





OVERVIEW OF USING DATA: DEFINITIONS AND GOALS

#### OVERVIEW OF USING DATA: DEFINITIONS AND GOALS

- Data: The facts and figures collected, analyzed, and summarized for presentation and interpretation.
- Variable: A characteristic or a quantity of interest that can take on different
- Observation: Set of values corresponding to a set of variables.
- Variation: The difference in a variable measured over observations.
- Random variable/uncertain variable: A quantity whose values are not known with

# TABLE 2.1 - DATA FOR DOW JONES INDUSTRIAL INDEX COMPANIES

Company	Symbol	Industry	Share Price (\$)	Volume
Alcoa	AA	Marufacturing	E-03	8,360,111
American Express	AXP	Financial	66.83	5,020,965
Boeing	BA	Manufacturing	87.82	3,377,781
Biank of America	BAC	Financial	11.67	85,564,239
Cutorpillar	CAT	Magrifacturing	80.60	4.418,069
Cisco Systems	CSCO	Technology	20.47	37,824,927
Chevron Comoration	CVX	Chemical, Oil, and Gas	11621	4,331,463
DuPont	DD	Chemical, Oil, and Gas	48.97	5,610,522
Walt Disney	DES	Entertainment	61.28	5,893,711
General Electric	GE	Conglomerate	21.81	74,030,349
The Home Depot	HD	Retail	74.04	5,627,195
Mewlett-Packard	HPQ	Technology	19.68	20,229,367
IBM	IBM	Technology	190.29	13,890,330
Intel	INTC	Technology	22.38	33,303,641
Johnson & Johnson	INI	Pharmacouticuls	84.04	6,094,620
JPMorgan Chose	3756	Banking	47.28	12,334,210
Cora-Cola	300	Food and Drink	42.60	8,916,978
McDonald's	MCD	Food and Drink	99.94	5,571,538
334	мим	Conglomerate	105.79	1,850,264
Merck	MRK	Pharmaconticuls	47.18	6,601,676
Microsoft	MSFT	Technology	29.77	76,918,154
Pfiner	PPE	Pharmacouticuls	30.91	16,917,714
Procter & Gumble	PG	Consumer Goods	81.42	7,894,506
AT&T	T	Telecommunications	38.28	14,762,872
Travelors	TRV	Insurance	84.79	1,284,813
UnitedHealth Group Inc.	UNH	Healthcare	59.94	3,730,520
United Technologies	UTX	Conglomerate	92.92	2,466,956
Corporation				
Verizon Communications	VZ	Telecommunications	52.04	9,643,848
Wal-Mort	WMT	Retail	78.07	4,766,959
ExxonMobil	300M	Chemical, Oil, and Gas	87.02	9,446,864



TYPES OF DATA Lesson 2.1.2

#### TYPES OF DATA

- Population: All elements of interest
- Sample: Subset of the population Random sampling - A sampling method to gather a representative sample of the population
- Quantitative data: Data on which numeric and arithmetic operations, such as addition, subtraction, multiplication, and division, can be performed.
- Categorical data: Data on which arithmetic operations cannot be performed.

# TYPES OF DATA

- **Cross-sectional data:** Data collected from several entities at the same, or approximately the same, point in time.
- Time series data: Data collected over several time periods.

  Graphs of time series data are frequently found in business and economic publications.

  Help analysis understand what happened in the post identify trends over fire, and project have levels for the time series.

## FIGURE 2.1 - DOW JONES INDEX VALUES SINCE 2002



### SOURCES OF DATA

- Sources of data
  - Experimental study A variable of interest is first identified.

  - A survey is perhaps the most common type of observational study

#### FIGURE 2.2 - CUSTOMER OPINION QUESTIONNAIRE USED BY CHOPS CITY GRILL RESTAURANT

