Data Science in Industrial Engineering

Speaker:
Tanmoy Das
Ph.D. researcher,
Industrial Engineering,
Dalhousie University,
Canada.

Date: April 21, 2020 (Bangladesh Time 8 PM)
www.facebook.com/DataScience.IndustrialEngineering
Youtube

Organized by:

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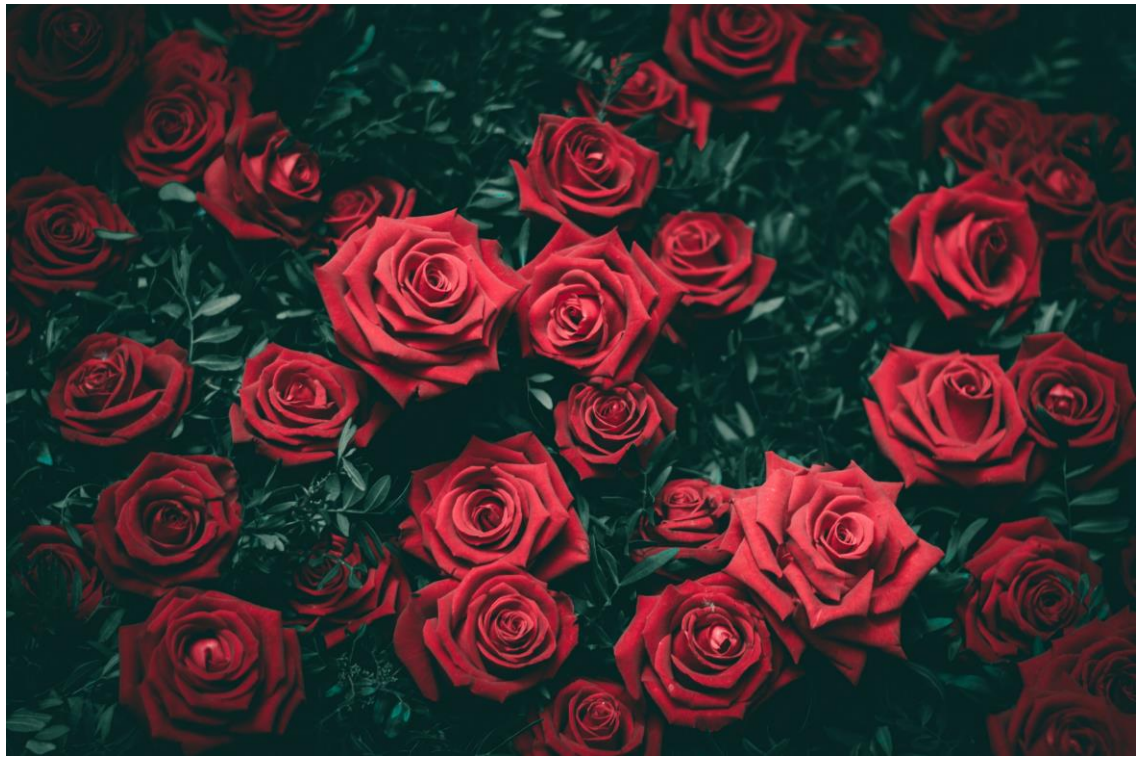
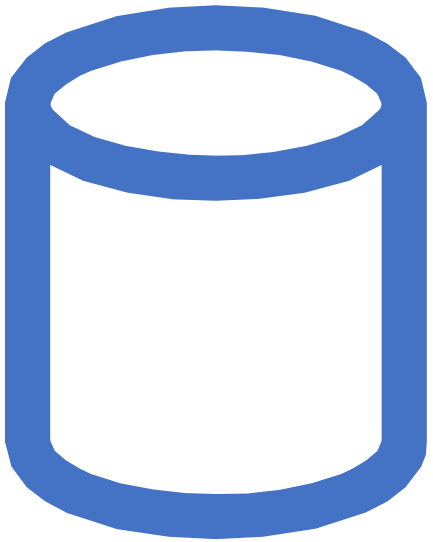
What’s the total number of exit doors in Dhaka city?

Consistency





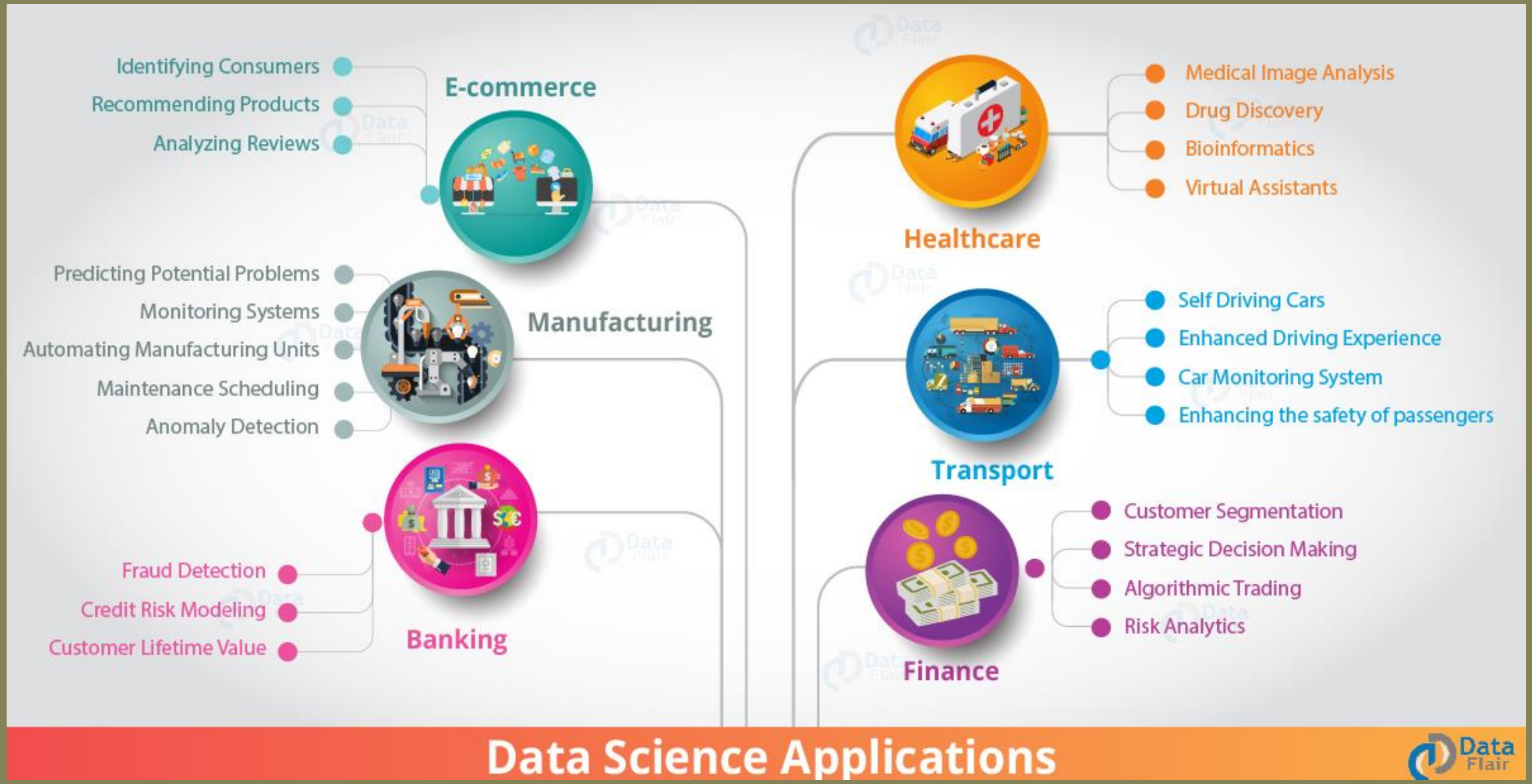
Introducing Data Science

Mean vs Percentile

www.kaggle.com/tanmoyie/mean-or-percentile

We have huge dataset. Before running any analysis, how can I calculate the quality of the data?

- EDA (exploratory data analysis, explanatory data ana)
- Missing values /duplicate value


Identifying Consumers
Recommending Products
Analyzing Reviews
E-commerce
Predicting Potential Problems
Monitoring Systems
Automating Manufacturing Units
Maintenance Scheduling
Anomaly Detection
Manufacturing
Fraud Detection
Credit Risk Modeling
Customer Lifetime Value
Banking
Medical Image Analysis
Drug Discovery
Bioinformatics
Virtual Assistants
Healthcare
Self Driving Cars
Enhanced Driving Experience
Car Monitoring System
Enhancing the safety of passengers
Transport
Customer Segmentation
Strategic Decision Making
Algorithmic Trading
Risk Analytics
Finance
Data Science Applications
Data Flair

Active learning of Data Science (external motivation)

Open an Upwork account

Start a Data Science competition on Kaggle

Upload some small projects in Github

Speaker's bio: **Tanmoy Das**

- Ph.D. (Ongoing)
  - Industrial Engineering
    - ***Dalhousie University,*** Canada
- Masters
  - Industrial Engineering
    - ***Florida State University***, USA
- Data Scientist at GetMeHired.co
- 8+ years of work experience in ***Industrial Engineering***
- Certified ***Six Sigma Green Belt*** from American Society for Quality
- Research expertise: Data Science

Relation between

Data Science &

Industrial Engineering

Where to Start on DS as an IE?

- Quality Control
- Supply Chain
- Data Analysis
- Data Science
- Operations Research

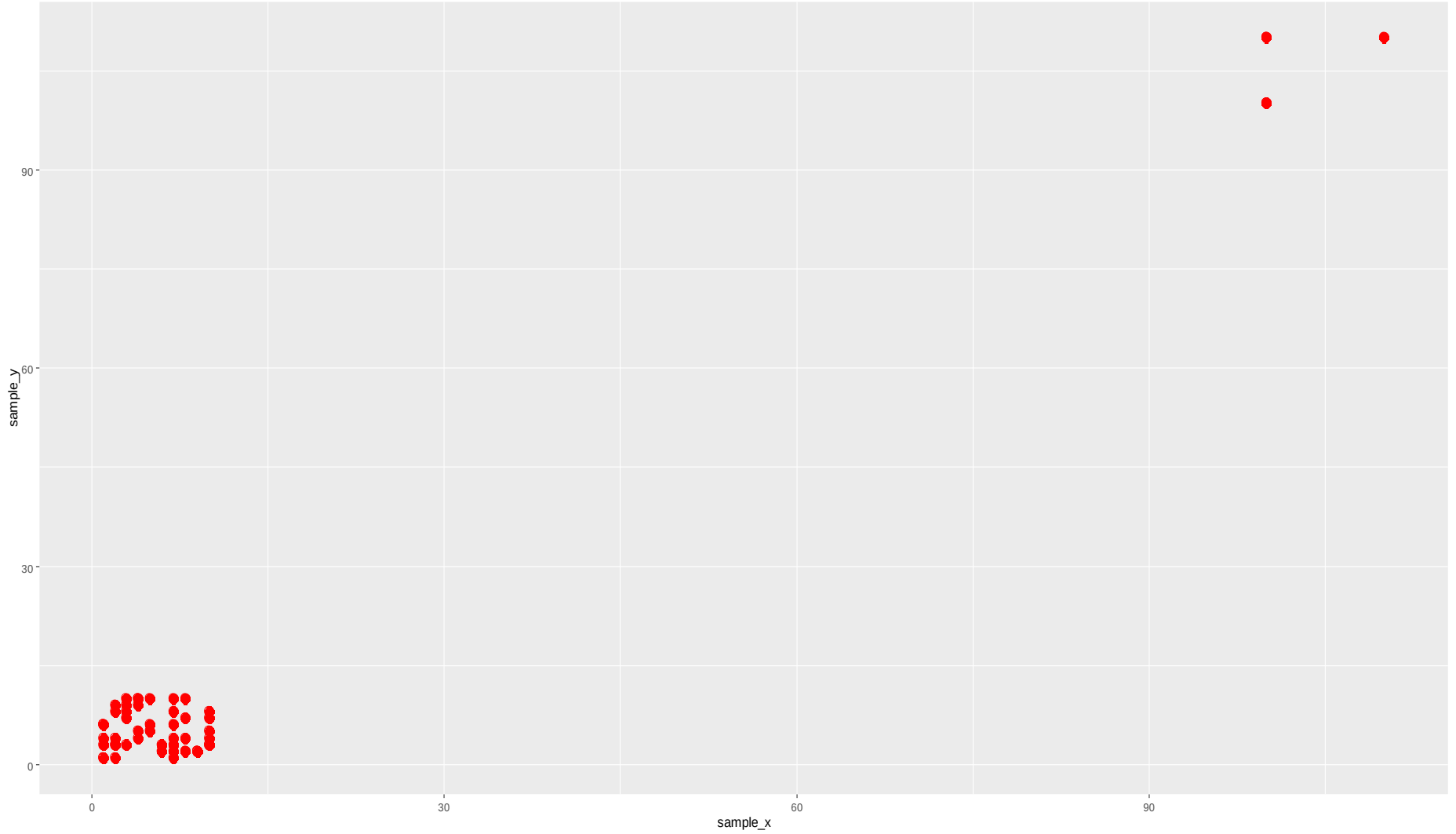
Operations Research

HTTPS://DEVELOPERS.GOOGLE.COM/OPTIMIZATION

YOUTUBE PLAYLIST ON OR

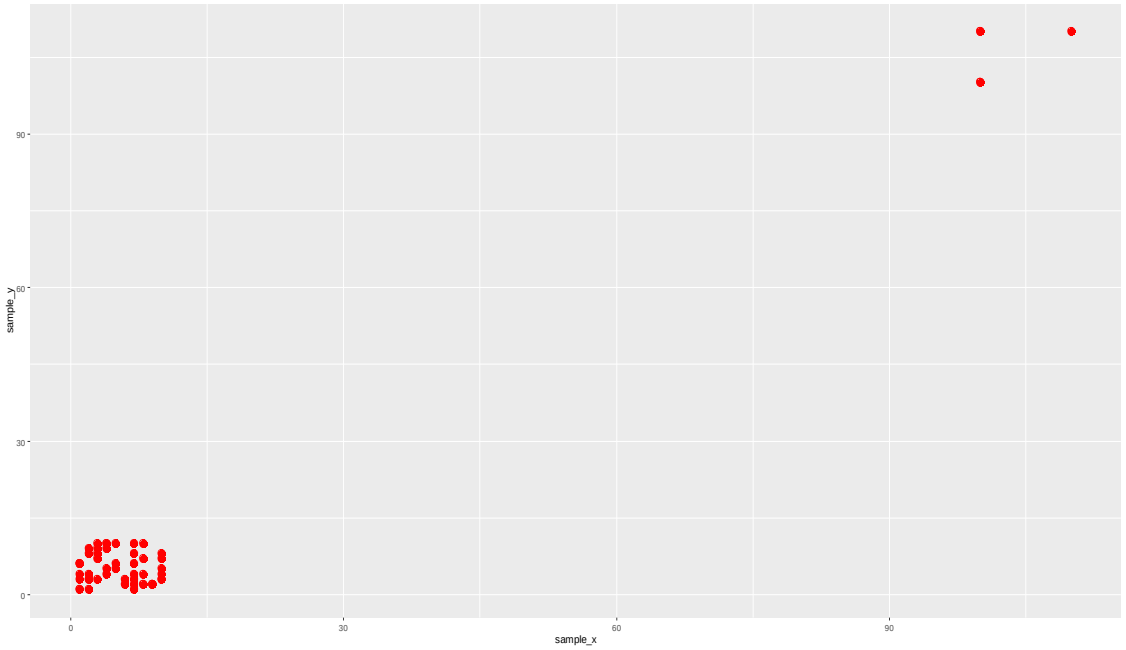
Some data from 1-10, then from 100-110

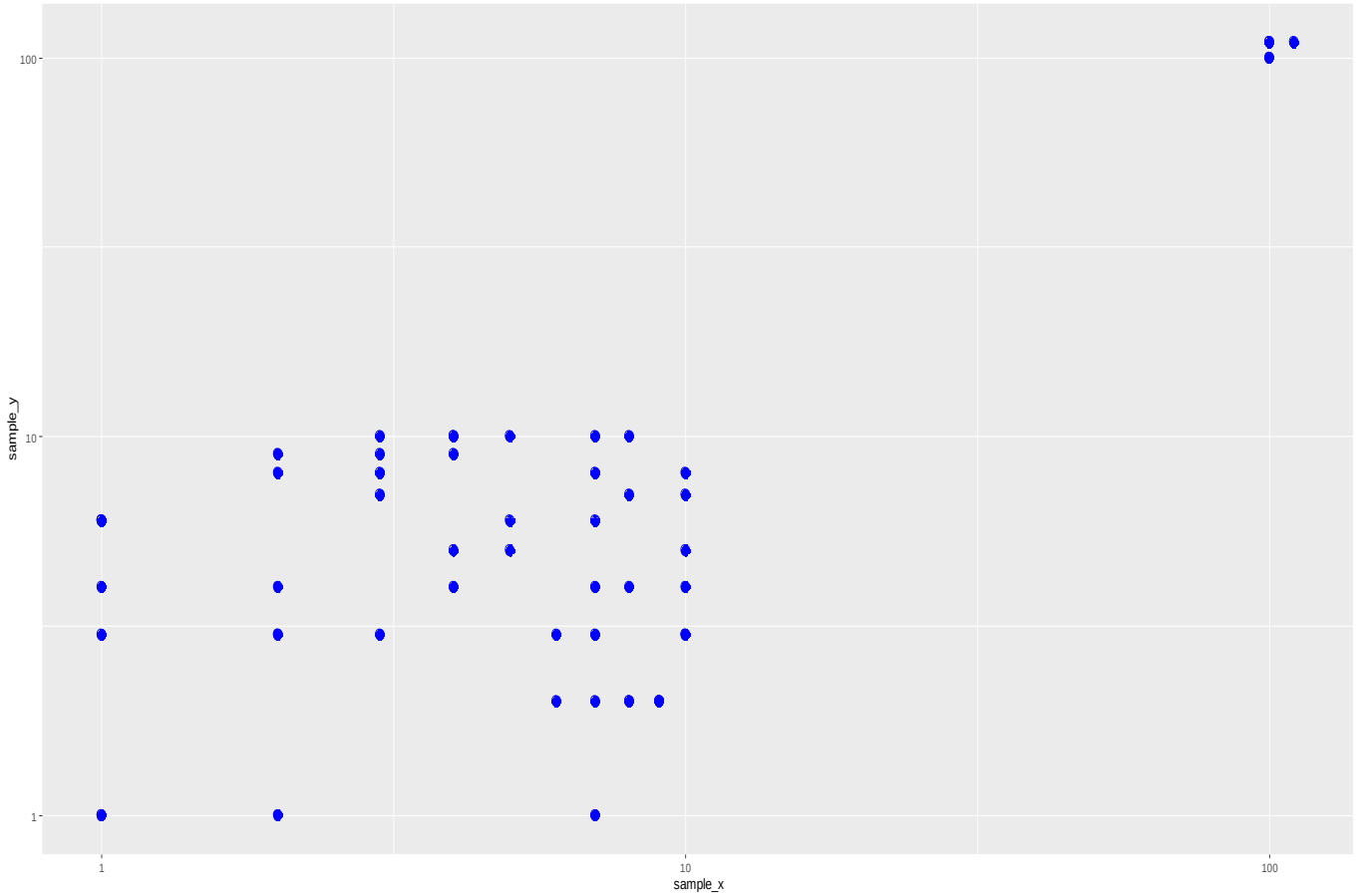
How to improve related scatterplot?



Questions – Data Exploration

- Some data from 1-10, then from 100-110
  - How to show them in line graph or scatterplot?





https://www.canada.ca/content/dam/phac-aspc/documents/services/diseases/2019-novel-coronavirus-infection/surv-covid19-epi-update-eng.pdf

Quality Control - Minitab

- https://support.minitab.com/en-us/datasets/

What’s the total number of exit doors in Dhaka city?

Fermi question

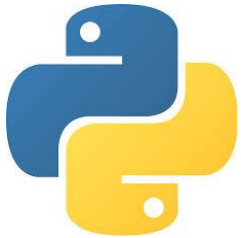
- 2 cr
- 50% resi, 50% comm
- 25% slum – no exit door
- 100 (1.5 -? 15lakh building, 15lakhs”res+ 30lakhs =45lakhs)

How to learn Data Science?

Do I need programming skill?

Yes and No

Python, R or SQL?



Python

If you don’t know where to start in Data Science

More generic

R

Statistical Computation

A bit difficult compared to Python

SQL

Database operations and others

Corona – Can we use data from Italy to predict the situation in Bangladesh?

- No (or at least cautiously)

  Longitudinal data analysis

- If we don’t have any other choices?
  - Select your hypothesis properly.

Sources to start learn **Data Science**

- Data Science A-Z from UDEMY
- Youtube playlist of Simplilearn

Sources to learn **Machine Learning**

- Machine Learning A-Z from UDEMY
- StatQuest
- Youtube playlist

Sources to learn **Machine Learning**

- 70% - Statistics (LR, MLR , SVM, classification /regression)
- 20% - implementation – programming
- Sklearn documentation for ML

Sources to learn **Python**

- Learn Python with Socratica
- Active learning
- Which is the best IDE (Anaconda – spyder, Pycharm) for Python.
- Upwork –

Online presence of Tanmoy

- www.tanmoyie.com
- www.youtube.com/c/TanmoyIe
- https://github.com/tanmoyie
- www.linkedin.com/in/tanmoyie
- www.kaggle.com/tanmoyie
- www.facebook.com/tanmoyie
- fb.me/DataScience.IndustrialEngineering

Happy Learning