty

find out how

Impacts

Neural Networks

- A neural network is a method in artificial intelligence that teaches computers to process data in a way that is inspired by the human brain.
- It is a type of machine learning process, called deep learning, that uses interconnected nodes or neurons in a layered structure that resembles the human brain.
- Data Mining Results: Frequently Asked Questions

Neural Networks

• How to improve the effectiveness of digital advertising?

By analyzing <u>data</u> on ad performance, neural networks can identify the

- most effective ad formats,
- targeting parameters,
- and ad placements.

Sequence and Path Analysis

- To identify the trends or regular occurrences of certain events
- Seasonal Buy Preferences
- Complementary Buy Preferences
- Generation of Customer Needs for Particular Category of Products

Prediction Analysis

- Examples
- Social Media Marketing and Sales
- Footfalls in a Retail Store and Customer Intent

Anomaly Detection Or Outlier Analysis

- Example: Zoho CRM's anomaly detector can help you identify deviations by populating the real-time data sets into an expected pattern and flagging data points that lie outside this pattern.
- Negative/Positive Changes

Decision Tree

• A decision tree is a data mining technique in machine learning (ML) that focuses on input and output modeling relationships using if/then rules. The trees are typically designed in a top-down, flowchart-like structure.

Create a Decision Tree

- Customer Group A: If the shopping cart value < \$500, then it is a regular customer (no discount)
- Customer Group B: If the shopping cart value > \$500 AND < \$2,000 then it is a premium customer (10 percent discount)
- Customer Group C: If the shopping cart value > \$2,000 then it is an exclusive customer (20 percent discount and 10% of the transaction value converted into loyalty points)

Data Mining Software

- Rapid Miner
- Orange
- <u>https://orangedatamining.com/</u>
- H2O
- https://h2o.ai/platform/ai-cloud/make/h2o/

CRM analytics requires three elements

- Interactive & Integrative CRM Dashboard to eliminate Data Silos
- Preset data tracking
- Data extrapolation

Pipedrive, Hubspot CRM, Salesforce CRM