Digital Marketing

Welcome to the course!

Among every $100 Hong Kongers spend on retailing,
how many dollars are spent online?
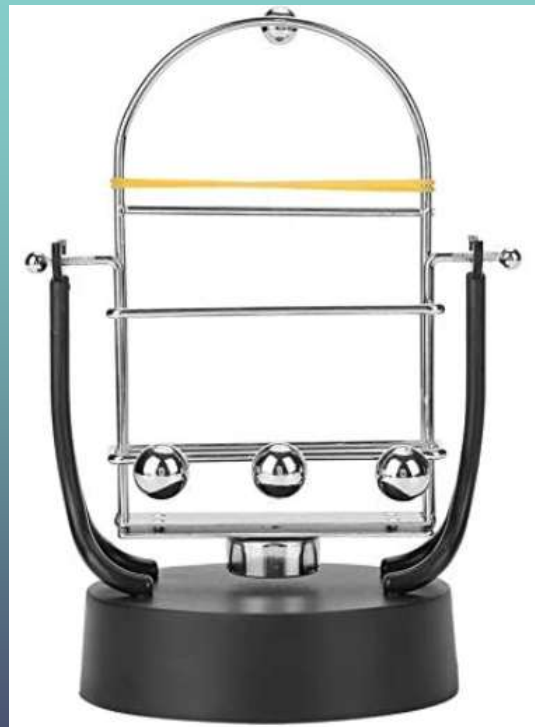
What are the richest companies in the world?

What's this product?

Uber collects data on your smartphone battery. But why?

How many couples meet their partners online?

Inconsistency of Online Reviews

Product		Average rating			Number of reviews			Price		
		Amazon		Walmart	Amazon		Walmart	Amazon		Walmart
A		4.0	>	2.2	303	>	4	79.00	=	79.00
B		2.5	<	4.0	8	<	81	36.68	<	39.80
C		4.2	>	3.0	328	>	2	80.99	<	89.99

What makes the sentiment so different?

Discussion

How does Internet affect purchasing decisions?

What is digital marketing?

"Digital Marketing is the use of Internet connected devices and electronic media to engage a customer."

Search advertising
Display advertising
Social media marketing
…

What is this course about?

Overview of digital technology + Underlying Business/Marketing concepts

Aim is not mastery of all the topics, but to give an overview of most important topics

The list of topics covered in this course can be found in the syllabus.

Who should take this course?

Undergraduate students

      Learn the basics of Digital Marketing
      Learn the basics of data analytics
      Already have a background in basic marketing /advertising

This is not a course about...

Introduction to Marketing

Web development or Web Design

Public Relation/ Journalism

e-Commerce

AI

Entrepreneurship class - build app/website, become a millionaire!

A specialized course intended for one specific aspect

      Search Engine Marketing
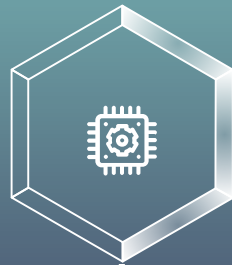
      Social Media

This course adopts methodologies from

Computer Science

Statistics

Economics

Leveraging your competitive advantage

Compared to traditional marketers, you know the digital world and how to analyze data.

Compared to statisticians and computer scientists, you understand consumers better, and know how to apply results to business settings.

Compared to economists, you not only know the theory, but also know how to apply the theory to solve real-world marketing problems, and test the theory using real-world data.

The LOOP
If you hate data, don't take the course!

Real World	→	Data	→	Data Product	→	Theory
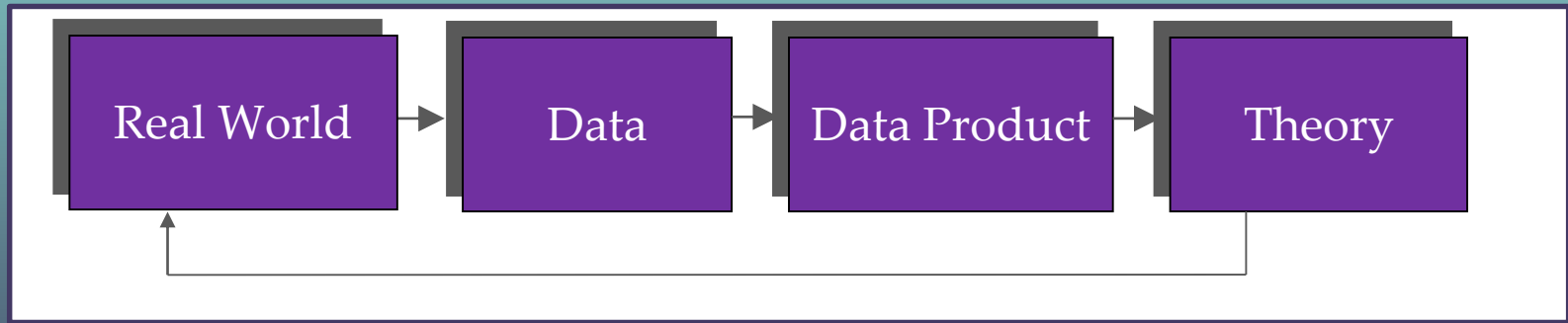
We emphasize on data, data, and data

"Talk is cheap, show me the data!"

We solve problems for

Firms

Platforms

Individuals

The Instructor

Xi Li
Professor of Marketing
Professor of Information and Innovation Management

PhD in Management, University of Toronto.
M.Phil. in Operations Research, HKUST.
B.E. in Computer Science, Tsinghua University.

Director, Asia Case Research Centre
Associate Director, Institute of Digital Economy and Innovation
Research interests: Algorithms, big data and online marketplaces.

价格的艺术：企业是如何使用数据"套路"消费者的？

李曦：互联网_

的逻辑到底是

用算法拿捏消费者？"割韭菜"之前，请三思

2025年6月4日

李曦：商家的

引力，但盲

李曦　龍虎山下

內地電商強攻 港零售業3招自救

自愿数据共享，真的可以保护消费者？

李曦：笔者的研究发现，基于自愿的数据分享更可能会推高产品的价格，进一步损害消费者的权益。

李曦为FT中文网撰稿

HKU
BUSINESS
SCHOOL
港大經管學院

Do I really want to take the course?

I don't know. It depends. But let me offer you my advice.

Take the course if
    You are interested in data analysis, and you are considering to become to a
    data scientist in the future.
    You want to understand how the digital marketing industry operates and
    evolves over time.

Don't take the course if
    You hate data analysis or coding.
    You already know the materials to be covered in the class.
    You want to pick an easy course to fulfill your credit requirement.

Why should we study Digital Marketing?

Why go digital?

Consumers are online, more than ever before!

Firm productivity can be significantly improved by digital technology and data analytics

Better promotion effectiveness via SEO and online advertising
Better engagement between firms and customers via social media
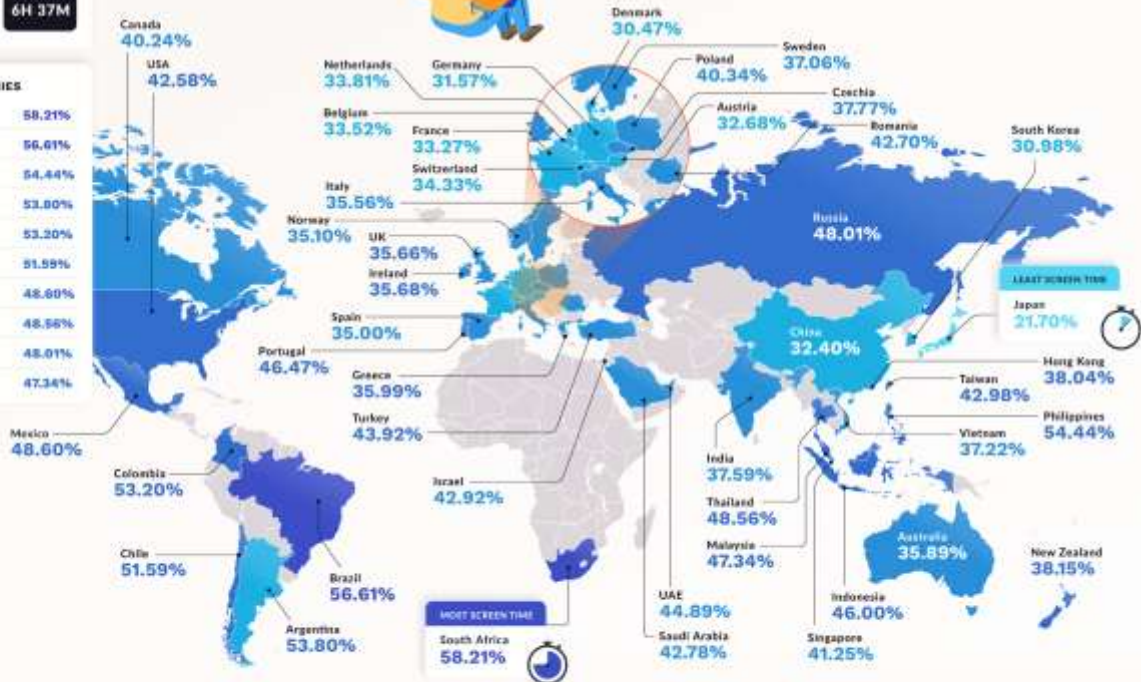
The Average Screen Time

(% OF AWAKE HOURS) BY COUNTRY

Are you a slave to your screen? According to our research, people spend an average of 6 hours and 37 minutes in front of screens. The question is, how does each country differ?

The country with the **highest average** screen time is **South Africa**, spending more than half the day on screens (**58.21%**). Surprisingly, even as one of the first countries to harness the power of technology and explore its benefits, according to News On Japan, **Japan** reportedly spends the **least** time scrolling (**21.70%**).

DAILY AVG SCREEN TIME (% OF AWAKE HOURS)

21.70% — 58.21% — No Data

WORLDWIDE AVG SCREEN TIME — 6H 37M

TOP 10 COUNTRIES

	Country	%
1	South Africa	58.21%
2	Brazil	56.61%
3	Philippines	54.44%
4	Argentina	53.80%
5	Colombia	53.20%
6	Chile	51.59%
7	Mexico	48.60%
8	Thailand	48.56%
9	Russia	48.01%
10	Malaysia	47.34%

Canada 40.24%
USA 42.58%
Netherlands 33.81%
Germany 31.57%
Belgium 33.52%
France 33.27%
Switzerland 34.33%
Italy 35.56%
Norway 35.10%
UK 35.66%
Ireland 35.68%
Spain 35.00%
Portugal 46.47%
Greece 35.99%
Turkey 43.92%
Denmark 30.47%
Poland 40.34%
Sweden 37.06%
Czechia 37.77%
Austria 32.68%
Romania 42.70%
South Korea 30.98%
Russia 48.01%
China 32.40%
Mexico 48.60%
Colombia 53.20%
Chile 51.59%
Brazil 56.61%
Argentina 53.80%
Israel 42.92%
India 37.59%
Thailand 48.56%
Malaysia 47.34%
UAE 44.89%
Saudi Arabia 42.78%
Indonesia 46.00%
Singapore 41.25%
Australia 35.89%
New Zealand 38.15%
Hong Kong 38.04%
Taiwan 42.98%
Philippines 54.44%
Vietnam 37.22%

LEAST SCREEN TIME — Japan 21.70%

MOST SCREEN TIME — South Africa 58.21%

Electronics **Hub**

How is digital marketing different?

More targeted and context relevant

More use of personal devices rather than mass media

Use of social aspect and viral marketing

More measurability

Additional Course Information

Textbook? No.

Website:

https://ximarketing.github.io/_pages/teaching

Password: MKTG

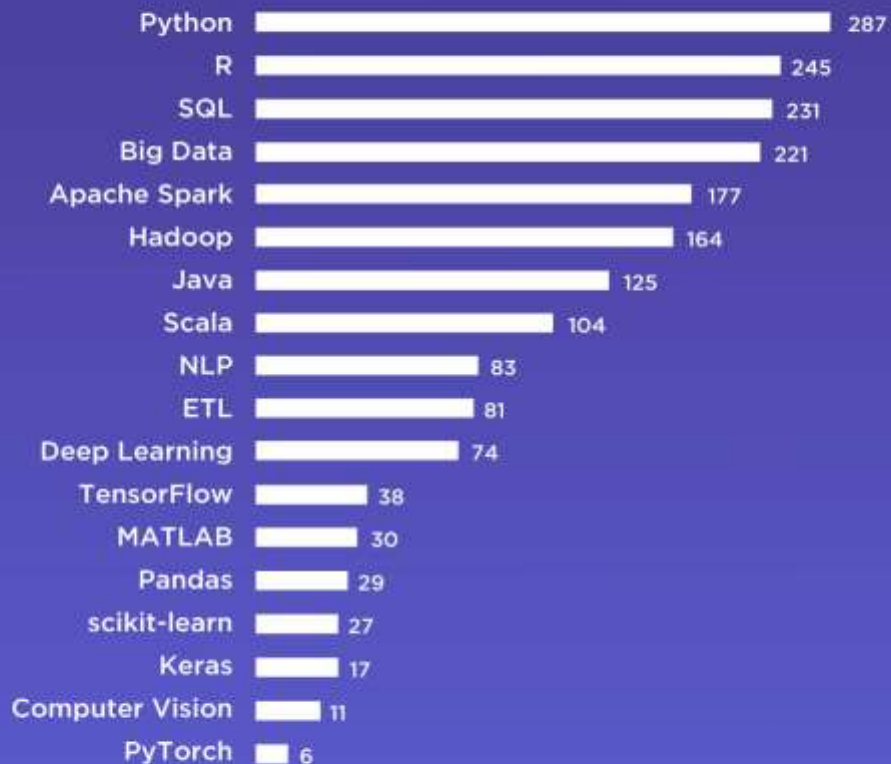# Course Overview

Data analytics with R.

You can use Excel or SPSS, but they are too simple and cannot handle complex data analysis projects.

R is a free software that is commonly used for statistical analysis.

It is not only useful for digital marketing, but also useful for other purposes such as machine learning and optimization.

The skills Data Scientists need today
(based on 300 job listings from tech companies in June 2019)

Skill	Count
Python	287
R	245
SQL	231
Big Data	221
Apache Spark	177
Hadoop	164
Java	125
Scala	104
NLP	83
ETL	81
Deep Learning	74
TensorFlow	38
MATLAB	30
Pandas	29
scikit-learn	27
Keras	17
Computer Vision	11
PyTorch	6

Jelvix

Source: CV Compiler
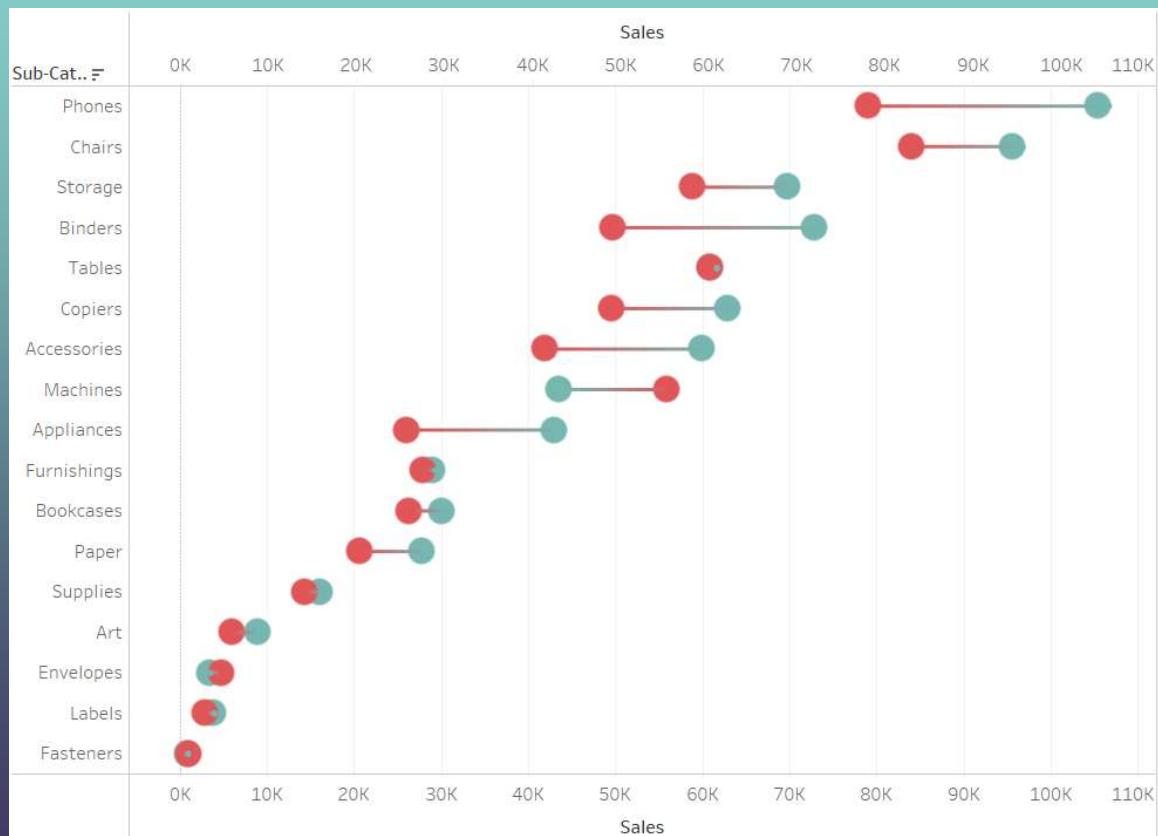
jelvix.com

Course Overview

Data visualization with Tableau.

Data visualization gives us a clear idea of what the information means by giving it visual context through maps or graphs.
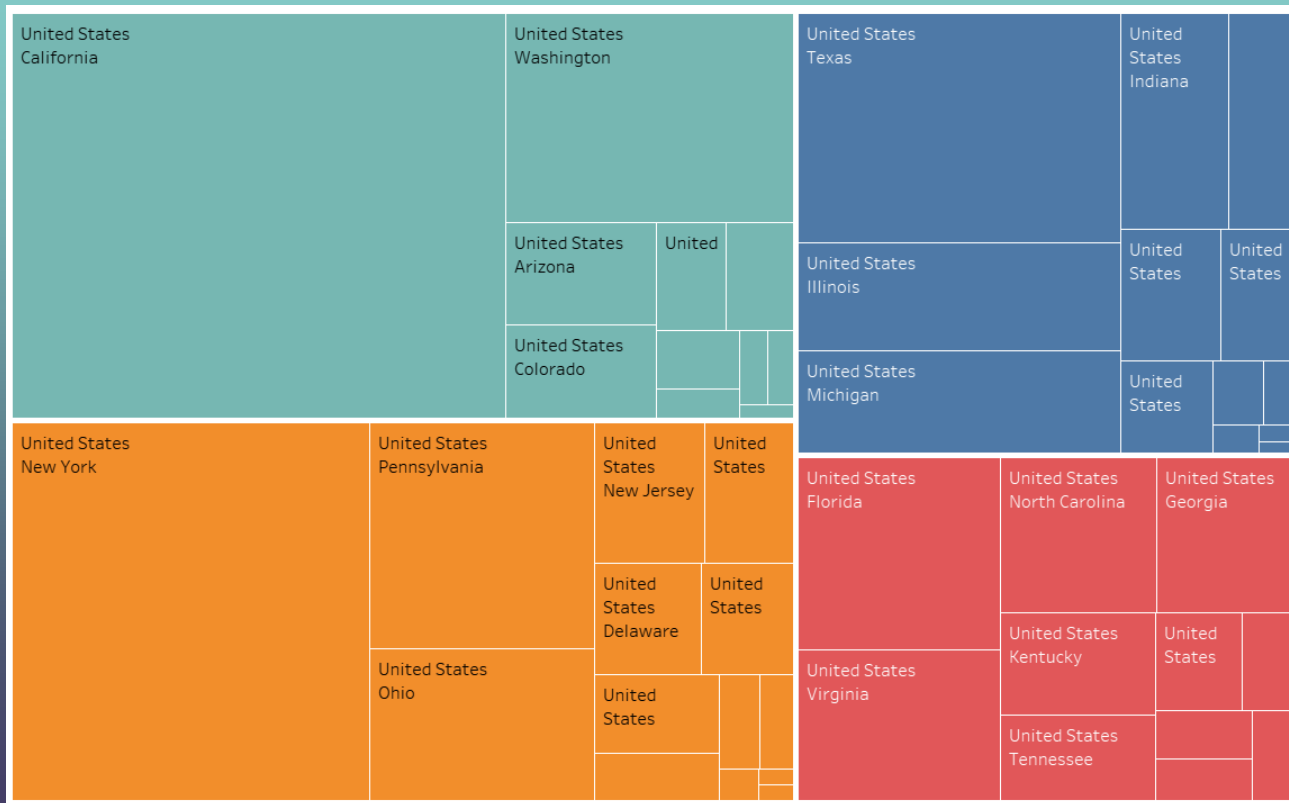
When you want to show your results to others, the best way to use figures --- *"A picture is worth a thousand words"*.

Tableau

Tableau

Course Overview

Web Scraping with R.

Data scraping allow you to scrawl information from websites, e.g., online marketplaces. For example, you can collect product information from HKTV Mall, weather information from Hong Kong observatory, and images from Instagram.

Warning: Do not expect that you can become an expert in data scraping within one class. This is simply an introduction, and you need more practice yourself.

Course Overview

This may be the only web scraping class in a business school (I don't know the answer, through).

We will see how to gather information from HKU faculty webpage:

Dr. Jingcun CAO   Dr. Chu (Ivy) DANG   Dr. Jinzhao DU

Course Overview

Search Engine Optimization.

We all know that Google is the most popular search engine (and even the website) over the world.

We are going to address the following questions: (1) How does Google (and other search engines) work? (2) How to improve your page rank on Google, so that consumers can more easily find your website through searching?

Course Overview

Paid Search.

While SEO allows you to improve your page rank for free, you can also spend money to get more attentions from consumers.

We are going to address the following questions: (1) What is online advertising? (2) How does Google sell its search results through auctions? (3) How to buy paid ads? (4) How to develop you keywords list?

Course Overview

Display Advertising and Content Creation.

How to offer targeted ads based on user behavior?
How are displayed ads bought and sold?
How to design content?
What is click fraud?

Course Overview

Social network and mobile marketing

We will discuss ways to take advantage of the social network to engage your users and amplify the influence of your brand.

We will introduce some measures of social networks and use R to process social network data.

We will also discuss some characteristics of mobile marketing.

Course Overview

Social media.

Setting guidelines and policies for your social media: make sure that you are using social media platforms in a correct way.

Ways to engage your users through social media.

AB testing for social media optimization.

Course Overview

Social media (Continued).

Social listening: listening to your consumers on social media. Social listening is useful for brand monitoring, watching the competition.

Influencer marketing – amplifying your brand on social media.

Grading

Your grades will be determined by the following components:

Group-level data-analysis task: 10%
   No presentations; reports needed
Group-level company research project: 30%
   Both in-class presentation and report required

In class participation: 10%
Final examination: 50% (open book open notes, MC questions only)

In-Class Participation

I don't count your attendance.

When you answer questions in class, you will get a bonus.

Each one can get at most one bonus in each class, unless no one else wants to answer. We implement this policy to give more students opportunities to participate in discussions.

Data Analysis

In this course, we are introducing a practice class on data analysis. This is one unique feature of our course.

You have already learned about R and Tableau. Perhaps you can also use many other tools such as SPSS, Excel, Python etc.

I will give you some real digital marketing data, and your goal is to study the data using the tools you know --- It's entirely up to you how you want to play with the data!

Data Analysis

You are going to work with your teammates on the data project. Then, each group will submit a report illustrating the findings from the data. It will be graded, and it affects your final grade.

We will start with the data analysis in the class, and you will finish all the analysis after the class.

The purpose of the data project is to help you understand the data analysis methodologies and gain a sense of real data that data scientists are analyzing everyday.

Company Research Project

Good news: Because we already have the data analysis task, you do not need to collect or analyze data in your research project.

What you need to do: Choose a company and analyze the company's digital marketing strategy.

You are free to choose your own company, but make sure that the company is active in digital marketing (at least it should have social media accounts and its own website).

What you should focus on

Company website: Any issues? What can the company do to improve its website?

Social media (e.g., Facebook, Instagram, Twitter): Is the company managing its social media accounts? Any issues? What would you suggest the company?

Online sentiment: How people are discussing the company or its brands in online review platforms (e.g., TripAdvisor, Amazon)? What's wrong?

TODO List

If you decide to take this course, here is what you should do after today's class (Important!):

Form groups with your classmates. Think about the project you are going to work on.

Individual task: Install R on your laptop. We will be using it in the next class.

Group Formation

Each group consists of at most 6 students (and at least 1).

You need to choose a name for your group, e.g., "Marketers", "Fantastic", "A Plus"…

Email the TA (Yana; yanalo@hku.hk) your group information (group name, your own names and HKU ID) on or before Sep 12.

Let the TA know if you cannot find a group.

Let's <u>Download</u> and install R.

Your installation path must NOT contain any non-English characters. Otherwise, you will have troubles using it.

安裝路徑必須為純英文，否則運行可能出錯。

Next, let's download R-Studio.
It is also free.

Your installation path must NOT contain any non-English characters. Otherwise, you will have troubles using it.

安裝路徑必須為純英文，否則運行可能出錯。