# Summary of Data Mining and Analytics I

## Overview of Data Mining

| Types of Data Mining | | |
| --- | --- | --- |
| **Basis for Comparison** | **Descriptive Mining** | **Predictive Mining** |
| Basic | It identifies what happened in the **past** by analyzing stored data. | It describes what can happen in the **future** based on historic data. |
| Requirements | Data aggregation and data mining | Statistics and forecasting methods |
| Preciseness | Provides accurate data | Produce results that does not ensure accuracy. |
| Approach | Reactive | Proactive |
| Practical Analysis Methods | Standard reporting, query/drill down and ad-hoc reporting. | Predictive modelling, forecasting, simulation and alerts. |
| Examples | *Adverse events of a drug were explored by clustering the therapeutic classes; A data analyst receives detailed customer purchasing data and finds associations of any type among customers.* | *An automobile company scored customers for likelihood to return to buy a new model within the next 6 months; A credit card company offered a valued customer product for their card holder based on past card usage to determine the risk pattern; Road traffic was forecasted hourly* |

## Data mining aims

One-to-One Marketing – Knowing each customer → Customer Satisfaction → Customer Loyalty

# Customer Relationship Management (CRM)

Understand expectation of customers & anticipating their needs.

## Analytical CRM

### Aim
Extract > Store > Analyze > Output

- Provide a comprehensive, integrated view of a customer in the business in order to understand his profile and needs more fully.

## Operational CRM

### Aim
- Manage various channels*/Marketing Campaigns for best implementation of strategies identified by the Analytical CRM.
- **Data loop:** Based on results of Analytical CRM, but also supplies Analytical CRM with data for analysis.

*Channels - *sales force, call centers, voice servers, interactive terminals, mobile phones, internet*

### Raw Materials of CRM
- Data

### Components of CRM
- Data Warehouse
- Data Mart
- Multidimensional Analysis (online analytical processing)
- Data Mining
- Reporting Tools

## Customer Segmentation
Looks at behavior of customers > Develops descriptive profile
- Used for personalized marketing programs and strategies that are appropriate for each group.