

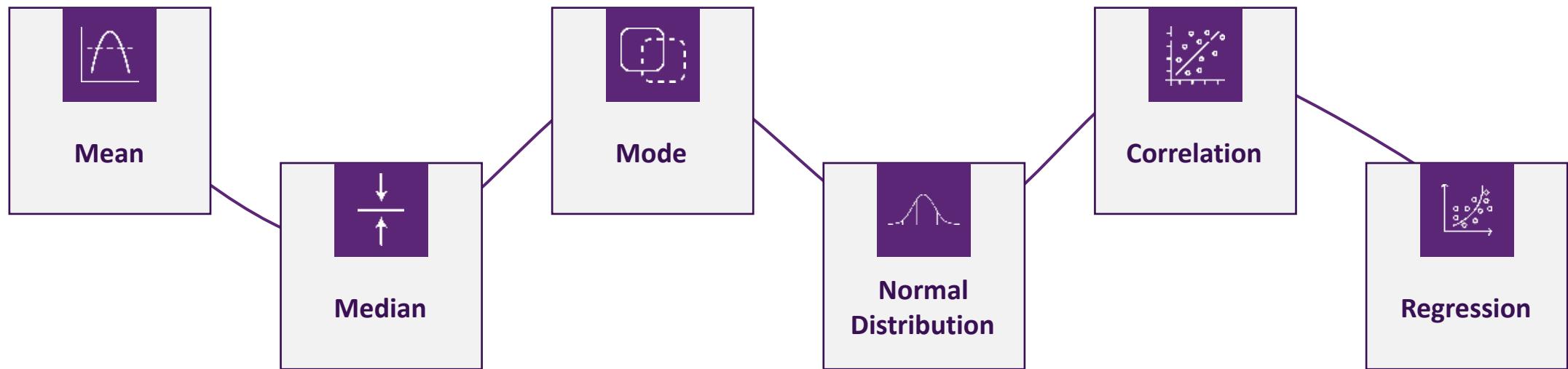
STATISTICAL MEASURES IN ANALYTICS

Unit 2 - Statistical Measures in Analytics



STATISTICAL MEASURES IN ANALYTICS

Do you fully understand these concepts?



COMMON USES OF ANALYTICS

- Understand consumer behavior
 - Market Basket Analysis
 - Likes and Preferences
- Detect Patterns and Trends
- Identify cause effect relationships
- Predict what is likely to happen
- Detect and prevent Fraud



STATISTICAL MODELLING



STATISTICAL MODELING



DEFINITION OF MODEL

“When we use the word model in predictive analytics, we are referring to a representation of the world, a rendering or description of reality, an attempt to relate one set of variables to another. Limited, imprecise, but useful, a model helps us to make sense of the world.”

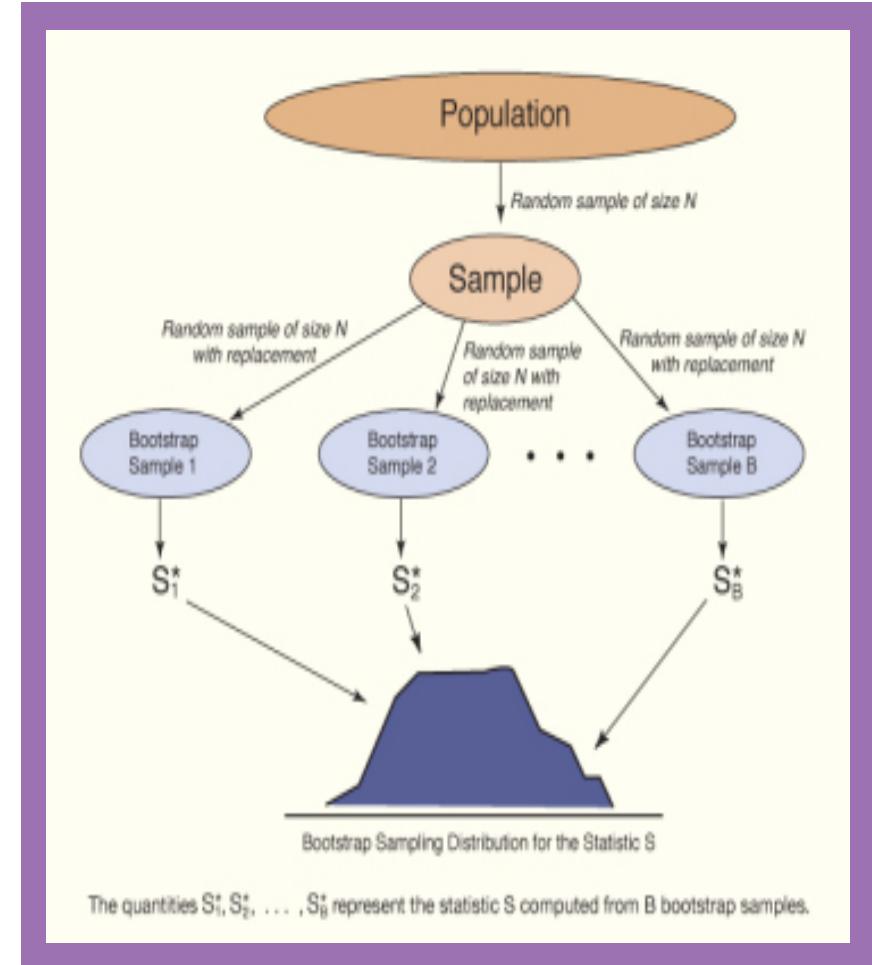
- Thomas W. Miller

DEVELOPMENT OF STATISTICAL MODEL

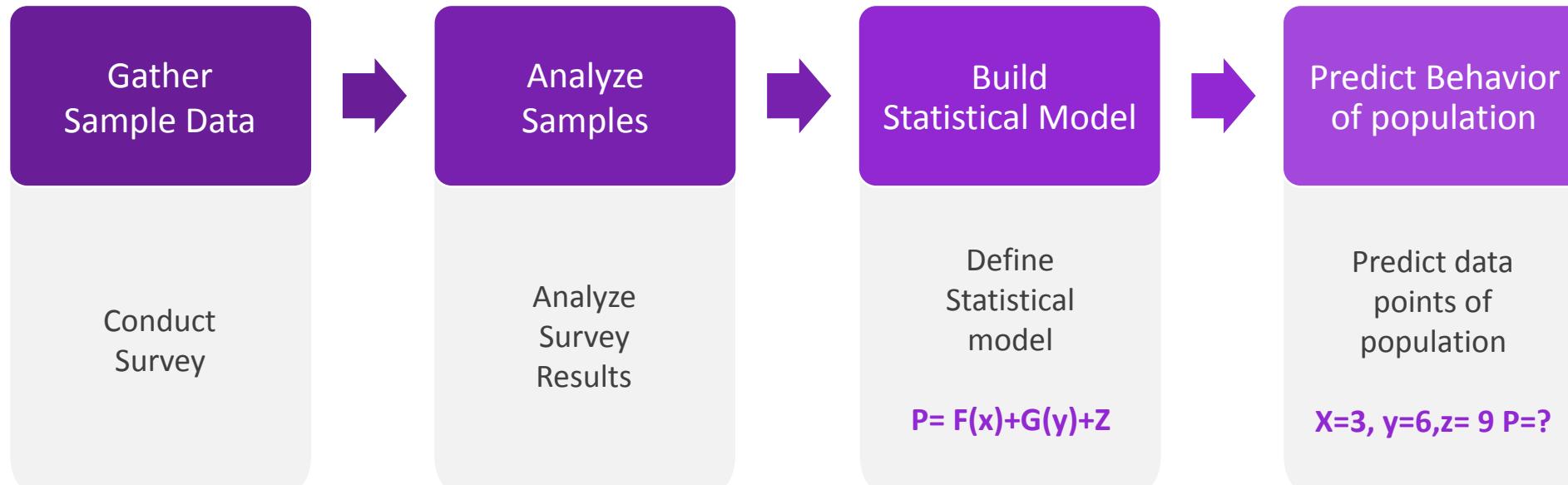
Population: All Data Points

Sample: Small Parts of whole Population

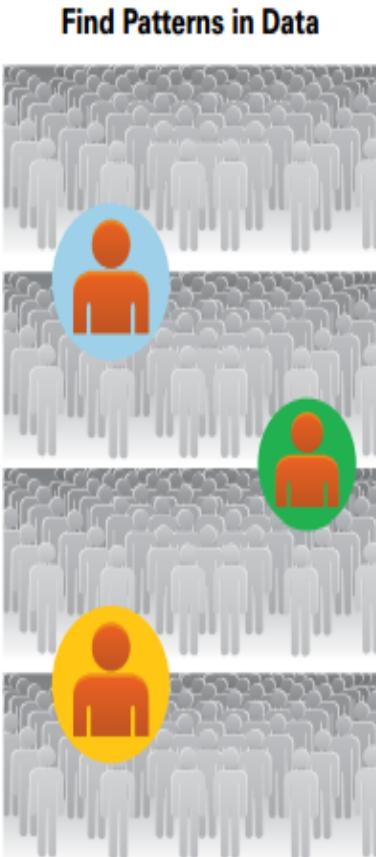
- Analyze Sample(s) to Understand more about Population
- Statistical Model – helps you understand the population
- (Underlying Assumption: Sample behaves the same way as population)



USE OF STATISTICAL MODEL



PREDICTIVE MODELLING



Find Patterns in Data

A Predictive Model

Attributes:

- Male, 40 years old
- Married, 2 kids
- Lives Indianapolis, IN
- Owns two cars
- Works in IT, wife works in nursing



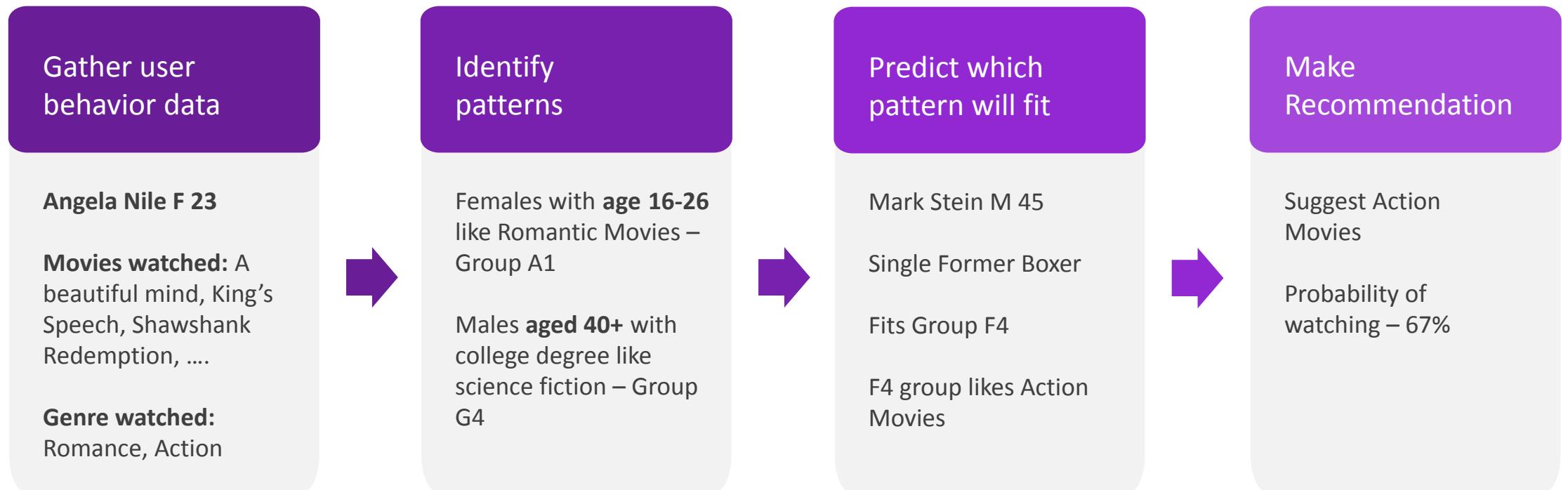
Predicted Attributes

- Watches football
- Children play sports
- Husband and wife work
- Owns an SUV
- College educated

Predicted Behavior

- Will buy sports apparel for local teams
- Is friends with others in same demographic
- Would consider buying sports season tickets
- Will buy new SUV every 5 years

HOW DOES IT WORK?



*This is just a simple representation for conceptual understanding, actual recommendation systems are a lot more complex than this.

IMPORTANCE OF DATA COLLECTION



DATA QUALITY

- Any model is as good as the quality of data
- Incomplete and incorrect data can lead to incorrect correlations
- Quality of insights is directly dependent on accuracy of base data
- No tool or algorithm can correct inaccurate data



INDUSTRY CASE: CUSTOMER CARE ANALYTICS



INDIA V/S DEVELOPED WORLD



v/s



Our customer care executive is
busy on another call,
please wait!

How may I help you?

SOME STATS

78% consumers have ended a transaction due to bad service.

Only **4%** of dissatisfied customers actually speak up.

It costs **over six times more** to get new customers than it does to keep one current one.



*References on last slide

12:1 It takes 12 positive experiences to make up for a single bad experience.

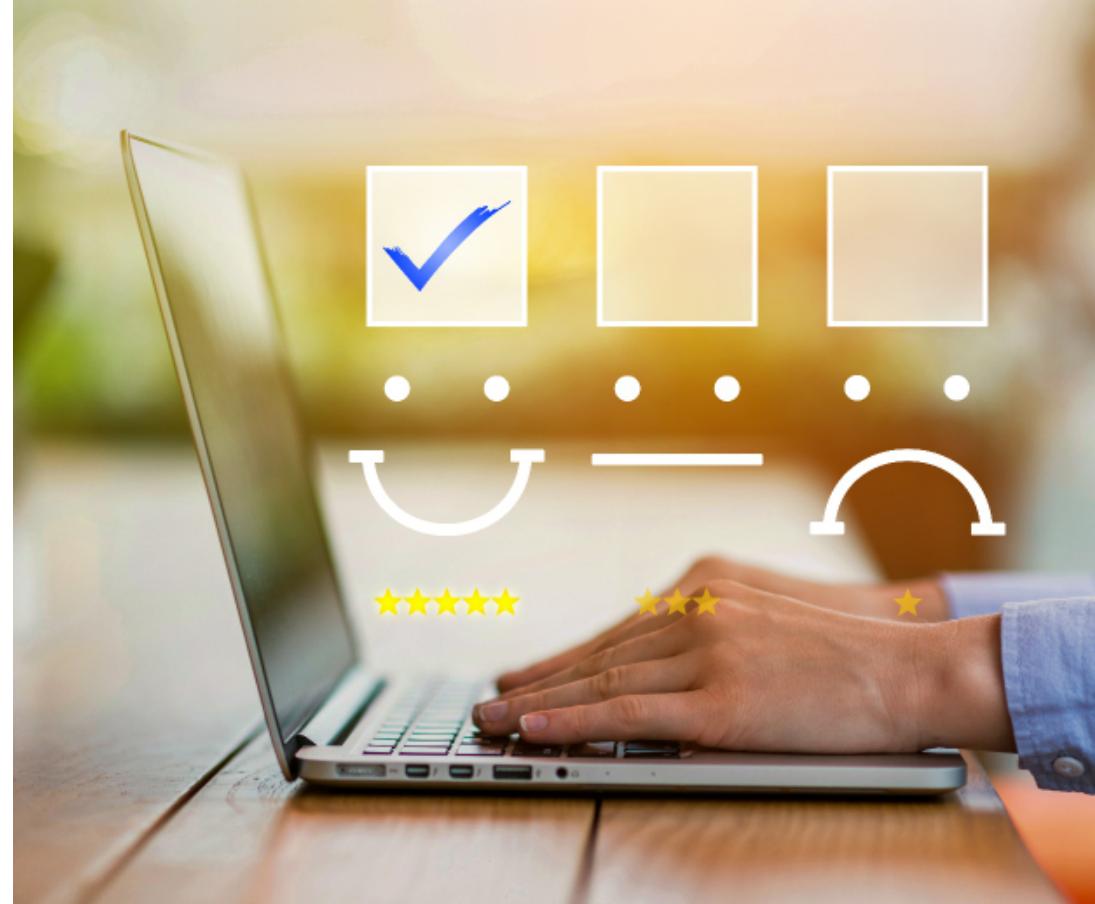
2:1 - Negative interactions with a business are spread to twice as many people as positive ones.

HOW CAN ANALYTICS HELP?



CUSTOMER FEEDBACK TAGGING AND CLUSTERING

- Capture customer feedback from across channels
- Tag similar feedback across channels
- Create feedback clusters
- Clusters could be
 - Complaints
 - Product Reviews
 - Suggestions
- Clusters could also be based on Demographic distribution
- Act quickly on the complaints -> Increased customer service levels
- Capture Product Reviews faster -> More time to make changes in next version.



PRODUCT REVIEW ANALYTICS

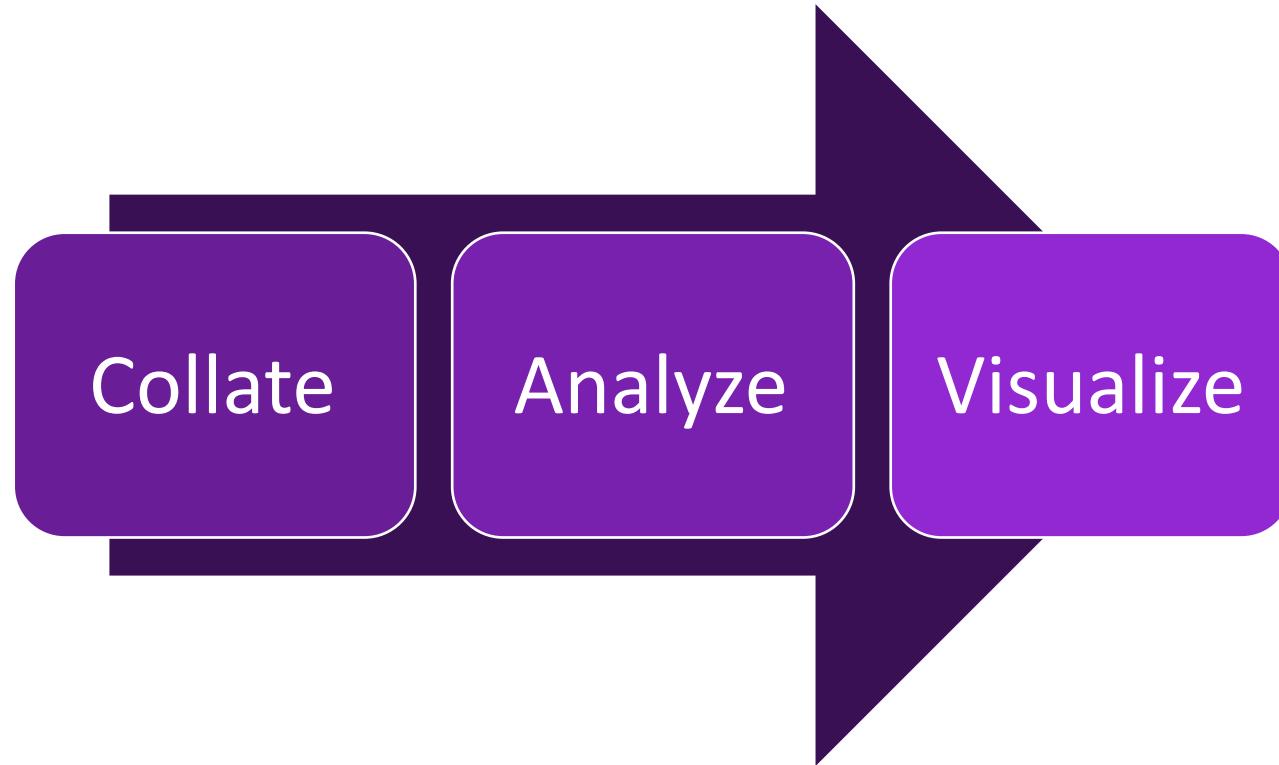
- Capture reviews of products from variety of data sources
- Sentiment analyze the reviews
- Analyze reviews based on product features
 - E.g. For iPhone reviews keywords could be retina display, bluetooth, battery life, touch
- Find out feature comparison with other products
- Most talked about Feature,
- Most liked and disliked feature
- Analyze which segment of customers are liking which features



CUSTOMER SUPPORT ANALYTICS



PROCESS



IT SUPPORT DASHBOARDS

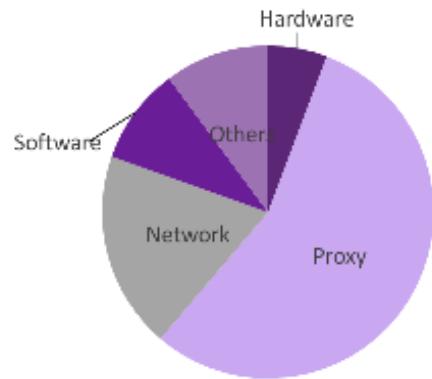
Summary

Sentiment

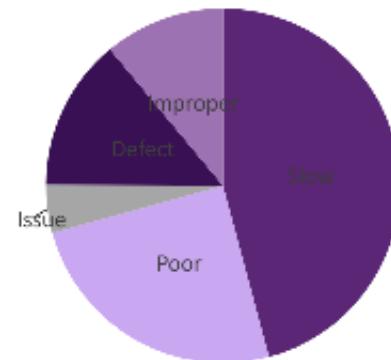
Time

Personnel

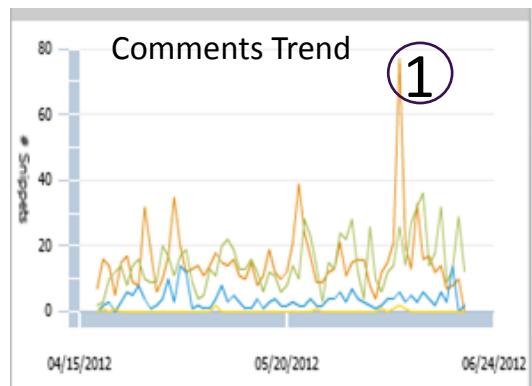
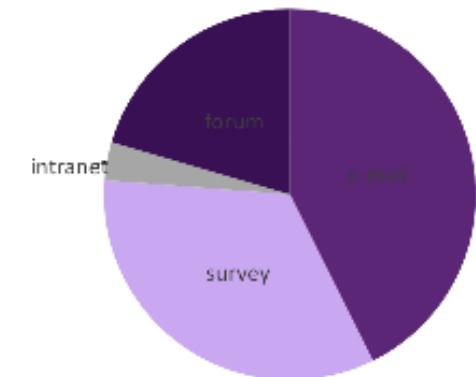
Service Type



Keyword



Source



2

Requests Processed in this period

3451
(3212)

Requests in Process

129

Average Minutes per request

245
(272)

Requests pending for more than a week

9

CUSTOMER SERVICE DASHBOARDS

Summary

Sentiment

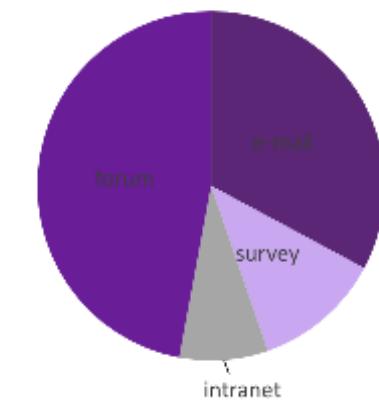
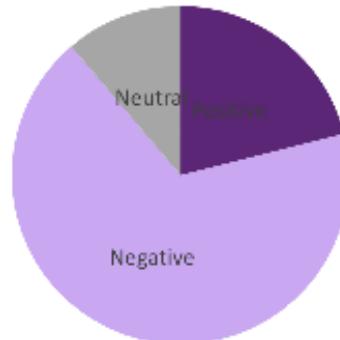
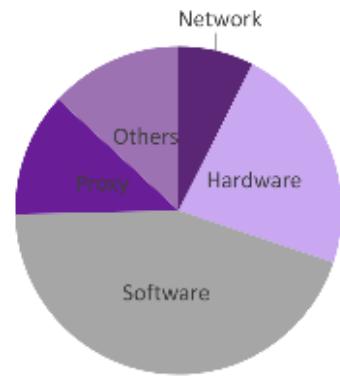
Time

Personnel

Service Desk

Sentiment

Source



Snippets of the Customer Response :

The issue was resolved after following up seven times. This is disappointing. (Negative)

3

The service was very prompt. (Positive)

We found the service to be just decent. (Neutral)

CUSTOMER SERVICE DASHBOARDS

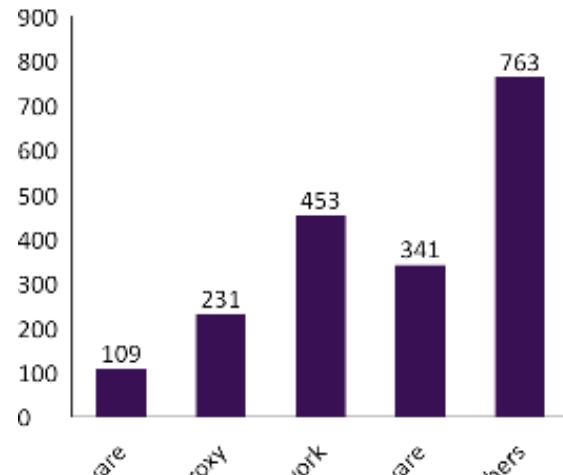
Summary

Sentiment

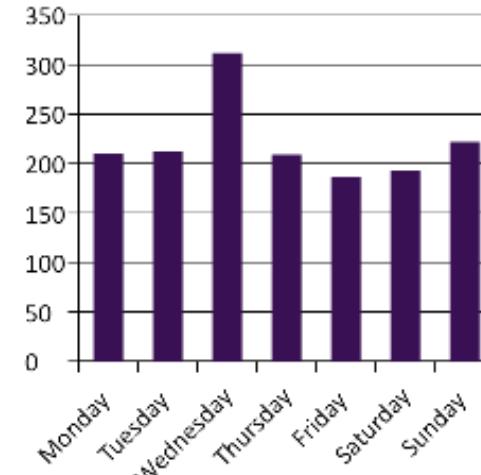
Time

Personnel

Average Time by Service Desk



Average Time by Day of week



Request Frequency



Selecting individual would update the other two graphs with the data for that person.

CUSTOMER SERVICE DASHBOARDS

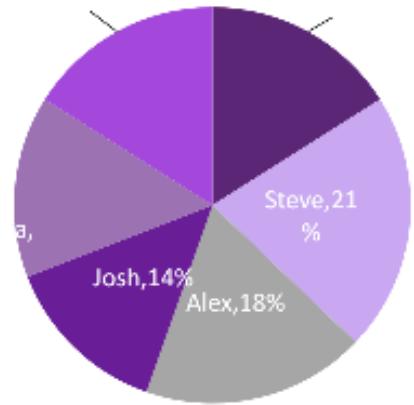
Summary

Sentiment

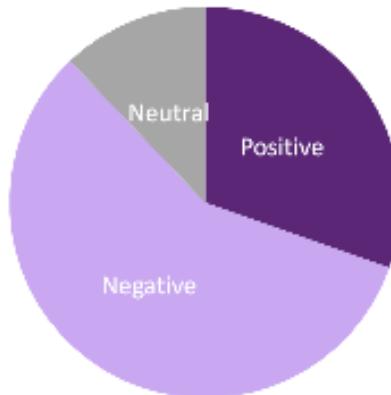
Time

Personnel

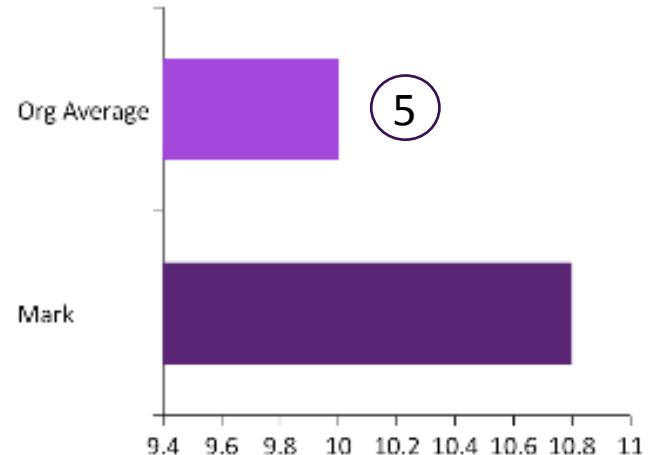
Requests by Personnel



Sentiment



Average Time per request



6

Sentiment on comments for Mark's work

Selecting individual would update the other two graphs with the data for that person.

ACTIONABLE INSIGHTS

- ① Sudden peaks in complaints/comments point to common issues
- ② Identify and track long pending issues
- ③ Understand every minute detail of any problem by drilling down
- ④ Identify Trends – be better prepared to tackle issues
- ⑤ Track the service representatives performance – real time
- ⑥ Find out sentiment for every individuals work – identify training needs



THANK
YOU