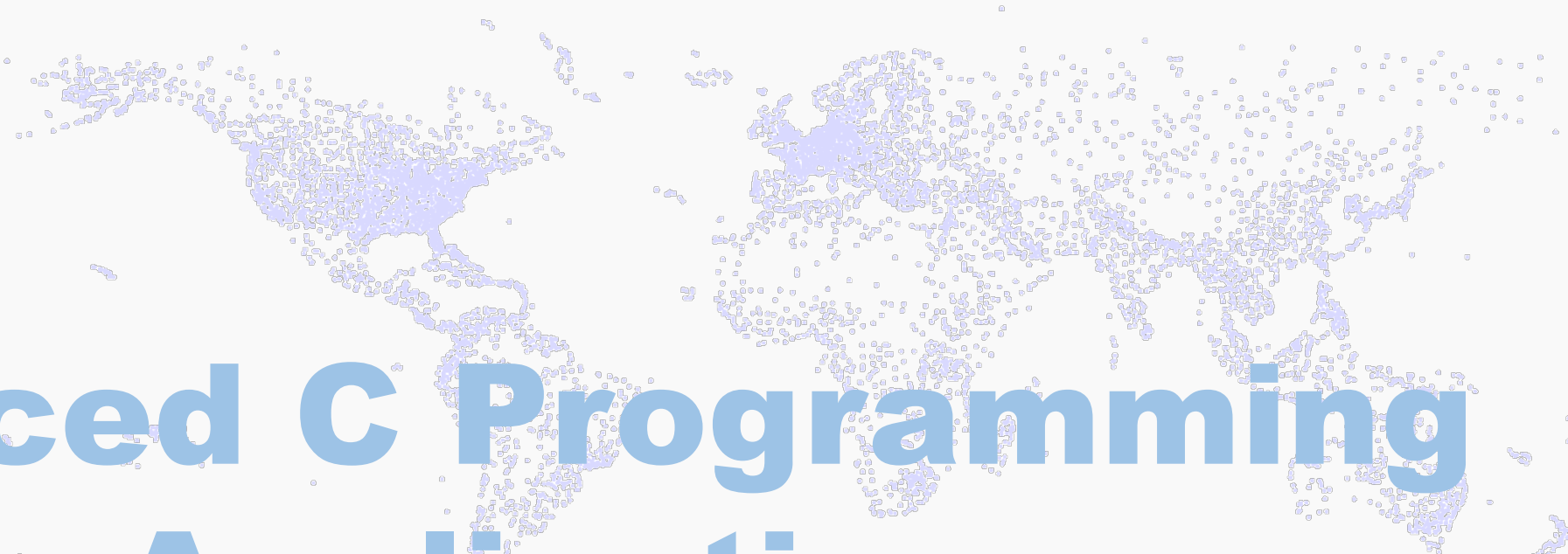


<Adv C & App/>



# Advanced C Programming And It's Application

**Final Project Introduction & Brainstorming**

Assistant Prof. Chan, Chun-Hsiang

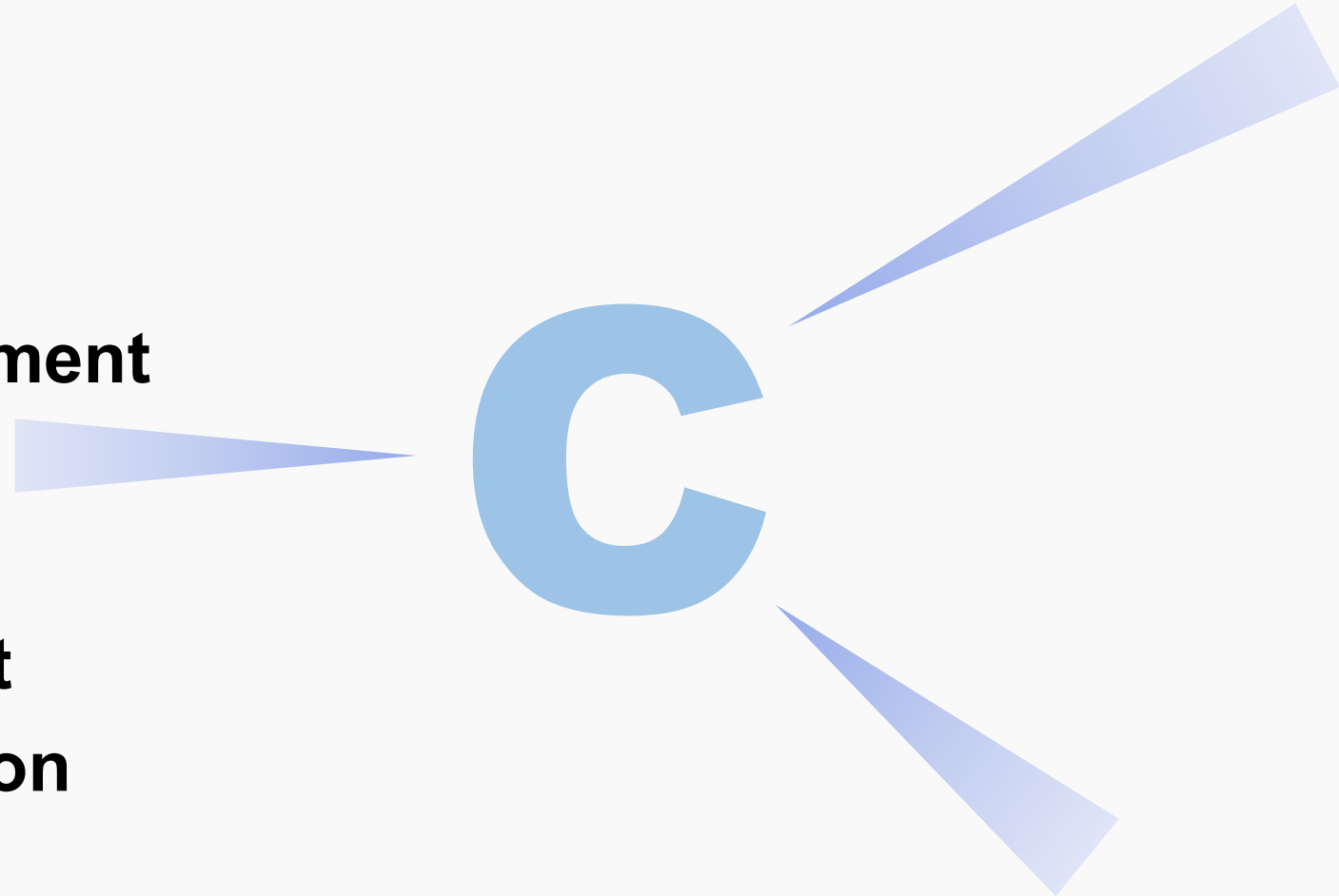
*Department of Artificial Intelligence, Tamkang University*

*Nov. 24, 2021*

</ Adv C & App >

# 大綱

- [1] Final Project
- [2] Brainstorming
- [3] Project Management
- [4] Story Telling
- [5] Presentation
- [6] Progress Report
- [7] Final Presentation
- [8] References



## 期末專題

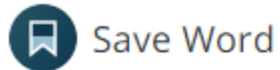
期末專題展演是一個讓大家練習如何呈現自己的舞台，所謂的資料科學不應止於資料分析技術本身以及資料的詮釋，而是應該要充分將其包裝成一個有意義的故事，利用適當的方式展演出來。


期末專題的重點：

1. 資料分析
2. 結果呈現
3. 成果展演

# Brainstorming

## brainstorming noun



brain·storm·ing | \ 'brān-,stōr-mīŋ  \

plural **brainstormings**

### Definition of *brainstorming*

: a group problem-solving technique that involves the spontaneous contribution of ideas from all members of the group

// conducted several *brainstorming* sessions

*also* : the mulling over of ideas by one or more individuals in an attempt to devise or find a solution to a problem

// ... he's already done some *brainstorming* about new marketing strategies.

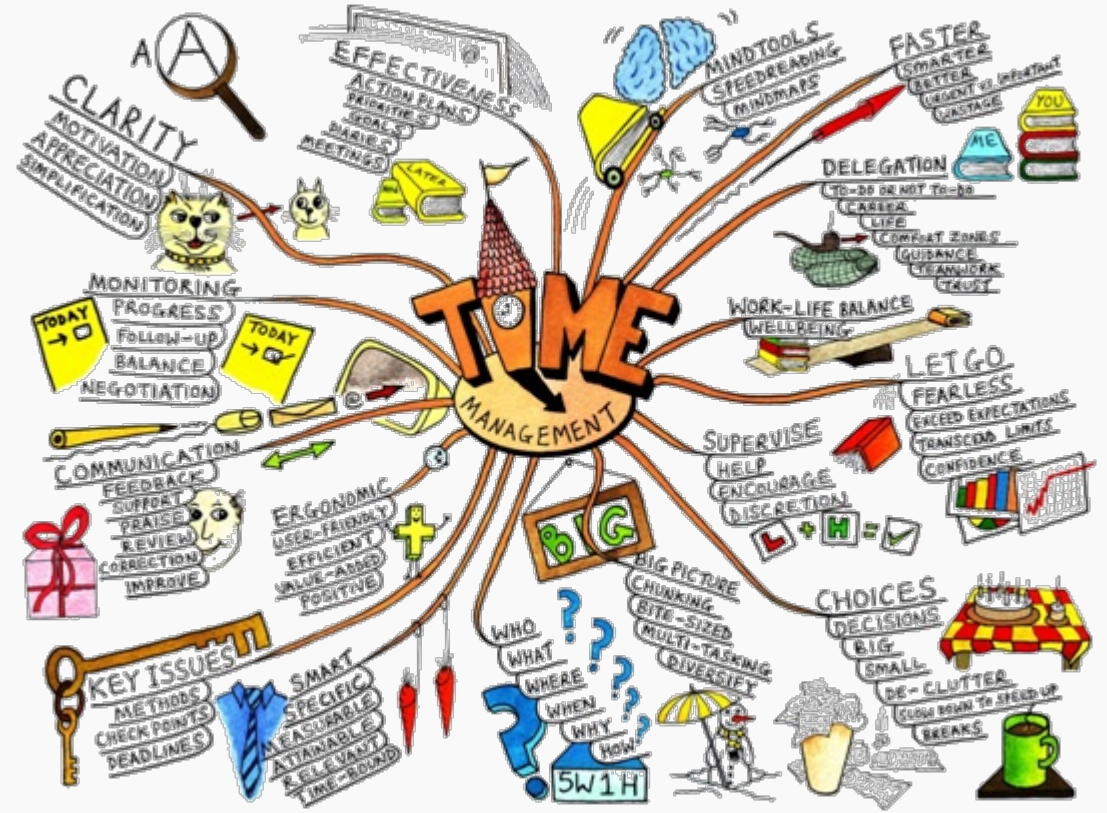
— George Lazarus

**A definition from Merriam-Webster.**

# Brainstorming

## Brainstorming

- Group problem solving
- Spontaneous contribution
- Finding a solution or a series of solutions



Ref: <https://3.bp.blogspot.com/-xWAOQ6L9t9A/UXuBojpSHtI/AAAAAAAAAFA/f7wz6w3x-gw/s1600/%E8%85%A6%E5%8A%9B%E6%BF%80%E9%9B%AA%E6%B3%95.jpg>

# Brainstorming – To be honest...

Before everything, you need to think about the project topic and what kind of problem you want to solve!





# Brainstorming – To be honest...

Usually, we just call team members to a restaurant or coffee, and have a serious discussion...



Photo credit: <https://www.chronicle.com/article/the-holy-grail-of-class-discussion/>

# Brainstorming – To be honest...

In fact, you (team leader) ask your team member, “Do you have any idea for the final project?”



Photo credit: <https://www.kindpng.com/imgv/TbmRTwh/medical-card-icon-doctor-group-discussion-icon-hd/>



Photo credit: <https://www.everypixel.com/image-18367140570027620099>

I am pretty sure that the answer is **NO**.

*Don't you think this discussion is totally useless?*



# Brainstorming – Discussion

**Brainstorming is just a kind of discussion ...**

So, let's talk about the DISCUSSION!

Discussion is used to:

- (1) Exchange opinions, ideas, and suggestions...
- (2) Make a decision...
- (3) Be time-efficient

## &lt;Brainstorming/&gt;

# Brainstorming – Preparation

- For a formal discussion, we therefore need to **search** lots of references, information, and related articles ...
- **Categorize** all information ...
- **Write or note** the insights of each
- **Summary** for each

Русский язык  
Хорошо  
Привет  
Лучше

日本語  
ありがとう  
東京都  
浅草駅

English  
hello  
WFH  
Talking

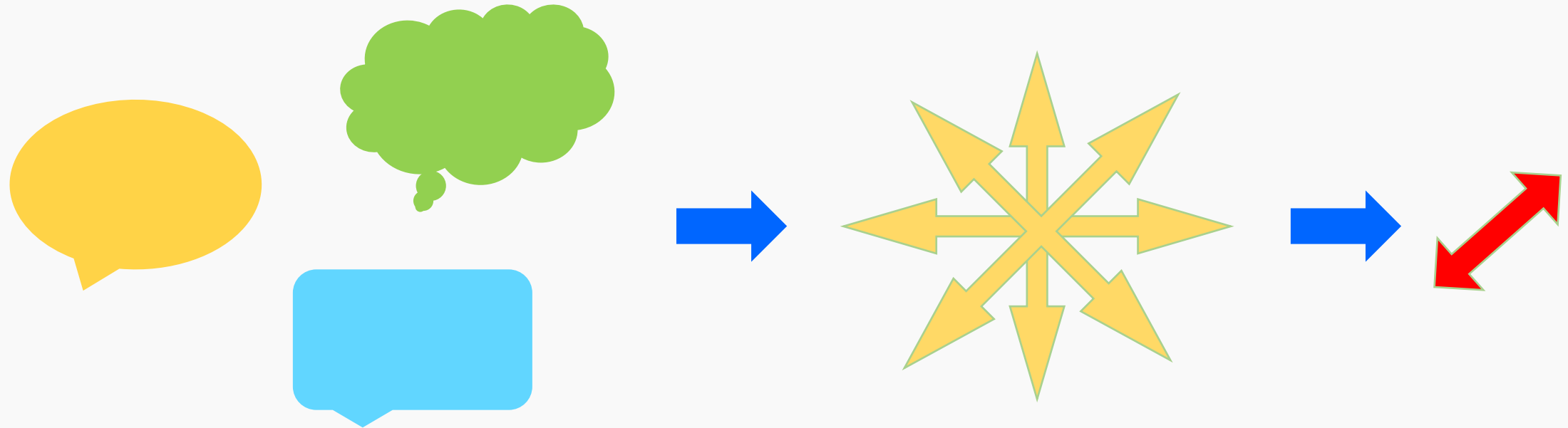
Español  
España  
Universidad  
Información

عربي  
شكرا  
أهلا بك  
جمل

<Brainstorming/>

# Brainstorming – Exchange Ideas & Narrow down

Second, how can we make a decision?



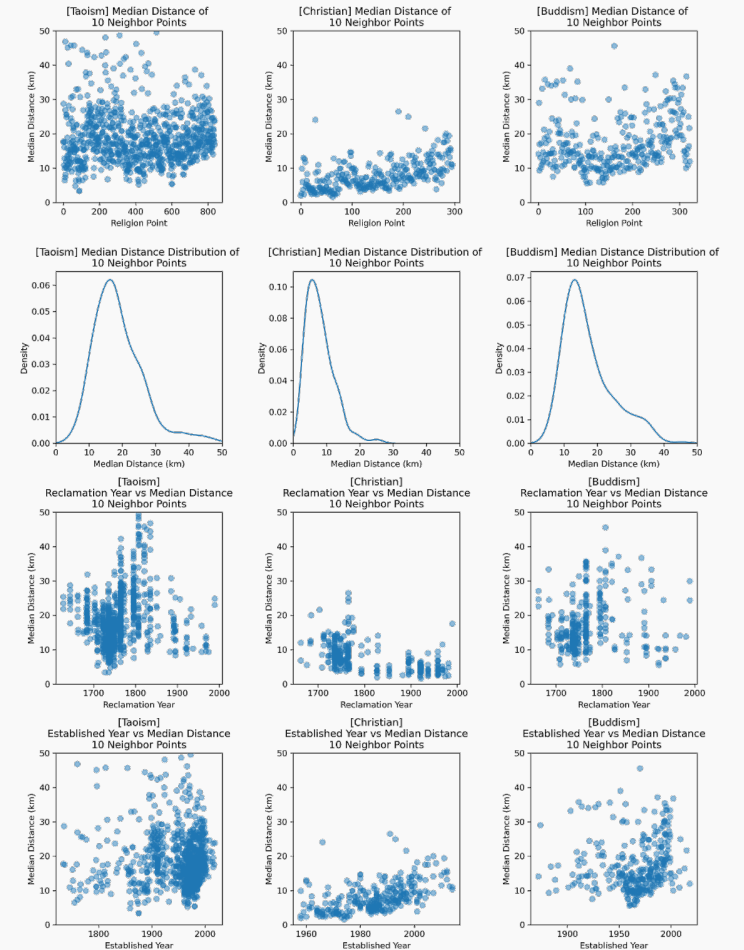
</Brainstorming/>

# Brainstorming – Pilot Study

Third, do something with your data?

In Data Science, we call this step as “**Data Explore**”, which is used to observe the distribution or characteristics of your dataset.

Next step, you might know which way is the best choice!



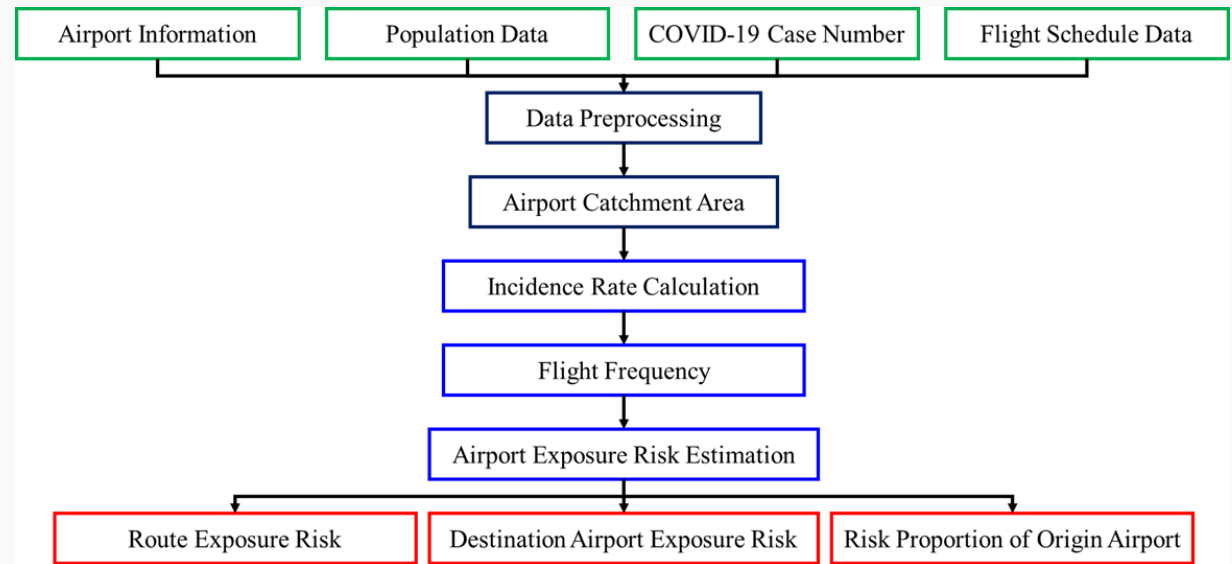
# Project Management

- Project Management, literally, it means that you need to figure out a way to manage your project.
- Speaking of management, it is not only push you to do something; more deeper, you need to control the process and schedule your time with team members.
- I therefore provide some interesting tools to help you control your project with team members.

# Project Management – Flow Chart

- The term, flow chart, represents that you need to visualize the step-by-step workflow of the project into a figure.

As shown in the figure, we categorized our works into several blocks, and used arrows to link each other orderly. Moreover, we may use different colors to highlight different part.





# Project Management – Gantt Chart

- Gantt Chart are always adopted for progress visualization and control tool.
- You can set a deadline for each step (according to your flow chart) and constantly check the progress on a regular basis.
- For some reasons, you may need to modify the deadline or content of certain steps.
- As a result, the extra time is required for you to adjust or reschedule the progress.

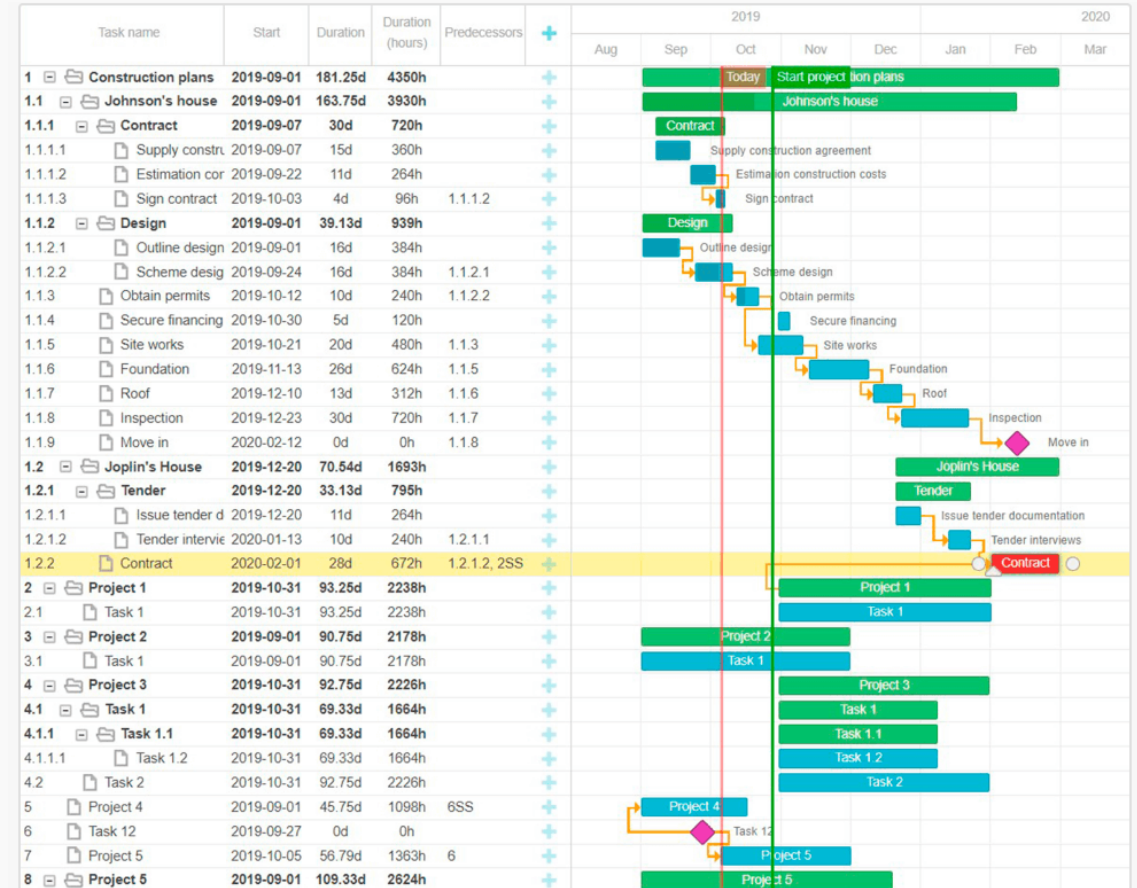
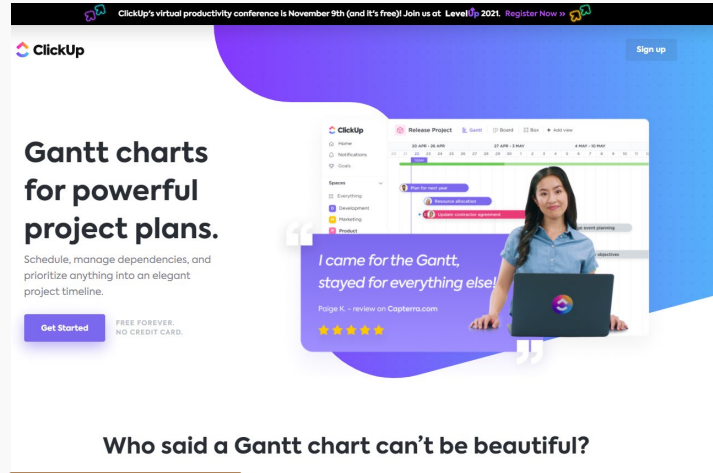


Photo credit: <https://dhtmlx.com/docs/products/dhtmlxGantt/>

# Project Management – Gantt Chart



ClickUp's virtual productivity conference is November 9th (and it's free)! Join us at **LevelUp 2021**. Register Now >>

**ClickUp** Sign up

### Gantt charts for powerful project plans.

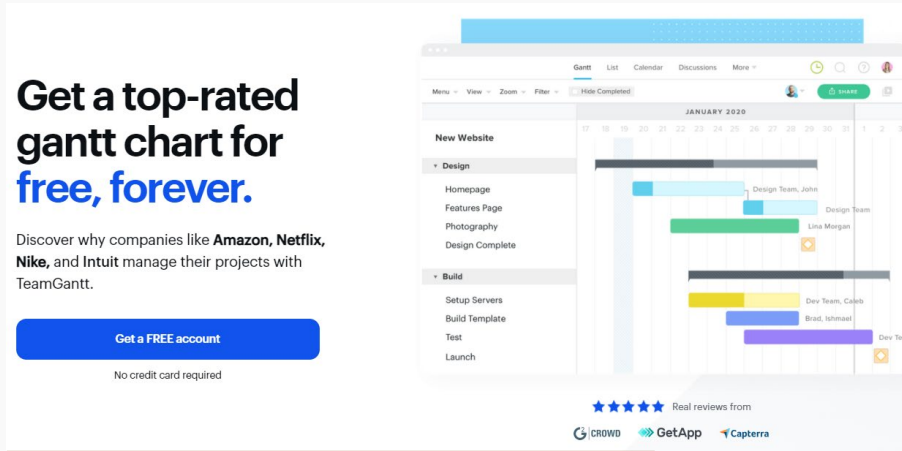
Schedule, manage dependencies, and prioritize anything into an elegant project timeline.

**Get Started** FREE FOREVER. NO CREDIT CARD.

*I came for the Gantt, stayed for everything else!*  
Prigo K. - review on Captemo.com

Who said a Gantt chart can't be beautiful?

[➔ Link](#)



### Get a top-rated gantt chart for free, forever.

Discover why companies like **Amazon, Netflix, Nike,** and Intuit manage their projects with TeamGantt.

**Get a FREE account**  
No credit card required

★★★★★ Real reviews from  
CROWD GetApp Capterra

<https://www.teamgantt.com/>

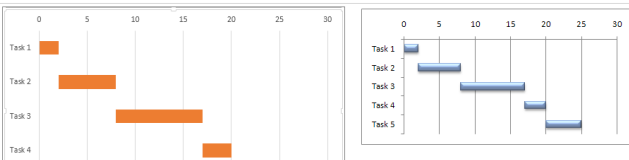
### Present your data in a Gantt chart in Excel

Excel for Microsoft 365, Excel for Microsoft 365 for Mac, Excel 2021, Excel 2021 for Mac, [More...](#)

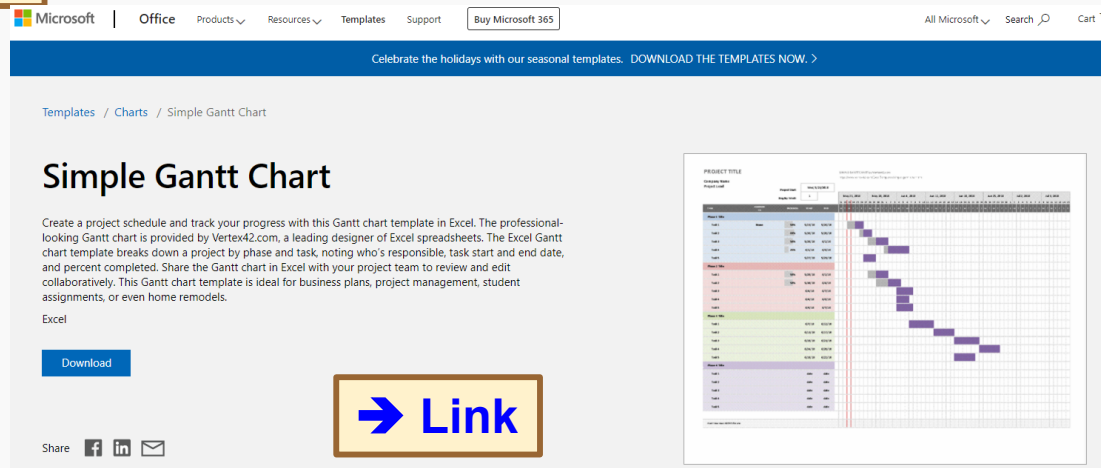
A Gantt chart helps you schedule your project tasks and then helps you track your progress.

**Windows** **MacOS**

Need to show status for a simple project schedule with a Gantt chart? Though Excel doesn't have a predefined Gantt chart type, you can create one using this free template: [Gantt project planner template for Excel](#)



## MS Excel



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Templates / Charts / Simple Gantt Chart

### Simple Gantt Chart

Create a project schedule and track your progress with this Gantt chart template in Excel. The professional-looking Gantt chart is provided by Vertex42.com, a leading designer of Excel spreadsheets. The Excel Gantt chart template breaks down a project by phase and task, noting who's responsible, task start and end date, and percent completed. Share the Gantt chart in Excel with your project team to review and edit collaboratively. This Gantt chart template is ideal for business plans, project management, student assignments, or even home remodels.

Excel

**Download**

Share [f](#) [in](#) [envelope](#)

[➔ Link](#)

You can find several free tools on the internet, or you can just draw by yourself!

# Story Telling

- We usually say someone has a good presentation skill, but how to qualitatively describe this?
- Maybe using the term “**presentation skill**” is the way to formal, so I just conduct another term, that is, “**story telling**”.
- When you are telling a story, you need to have a background, a protagonist, and a few supporting roles.
- The most important thing is that you have to describe the relationship between these people logically, so that the story can be connected.
- We call it the **context!**

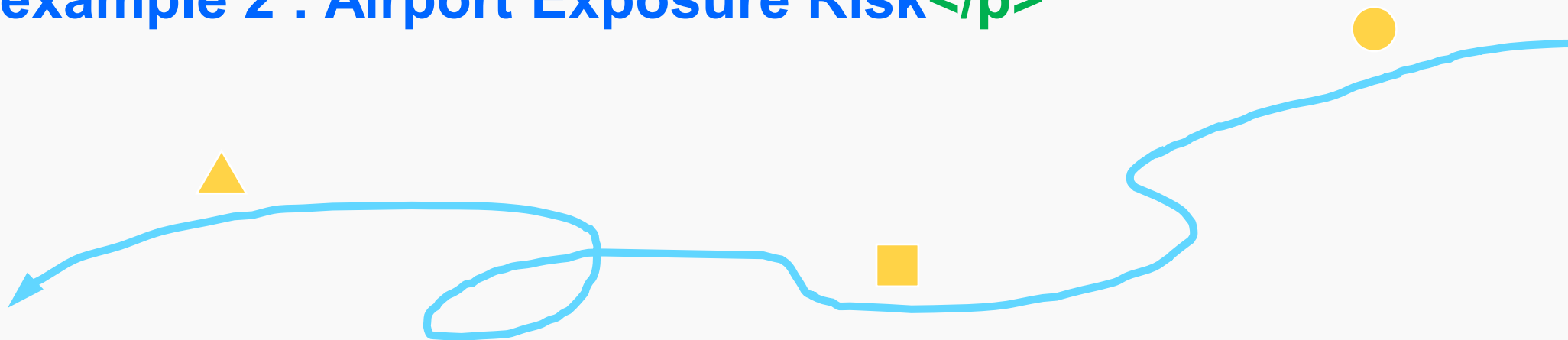
<Story/>

# Story Telling

Here I will show you two examples ...

<p>example 1 : my Ph.D. Dissertation</p>

<p>example 2 : Airport Exposure Risk</p>



# Presentation

Speaking of presentations, making a beautiful deck is crucial to taking your work hard to the next level.

## <Hint>

- **Clearness** → word count, font size, font family, font weight, ...
- **Contextual content** → Continuity, logic, ...
- **Visualization** → chart, icon, figure, ...

## </Hint>

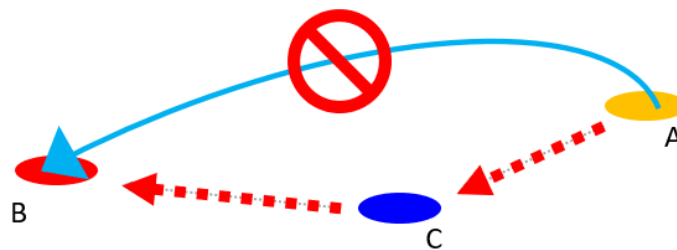
# Presentation – Clearness



## The importance of network indicators on epidemic transmission

- Many studies adopted social distance to measure epidemic transmissions, such as degree centrality, PageRank, and betweenness, closeness.

*Marcelino and Kaiser (2012) simulated the flight cancellation on the particular airports to reduce the contagion risk.*



**Betweenness centrality** more efficiently performed the **transferring-activity** differences after intervention  
Two types of differences are detected: provinces with **increasing and decreasing** transferring activities.

We further illustrated the **relationship between the number of infected cases and contagion-related parameters in the real situation.**

The **transferring activities** show a **positive** correlation to the **infection risk.**



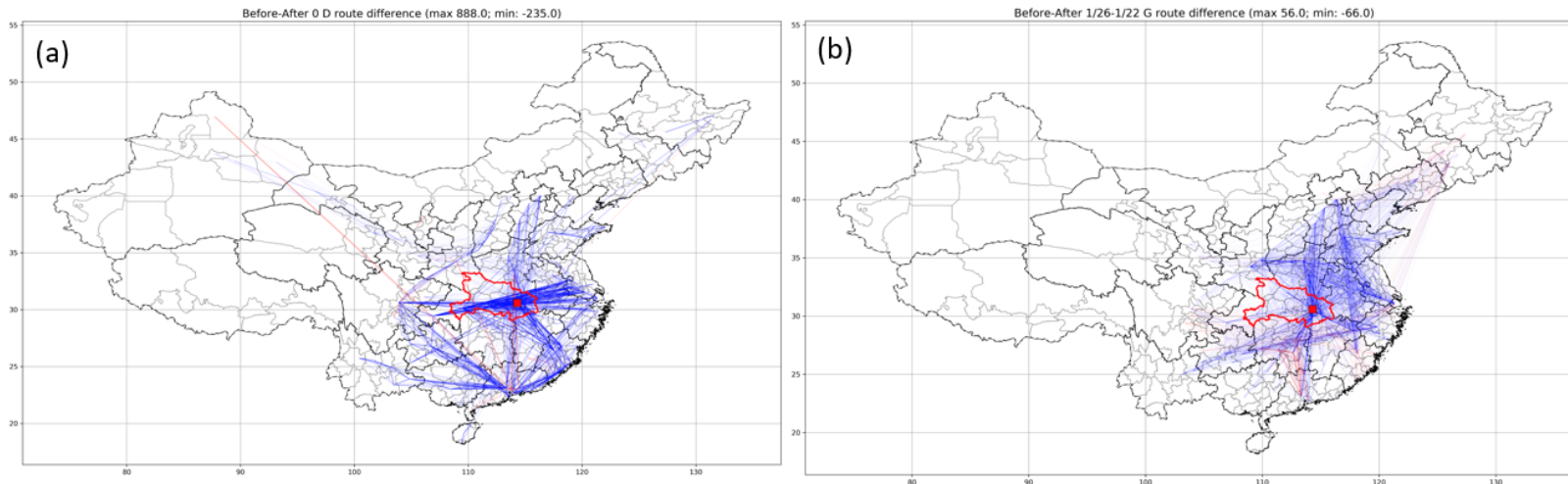
# Presentation – Clearness



## Differences of rail transport before/after Wuhan/Hubei city lockdowns

- The changes of intercity rail itineraries

— Increasing OD  
— decreasing OD



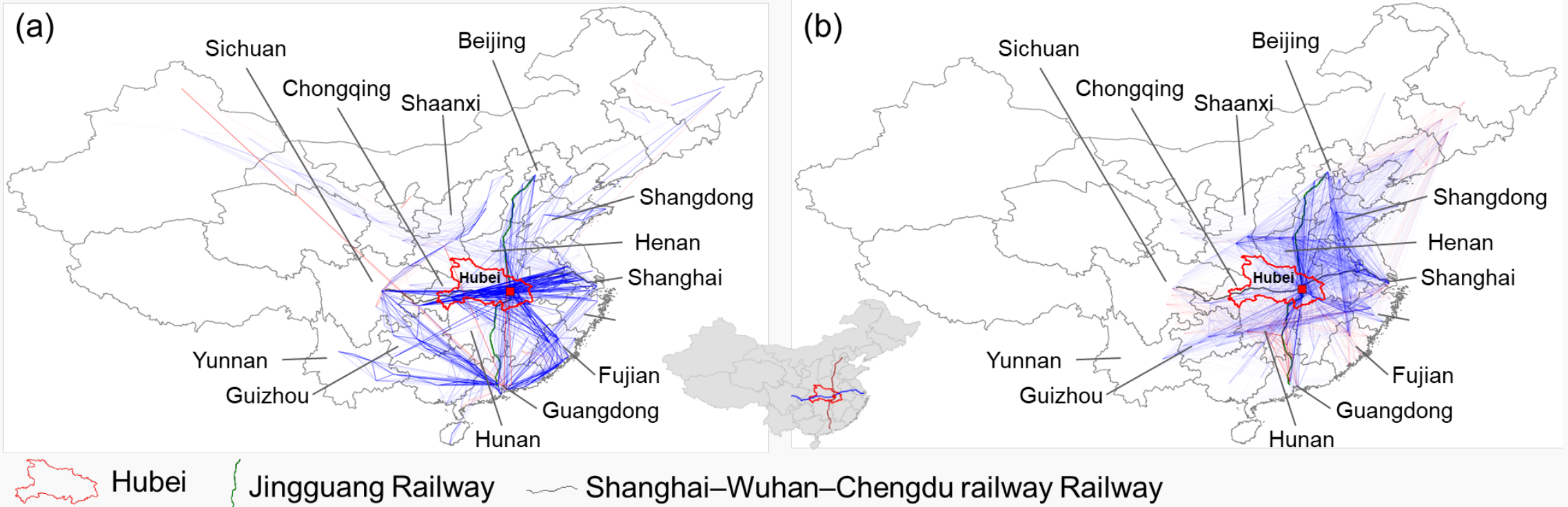
The changes of city OD itinerary after a series of city lockdown. City OD itinerary: (a) D-series High-Speed Train; (b) G-series High-Speed Train.

2020/3/27

CCH

22

# Presentation – Clearness

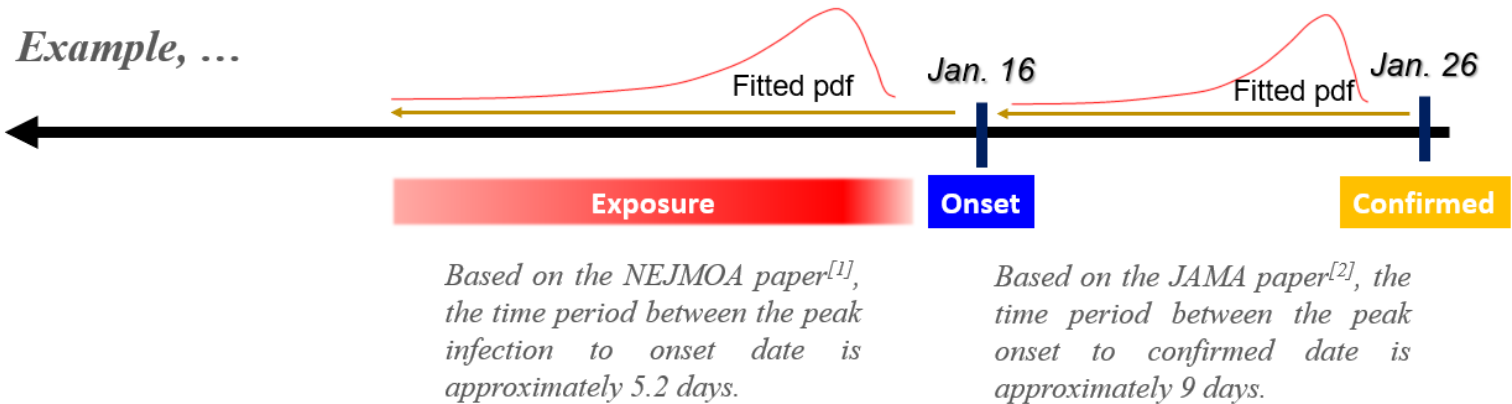


# Presentation – Contextual



## Data :: COVID-19 cases

- The probability estimation has two parts:
- Incubation estimation and hospitalization estimation.

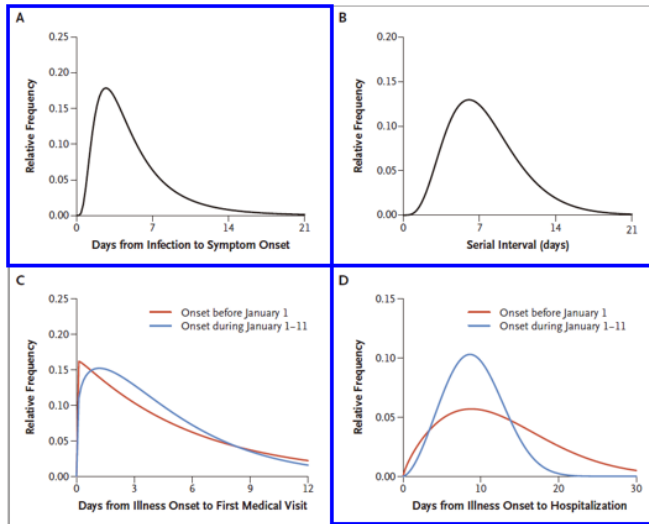


[1] Wu, Z., & McGoogan, J. M. (2020). Characteristics of and important lessons from the coronavirus disease 2019 (COVID-19) outbreak in China: summary of a report of 72 314 cases from the Chinese Center for Disease Control and Prevention. [Jama](#).

# Presentation – Contextual

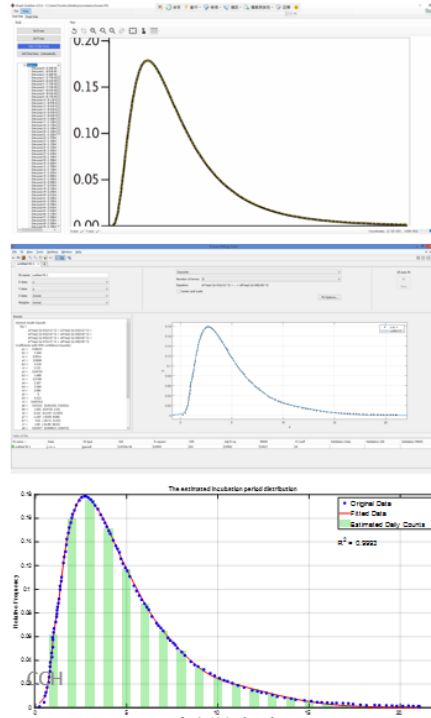


## Data :: COVID-19 cases



**Figure 2. Key Time-to-Event Distributions.**  
 The estimated incubation period distribution (i.e., the time from infection to illness onset) is shown in Panel A. The estimated serial interval distribution (i.e., the time from illness onset in successive cases in a transmission chain) is shown in Panel B. The estimated distributions of times from illness onset to first medical visit are shown in Panel C. The estimated distributions of times from illness onset to hospital admission are shown in Panel D.

2020/3/27



*Image to digital by graph grabber*

*Curve fitting by MATLAB*

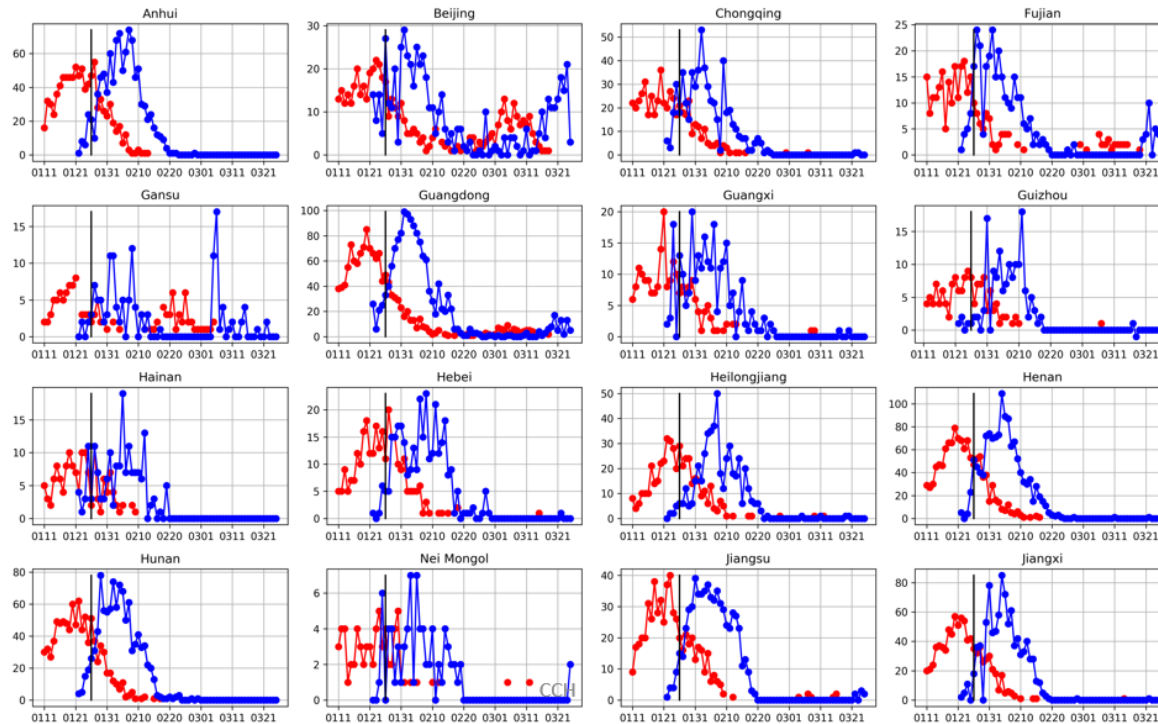
*Case distribution estimation*

13

# Presentation – Contextual



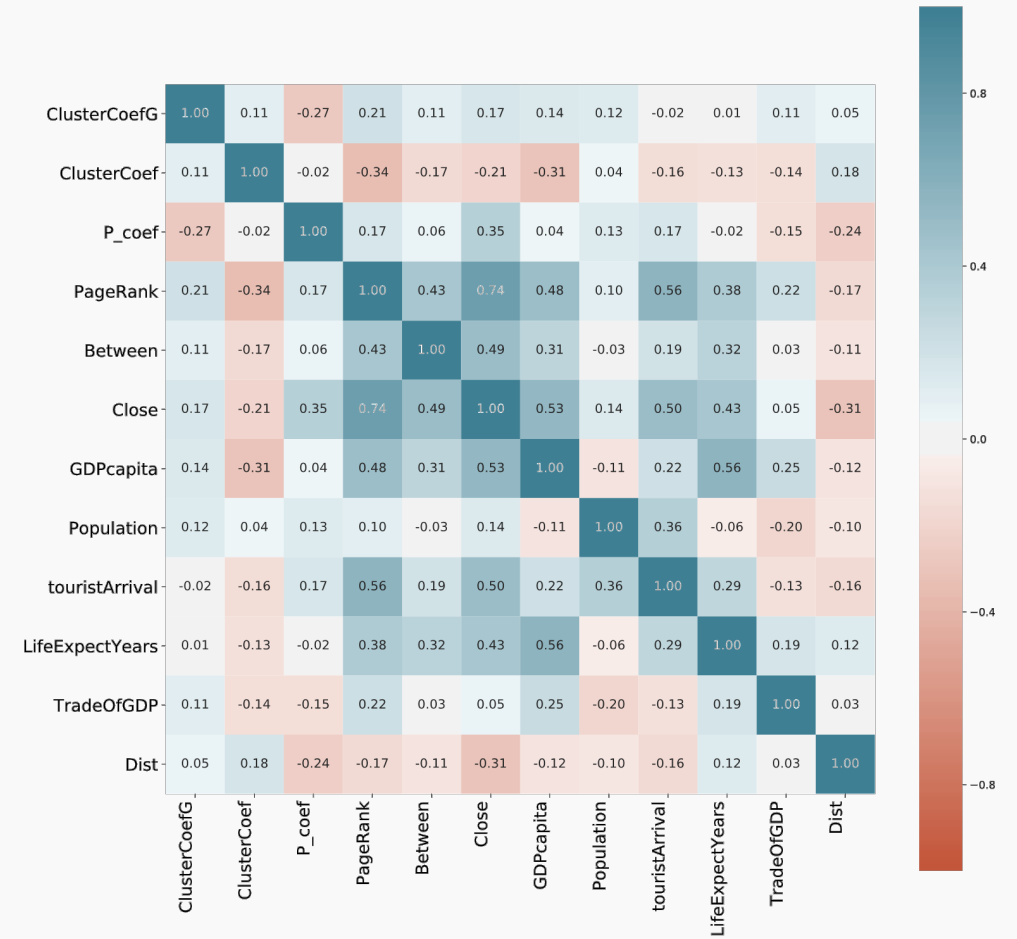
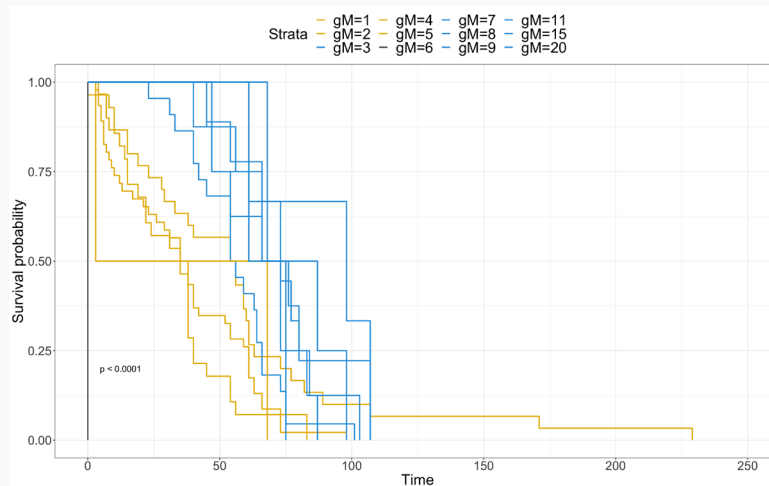
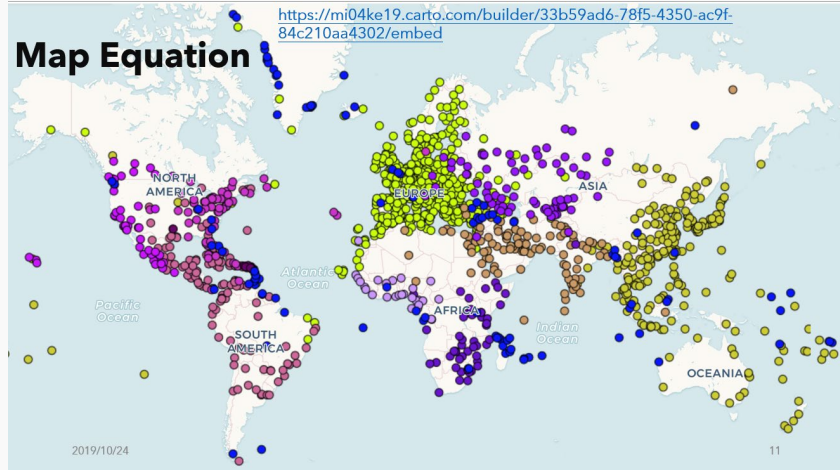
Data :: Infected date est.



2020/3/27

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# Presentation – Visualization





# Progress Report

進度報告大約有三次:

## → 第一次報告

1. 主題發想
2. 為甚麼要做這個?
3. 預計怎麼做?
4. 預期成果?

## → 第二次報告

## → 第三次報告

4人一組 → 5組 → 進度報告每組6分鐘

### <Syllabus/>

## 課程大綱

W1 0922 Introduction	W11 1201 File Processing
W2 0929 Review: C Variables & Loop	W12 1208 String I*
W3 1006 Review: C Condition & Array	W13 1215 String II*
W4 1013 Function - Basic	W14 1222 Dynamic memory allocation
W5 1020 Function - Advance	W15 1229 Struct and Final Project Preparation*
W6 1027 Pointer I	W16 0105 Final Project Presentation
W7 1103 Pointer II	W17 0112 Holiday
W8 1110 Pointer III	
W9 1117 Mid-term Exam	
W10 1124 Final Project Introduction & Brainstorming	

有標註\*為進度報告的週次

2021/09/22

</Syllabus>

# Progress Report

進度報告大約有三次:

→ 第一次報告

→ 第二次報告

1. 進度表
2. 已完成的部分
3. 尚未完成的部分
4. 修正或是遇到困難的地方

→ 第三次報告

4人一組 → 5組 → 進度報告每組6分鐘

## <Syllabus/>

### 課程大綱

- |   |  |
|---|--|
| W1 0922 Introduction                                | W11 1201 File Processing                       |
| W2 0929 Review: C Variables & Loop                  | W12 1208 String I*                             |
| W3 1006 Review: C Condition & Array                 | W13 1215 String II*                            |
| W4 1013 Function - Basic                            | W14 1222 Dynamic memory allocation             |
| W5 1020 Function - Advance                          | W15 1229 Struct and Final Project Preparation* |
| W6 1027 Pointer I                                   | W16 0105 Final Project Presentation            |
| W7 1103 Pointer II                                  | W17 0112 Holiday                               |
| W8 1110 Pointer III                                 |  |
| W9 1117 Mid-term Exam                               |  |
| W10 1124 Final Project Introduction & Brainstorming |  |

有標註\*為進度報告的週次

2021/09/22

</Syllabus>

&lt;Prog Rep/&gt;

# Progress Report

進度報告大約有三次:

→ 第一次報告

→ 第二次報告

→ 第三次報告

1. 進度表
2. 完成事項
3. 初步成果呈現
4. 尚未完成的地方

4人一組 → 5組 → 進度報告每組6分鐘

&lt;Syllabus/&gt;

14

## 課程大綱

W1 0922 Introduction

W2 0929 Review: C Variables & Loop

W3 1006 Review: C Condition & Array

W4 1013 **Function - Basic**

W5 1020 **Function - Advance**

W6 1027 **Pointer I**

W7 1103 **Pointer II**

W8 1110 **Pointer III**

W9 1117 **Mid-term Exam**

W10 1124 **Final Project Introduction & Brainstorming**

W11 1201 **File Processing**

W12 1208 **String I\***

W13 1215 **String II\***

W14 1222 **Dynamic memory allocation**

W15 1229 **Struct and Final Project Preparation\***

W16 0105 **Final Project Presentation**

W17 0112 **Holiday**

有標註\*為進度報告的週次

2021/09/22

&lt;/Syllabus&gt;

&lt;/Prog Rep&gt;

# Final Presentation

期末報告每組**10**分鐘，必須包含的內容有：

- (1) 主題發想
- (2) 動機與目的
- (3) 構想與流程
- (4) 結果呈現 (live demo)
- (5) 程式碼展演 (code review)
- (6) 分工表

## 成績計算方式

- a) 主題製作完整性: 20%
  - b) 難度: 30%
  - c) 報告呈現: 20%
  - d) 互評成績: 30%
- [小組: 10% ; 組間: 20%]

# Final Presentation

各組在教室一區設立一攤位demo自己的東西，給其他人玩玩看或是使用一下!

每個人都要去每一組攤位進行評分，作為小組的組間成績!

同時獲得第一名的小組，另外可以得到獎賞 (構思中...)。

# References

**Chan, C. H., & Wen, T. H.** (2021). Revisiting the Effects of High-Speed Railway Transfers in the Early COVID-19 Cross-Province Transmission in Mainland China. *International Journal of Environmental Research and Public Health*, 18(12), 6394.

[Q1 76.42% 42/176; IF: 3.390] [<https://doi.org/10.3390/ijerph18126394>]

**Chan, C. H., Wu, R. G., & Shao, Y. Y.** (2021). The effects of ultrasonic treatment on physicochemical properties and in vitro digestibility of semigelatinized high amylose maize starch. *Food Hydrocolloids*, 119, 106831.

[Q1 96.85% 5/143; IF: 9.147] [<https://doi.org/10.1016/j.foodhyd.2021.106831>]

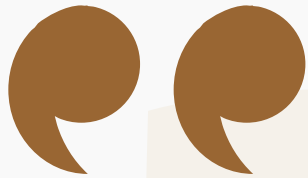
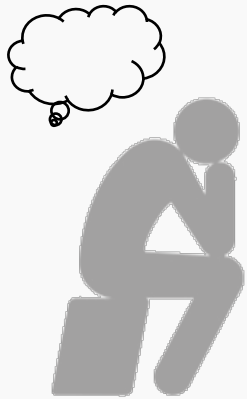
**Chan, C. H., Chu, T. H., Wu, J. H. P., & Wen, T. H.** (2021). Spatially Characterizing Major Airline Alliances: A Network Analysis. *ISPRS International Journal of Geo-Information*, 10(1), 37.

[Q2 55.00% 23/50; IF: 2.899] [<https://doi.org/10.3390/ijgi10010037>]



# Find your team members

If you want to have some fresh or even unprecedented ideas, and then I will give you a suggestion ...



I hope you can find someone who is not from the same department as you!

