



**MICROSPECTRA SOFTWARE TECHNOLOGIES PVT.LTD**

**INTRODUCTION TO  
DATA SCIENCE**

**Certification & Internship Program**



INTRO TO DATA SCIENCE

# WHAT IS DATA SCIENCE?

TURNING DATA INTO  
**INFORMATION**

**ANALYZING**  
DATA TO  
GET INSIGHTS

IDENTIFYING  
**TRENDS,  
PATTERNS  
& CORRELATIONS**

**CONTEXTUALIZING,  
APPLYING AND  
UNDERSTANDING  
THEM**



## INTRO TO DATA SCIENCE

# WHAT DOES A DATA SCIENTIST DO ?

- Get and process data to convert it from its raw format to cleaner format.
- Calculate and interpret statistical variable.
- Create visualizations and draw conclusions for the analysis.
- Suggest applications from the information and develop machine learning implementations.





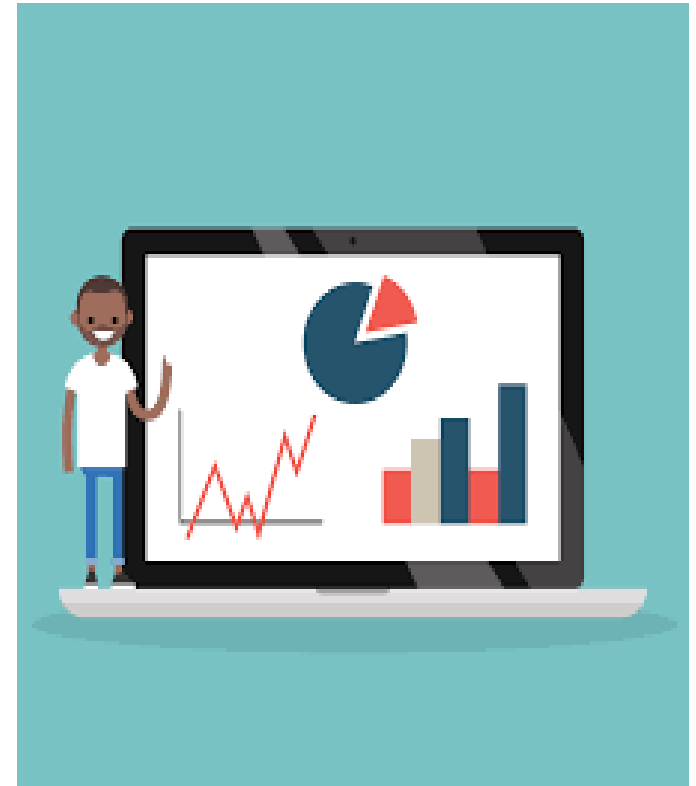
# ESSENTIALS OF DATA SCIENCE



## ESSENTIALS OF DATA SCIENCE

# STATISTICS

- Understand the different type of Data you can encounter.
- Understand key statistical term
- Types of means
- Fluctuations in Data
- Splitting up, grouping, and segmenting data points

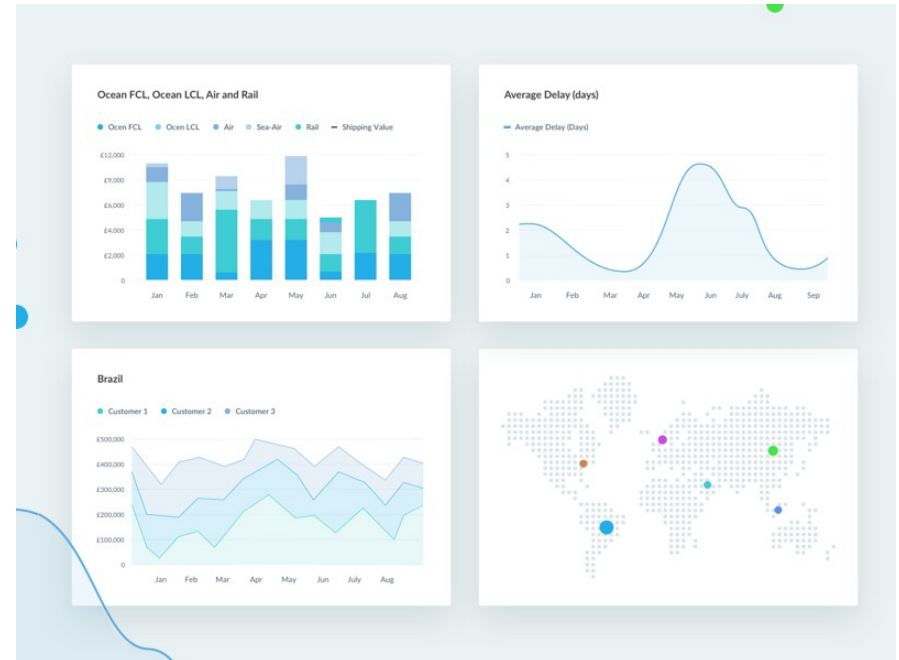




# ESSENTIALS OF DATA SCIENCE

## DATA VISUALIZATION

- Why data visualization is a key skill for data scientists
- Graphs for showing and comparing different numbers of variables
- One variable graphs
- Two variable graphs
- Three variable graphs





## ESSENTIALS OF DATA SCIENCE

# PROGRAMMING

- Why knowing how to program makes your life so much easier ?
- Ease of automation
- Being able to customize, explore, prototype and test
- Essential packages to use in Python
  - Pandas for data analysis
  - Matplotlib & Seaborn for data visualization
  - Numpy for mathematical calculations





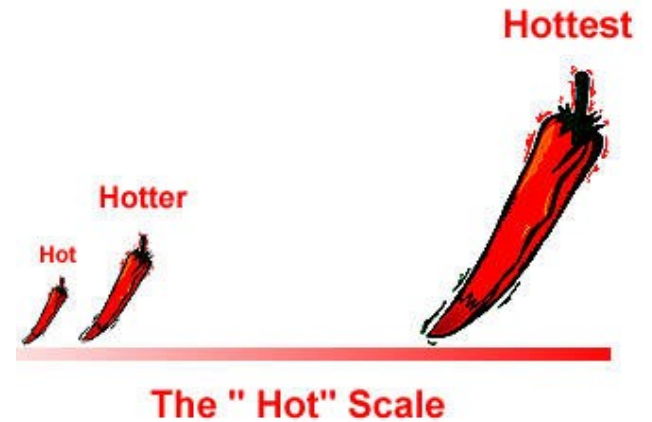
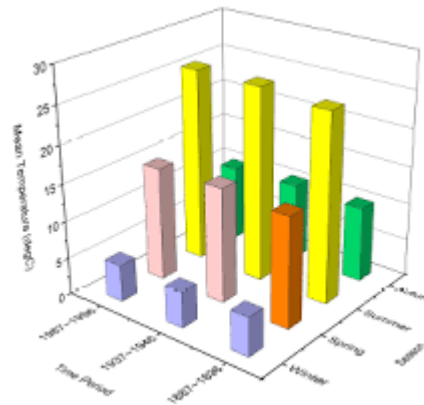
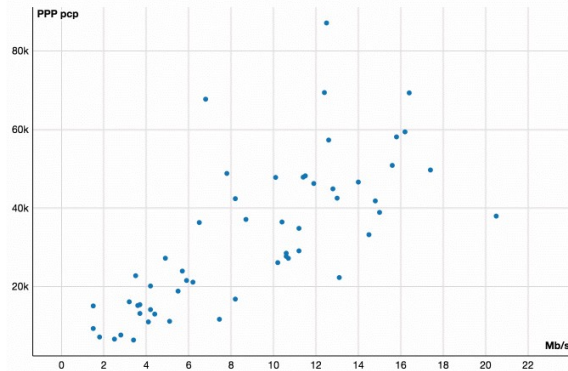
# STATISTICAL DATA TYPES



# TYPES OF DATA

1. NUMERICAL      2. CATEGORICAL      3. ORDINAL

Comparing GDP per capita with internet speeds



# TYPES OF DATA

## NUMERICAL

- Numerical data is also known as quantitative data

### Discrete

value only taken on distinct numbers

example :- IQ numbers after 20 coin tosses



### Continuous

values can take on any number, not limited by any decimal place-usually rounded of

example:- amount of water in water bottle  
speed of a car



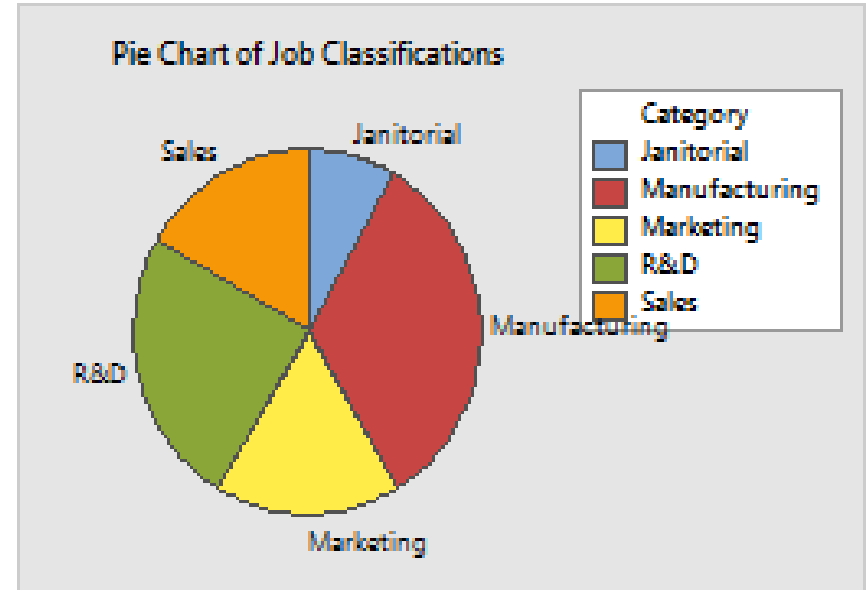


# TYPES OF DATA

## CATEGORICAL

- Doesn't have mathematical meaning
- Also known as qualitative data
- Describes Characteristics
- Example
  - Gender
  - Ethnicity
  - Nationality

Can assign numbers to them but can't compare them mathematically



# TYPES OF DATA

## ORDINAL

- Mixing numerical and categorical
- Example
  - Hotel Rating
- Can Compare, but not as straightforward
- Three star hotels may be very different
- Taking average on larger samples has a meaning  
[Not in the case of categorical]





# IMPORTANCE OF DATA VISUALIZATION



# DATA VISUALIZATION

## OVERVIEW

ROLL OF THE  
**COMPUTERS**

ROLES OF THE  
**HUMAN**

PRESENTING  
DATA

**INTERPRETING**  
**DATA**



# DATA VISUALIZATION THE ROLE OF THE COMPUTER

- Much faster at calculating than human
- Great for crunching numbers
- Great for doing many repetitive tasks quick
- Carrying out tasks that we gave it based on logical thinking





# DATA VISUALIZATION THE ROLE OF THE HUMAN

- We've developed to identify patterns
- Creativity
- Bringing in or remembering outside knowledge
- Understanding summary values and Images







## DATA VISUALIZATION

# PRESENTING DATA

- You can't just show spreadsheets with a bunch of number
- Sometimes even the statistical values aren't good enough summary or they don't really help bring the point across.
- Visualizations allow easy communication and understanding of the data.



# DATA VISUALIZATION

## INTERPRETING DATA

- Using our understanding of the system and reason
- Using outside knowledge
- Seeing (potential!) trends and patterns
- Considering the context of the data





QUESTIONS ?

TYPE OF DATA  
Scientist ?

Salary?

DO WE NEED ANY  
DOMAIN  
EXPERTIES?

NUMBER OF DATA SCIENTIST INDIA REQUIRES NOW ?

ANY THING ELSE?



GET CERTIFICATION  
FROM MICROSOFT

## MICROSOFT POWERED INTERNSHIP



SUCCESSFUL PROJECT  
SUBMISSION LETTER



ONLINE PROGRAM  
1 ON 1 INTERACTION

## PLATFORM FOR SUMMER INTERNSHIP PROGRAM



24/7 ASSISTANCE

## SELECT TECHNOLOGY

ANDROID DEVELOPMENT

PYTHON

FULL STACK DEVELOPMENT

CLOUD TECHNOLOGY

DATA SCIENCE

BLOCK CHAIN SPECIALIST

INTERNET OF THINGS

AI/ML/DL

DIGITAL MARKETING



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