# Course Overview

MSBA7001 Business Intelligence and Analytics

HKU Business School
The University of Hong Kong

Instructor: Dr. DING Chao

# About Me

- Dr. DING Chao (丁超)
- My experiences
  - Chongqing: where I was born and raised
  - Guangzhou: where I studied physics
  - Florida, US: where I obtained my doctoral degree
  - Hong Kong: where I started my academic career
- My hobbies
  - Hiking
  - Photography
  - Traveling
  - Tennis

# Agenda

- Value of Data
- Business Intelligence & Business Analytics
- Course Structure

# Value of Data

# Data

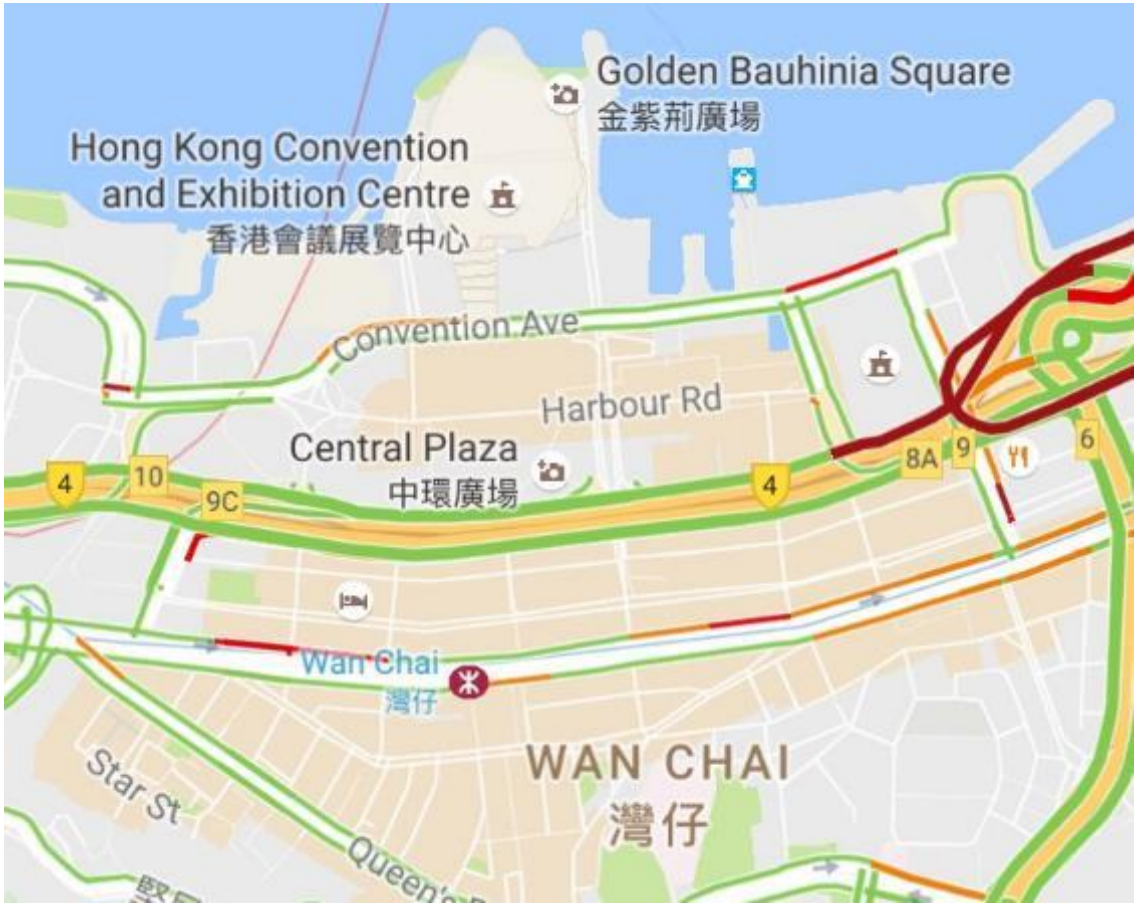
A vast amount of data generated every second

- Sales records
- Online searches
- Web visits
- Social posts
- Bank transactions
- Online conversations
- Facial ID
- Product inventory
- …

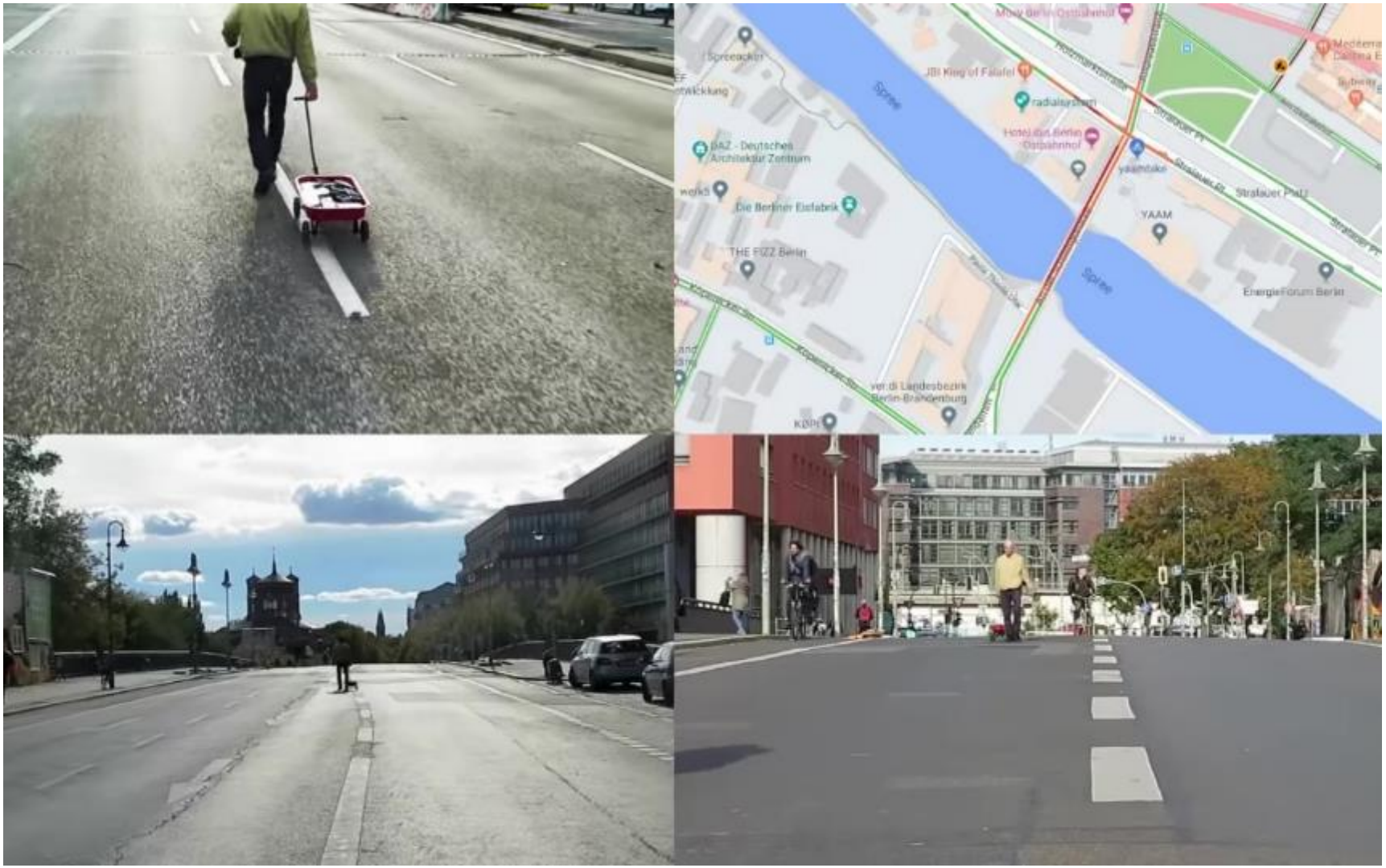
Then what??

# Google Maps

How do you think Google Maps gather real-time traffic data?



# Google Maps




Source: Simon Weckert, http://www.simonweckert.com/googlemapshacks.html

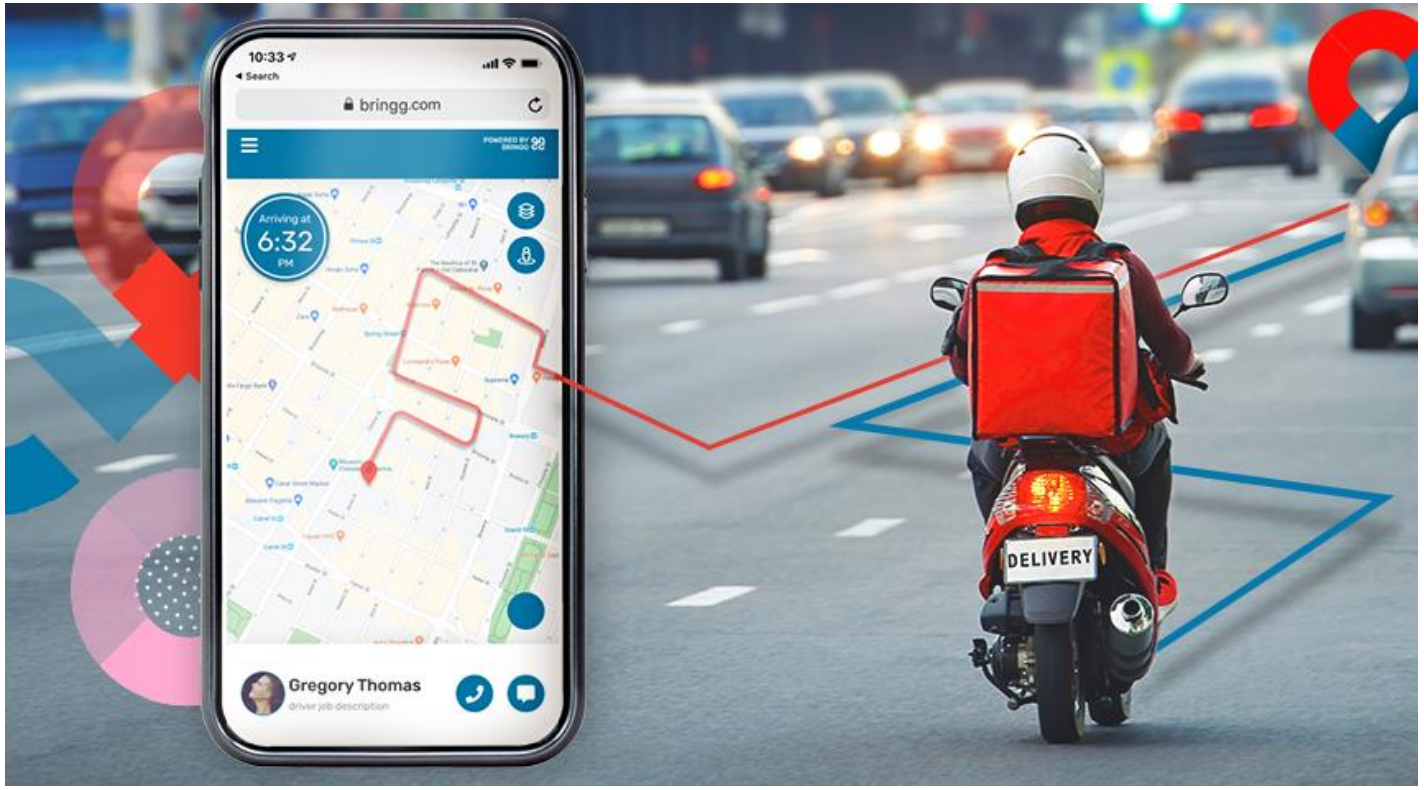
# Gaode Maps

Traffic waiting time countdown


https://patents.google.com/patent/CN114463969B/zh

# Takeout Delivery

How to optimize delivery route?



# Text to Speech

How to produce lifelike voices from plain texts?

https://cloud.google.com/text-to-speech

# Value of Data

**University**: Improve UG admission efficiency

**Bank**: Streamline credit card applications

**E-commerce**: Provide accurate recommendation

**Manufacturer**: Optimize resource allocation

**Supply Chain**: Optimize shipping route

**Insurance**: Better identify fraud

**Healthcare**: Precision medicine

**Marketing**: Targeted advertisement

**Retail**: Enhance inventory management

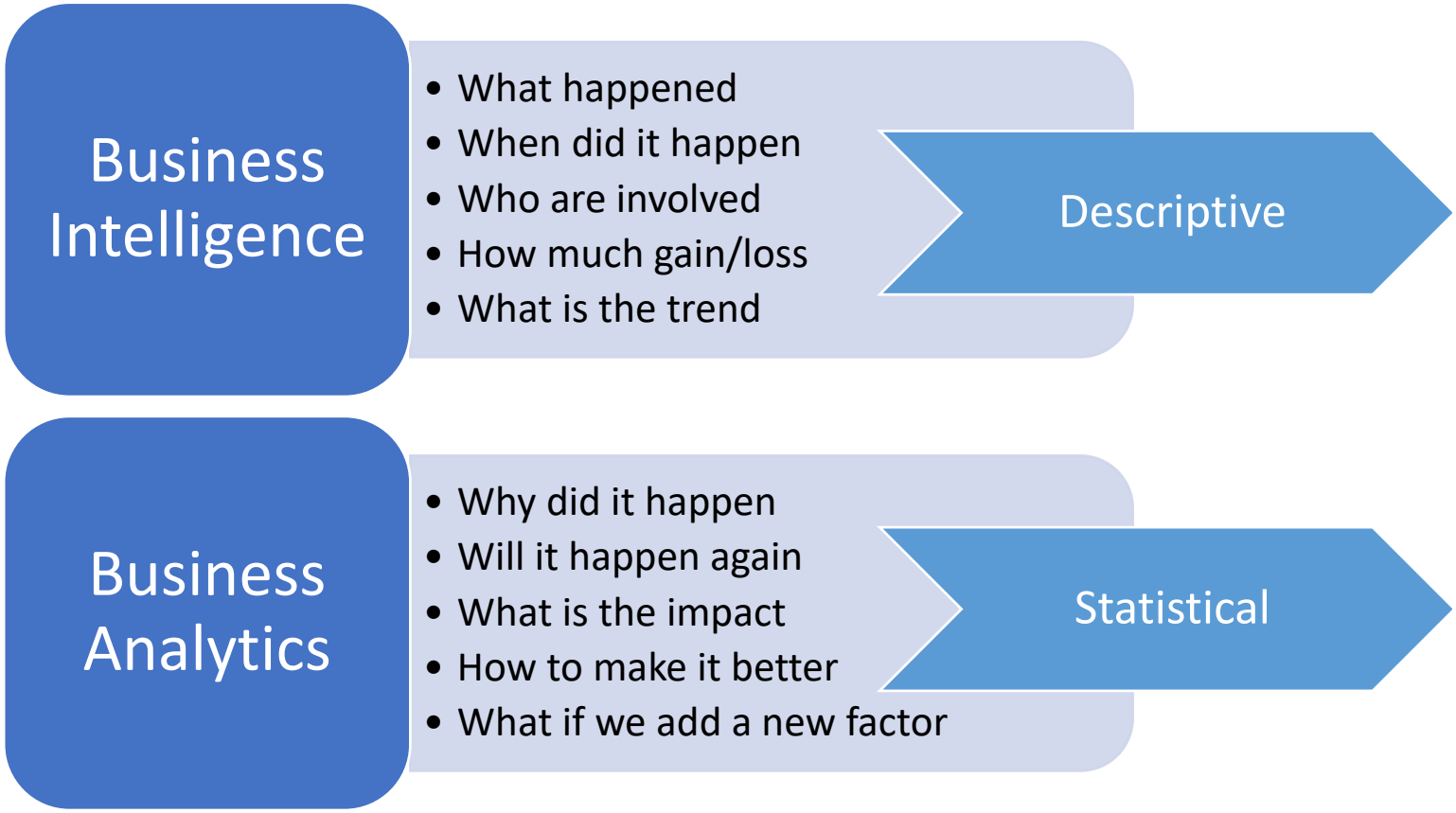
……

# Business Intelligence & Business Analytics

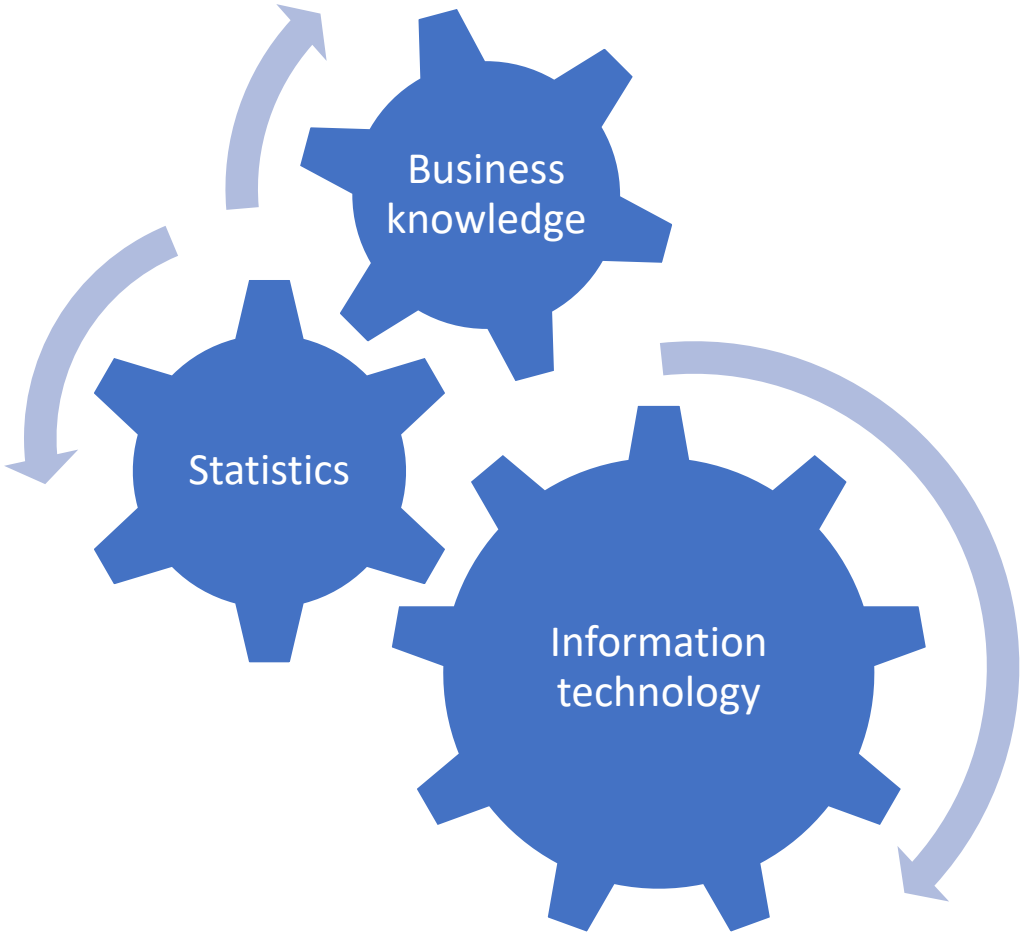
# Business Intelligence & Business Analytics

- **Business Intelligence (BI)** is used to gather, analyze and report data, so as to manage day-to-day operational management within a business.
- **Business Analytics (BA)** is used to gain insights from past business activities, to inform future business decisions, and to automate and optimize business processes.

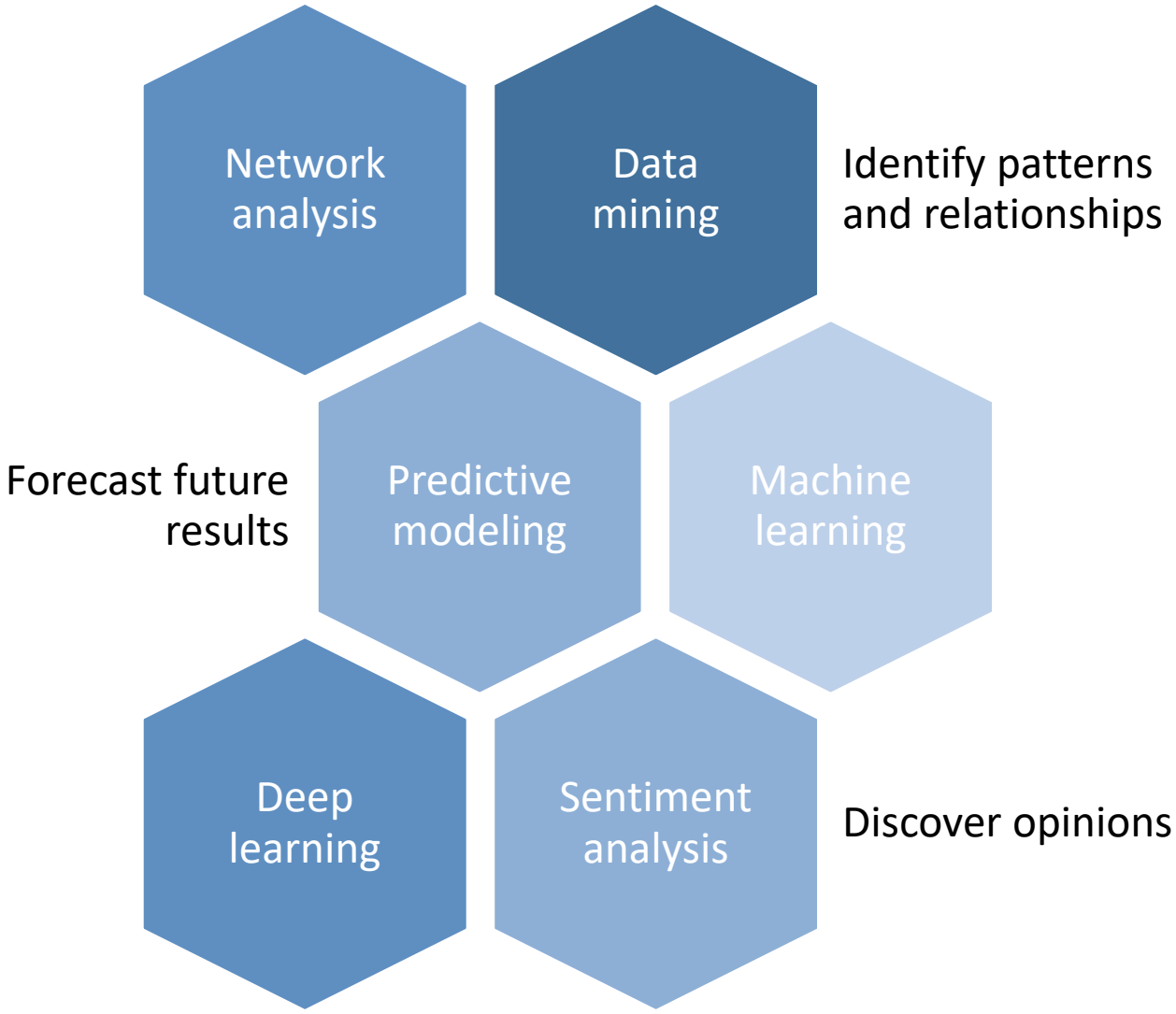
# Business Intelligence & Business Analytics



# Required Skill Sets



# Related Techniques



# MSc(BA) Courses (partial)

| Course Title | Language |
|---|---|
| MSBA7002 Business Statistics | R |
| MSBA7003 Quantitative Analysis Methods | R, Python |
| MSBA7004 Operations Analytics | R, Python |
| MSBA7005 Capstone | R, SQL, Python |
| MSBA7012 Social Media and Digital Marketing Analytics | SQL, Python |
| MSBA7013 Forecasting and Predictive Analytics | R |
| MSBA7021 Prescriptive Analytics | Python |
| MSBA7023 Geospatial & Business Analytics | Python |
| MSBA7024 Database Design and Management | SQL, Python |
| MSBA7025 Digital Experimentation Methods | Python |
| MSBA7026 Big Data Analytics on the Cloud | SQL, Python |
| MSBA7027 Machine Learning | R |
| MSBA7028 Deep Learning | Python |
| MSBA7031 Blockchain Cybersecurity Risk Analytics | R, Python |
| MSBA7032 Quantitative Trading | Python |

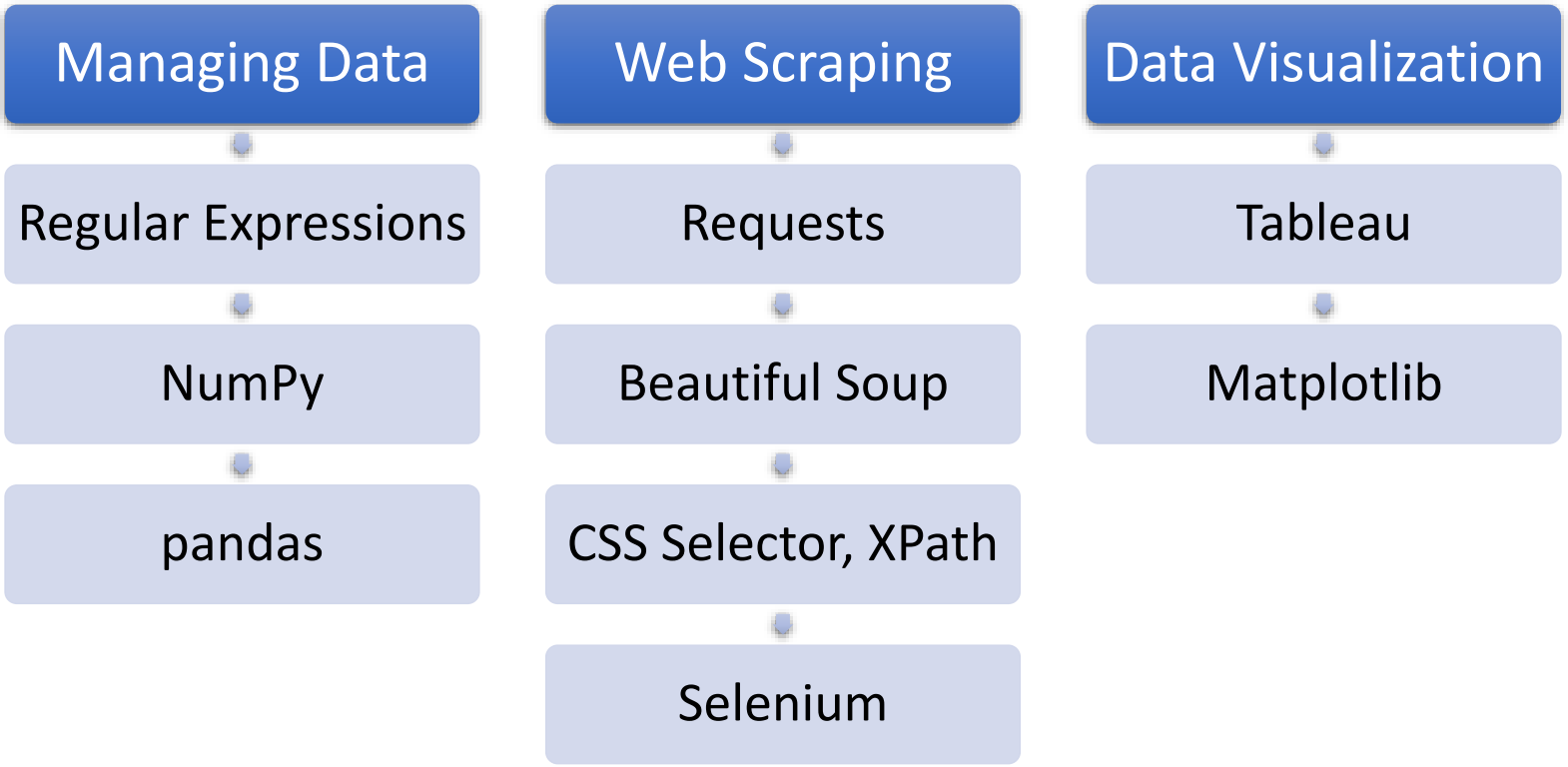
# Course Structure

# About This Course

- This course mainly covers three areas.
- Aims to train students on two essential tools.
  - ✓**Python** for data manipulation & analysis.
  - ✓**Tableau*** for data visualization.


* License key to be shared with you in due course.

# Course Roadmap



# Required Textbooks

***Python for Everybody***

**-- Charles R. Severance**

- Regular expressions
- Networked programs
- Using Web Services

***Python for Data Analysis***

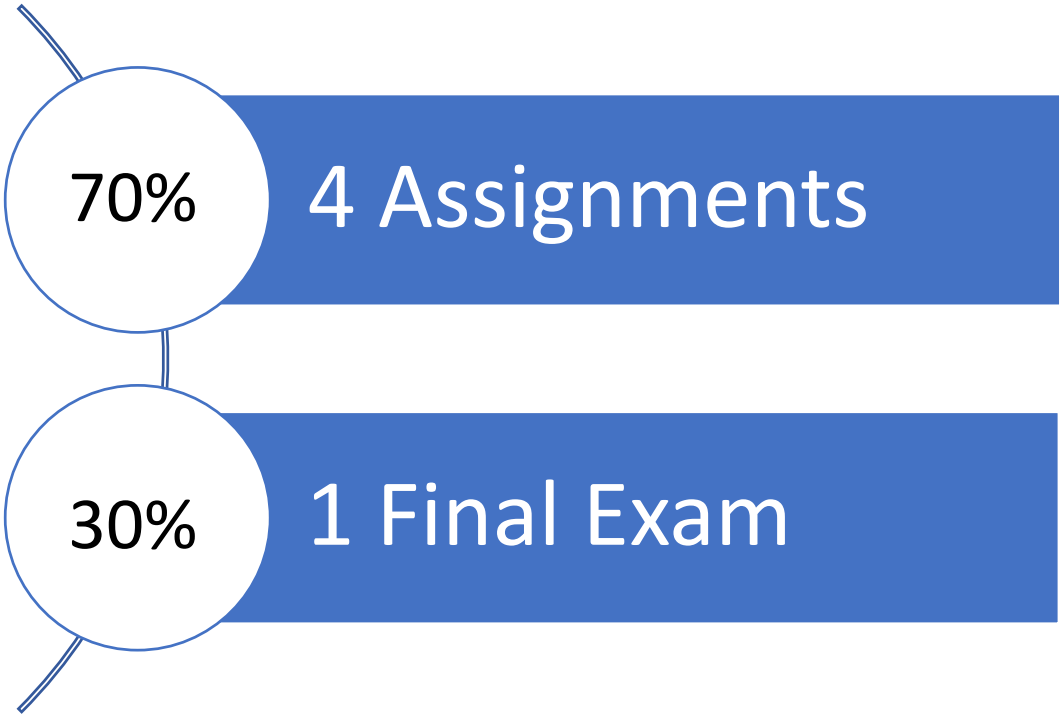
**-- Wes McKinney**

- Chapter 4. NumPy Basics: Arrays and Vectorized Computation
- Chapter 5. Getting Started with pandas
- Chapter 6. Data Loading, Storage, and File Formats
- Chapter 7. Data Wrangling: Clean, Transform, Merge, Reshape
- Chapter 8. Plotting and Visualization

# What Should You Expect?

- Very technical.
- Self-learning.
- Heavy workload.
- Expect to learn fast.
- Will take a lot of your time after class.
- Get help from your classmates.

# Assessments



# Is There a Way to Fail This Course?

```
if (attendance < 70%) or (grade / 10 <= 4.5):
      print('FAIL')
```

No penalty if you miss **no more than 3** lectures.

# Penalties for Late Assignment Submission

- 30% deduction for any late submission within 24 hours.
- 60% deduction for one day overdue.
- No grades for any submission after 48 hours.

# Tutorials

- Solutions to assignments & exercises
- More exercises
- Coding tips & best practices
- Useful packages/modules

# Teaching Assistants

**Mr. Anthony Wong:** aswwong@hku.hk
**Mr. Shawn Li:** ls499858@hku.hk
**Miss Allison Hu**: ah1122@hku.hk
**Mr. Eric Zhang**: mingz@hku.hk

Take attendance
Grade assignments
Answer inquiries
Handle logistics

**Mr. Austin Cheung**
austinmy@connect.hku.hk

Lead tutorials

# Policies on the Use of AI

- University policy
  - ❑Students have limited access to GPT-4o and Dall•E 2:
    - ➢ https://chatgpt.hku.hk/
    - ➢ https://dalle.hku.hk
- You are highly recommended to use AI to help you with:
  - ✓Code generation
  - ✓Debugging
  - ✓Explanation



# Tips

- Obtaining the correct output is more important.
- We are not in pursuit of code efficiency or elegance.
- You will not be tested on algorithms. It's not a CS course.
- The primary tasks you will be repeating:
  - obtain data → clean data → save data → visualize data
- Do keep a good coding habit:
  - ✓ Divide and conquer
  - ✓ Add comments
  - ✓ Clean up testing code
  - ✓ Use autocomplete
  - ✓ Define functions for smaller tasks

# Other Things to Note

- After each session, I will stay behind for a short while to answer your questions.
- Or, send me an email to make an appointment:

chao.ding@hku.hk

- My office is KK807 on the main campus.
- All electronic materials will be shared with you.
- Your feedback is always welcomed.