

Table of Contents

Lecture 1: Introduction to the course: Data and Database Administration, Data

Warehousing, Big Data I	4
Standard Business Intelligence Framework.....	4
Classification of Data Analytics	4
Descriptive.....	4
Predictive.....	4
Prescriptive.....	4
Simon's Decision-Making Process	5
Models.....	6
Normative models.....	6
Descriptive models	6
Satisficing	7
Automated Decision Systems	7
Benefits of BI	7
Managerial Issues	7
What is a Data Warehouse?.....	8
Data Pyramid.....	8
Data capture.....	8
Data transfer	8
Data analysis and presentation.....	9
Data cleaning.....	9
Vs of Big Data	9

Lecture 3 Visual Analytics I: Data Preparation, Business Reporting and Analytics..... 10

Data Integrity	10
6 areas in which control activities must be undertaken	10
Data Integrity constraints.....	11
Data quality	12
Customer Data Integration (CDI)	13
Australian Tax File Number.....	14
Online Analytical Processing (OLAP)	14

Lecture 4 Visual Analytics II

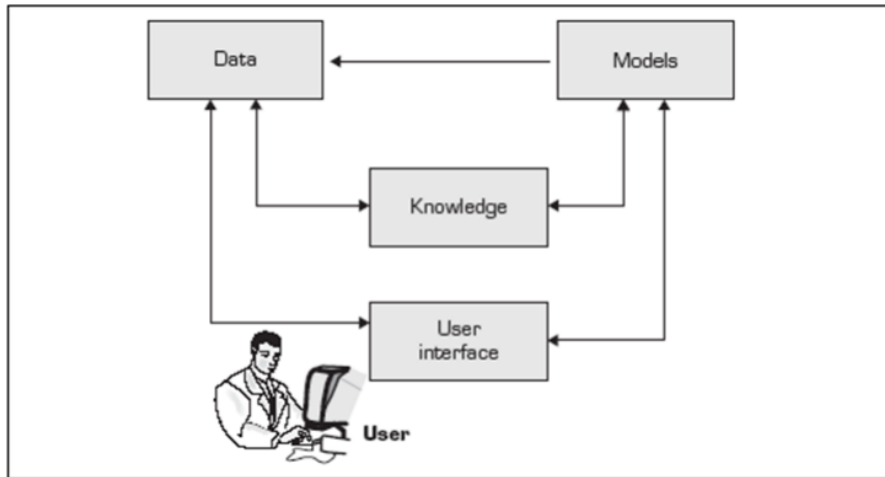
Charts.....	15
Line graphs	15
Bar Charts.....	15
Pie chart	15
Scatter plot.....	15
Bubble charts	15
Histogram	15
Gantt charts and PERT charts.....	15
Geographic maps.....	15
Bullet graphs	15
Heat maps	15

- two-dimensional graphical representation of data that uses different shades of color to indicate magnitude	15
Highlight tables.....	15
Tree maps.....	15
Stacked column chart.....	15
Clustered column (or bar) chart.....	15
Scatter chart matrix.....	15
Lecture 5 Data Mining for Business Intelligence.....	16
Data Mining.....	16
Types of models in decision making.....	16
Statistical models	16
Accounting models.....	16
Personnel models.....	16
Marketing models	16
Dimensionality of models	16
Representation	16
Time dimension	16
Linearity of relationship	16
Descriptive vs normative	16
Causality vs correlation	16
Methodology dimension	16
The five main methodologies.....	16
Complete enumeration	16
Algorithmic	17
Heuristic	17
Simulations	17
Analytical.....	17
Data Mining Goals	17
Classifications.....	17
Clusters.....	17
Regressions.....	17
Sequences	17
Forecasting.....	17
A Taxonomy for Data Mining Tasks.....	18
Outlier analysis.....	18
Association	18
Data Mining Applications.....	18
Customer Relationship Management.....	18
Banking and Other Financial	18
Retailing and Logistics	19
Manufacturing and Maintenance.....	19
Brokerage and Securities Trading.....	19
Insurance	19
Data Mining Process.....	19
Data Mining Methods: Classification.....	20
Assessment Methods for Classification	20
Accuracy of Classification Models	21

An Estimation Methodology for Classification	22
Classification Techniques	22
Decision Trees	22
Splitting criteria	22
Stopping criteria	22
Pruning (generalization method)	23
Cluster Analysis for Data Mining	23
Association rule mining	23
Common Data Mining Mistakes	23

Lecture 1: Introduction to the course: Data and Database Administration, Data Warehousing, Big Data I

Standard Business Intelligence Framework



All systems, when you trying to use them to make decisions, involve the above four things

Classification of Data Analytics

Descriptive

- When you know what has already happened
- Can't predict the future
- Refers to knowing what is happening in the organization and understanding some underlying trends and causes of such occurrences

Predictive

- Predicting the future
- Use existing data set to develop a model and try the model for other things
- Eg. You have data about a bunch of people's heart rate and you want to predict which ones are likely to have a heart attack in the future
- Eg. Predict if a movie will flop or not by using background factors – genre, when it was released etc

Prescriptive

- Use descriptive data and forecasts to identify the decisions most likely to result in the best performance
- Usually, an organization uses prescriptive analytics to identify the decisions or actions that will optimize the performance of a system
- Organizations have used prescriptive analytics to set prices, create production plans, and identify the best locations for facilities such as bank branches