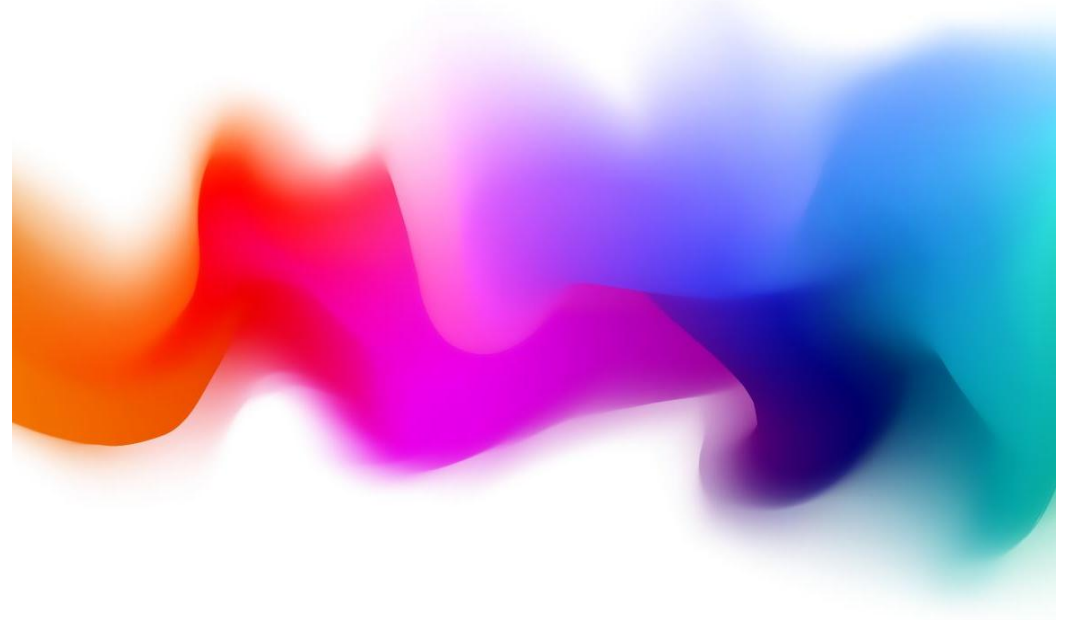

How Can Various Online Resources be Utilised to Teach the 'Module on Artificial Intelligence for Junior Secondary Level' designed by the Education Bureau?

如何利用各種網上資源教授教育局所製訂的「初中人工智能課程單元」？

13 December 2024 (10:15 – 10:45)

AI in Education Theatre



Pui Tak Canossian College
嘉諾撒培德書院

Pui Tak Canossian College Booth – N34

- Canossian Daughters of Charity
- Girls' School
- 200 Peel Rise, Aberdeen, Hong Kong

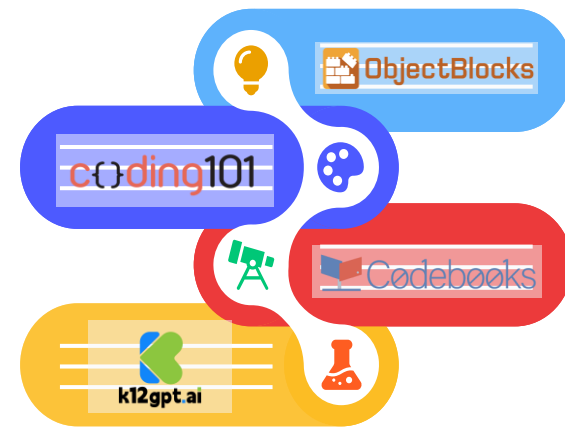
Speaker:

Mr Ho Cheuk Pun John 何卓彬老師

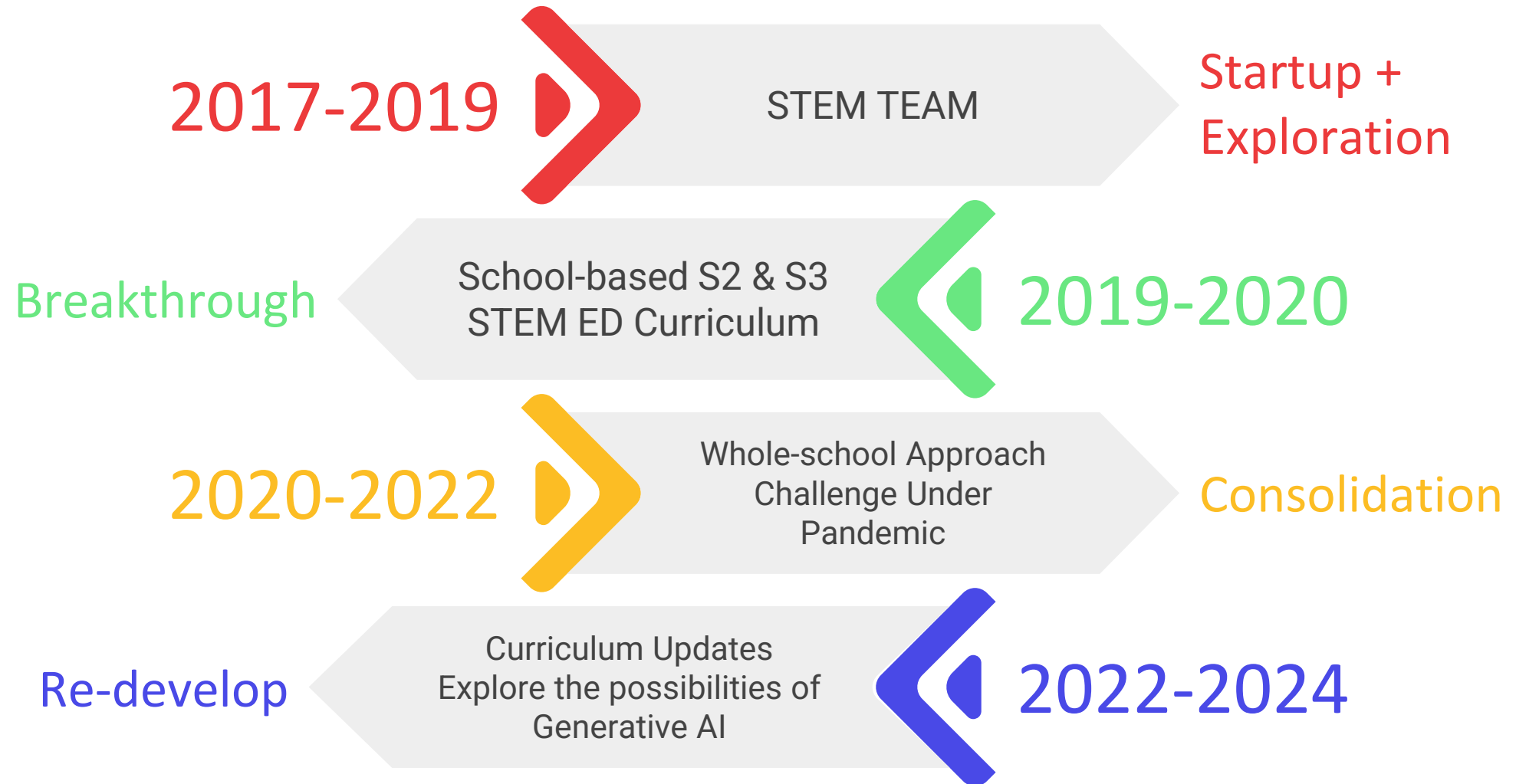
- Vice Principal, IT & STEM Coordinator

Mr Hui Ka Ho Jimmy

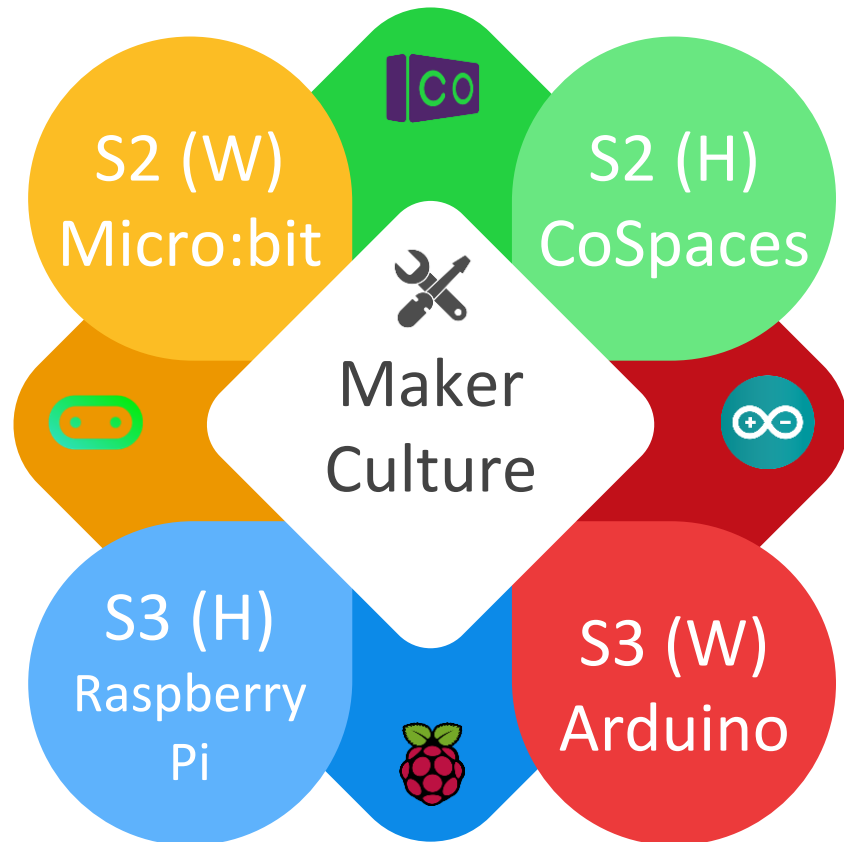
- Co-Founder of Coding101 (Booth – M31)



School-based STEAM Development (Maker-center)



S.2 & 3 Curriculum Overview



Micro:bit

Simple Concepts on
Coding & Making

CoSpaces

Game Design
Experience VR & AR

Arduino

I-P-S (Cloud)-O + Internet of Things
Train to be a Maker

Raspberry Pi

Computer + Python
A center to connect everything



ObjectBlocks



Codebooks

A.I.

- Theory + Experience
- Computer Vision (Extract Features)
- Natural Language Processing
- Generative AI

Information Literacy

Use of AI in Search
Engine and Social
Media and its Problem

AI Biased

EDUCATION BUREAU CIRCULAR MEMORANDUM NO. 109 /2023

From : Secretary for Education

To : Heads of Government, Aided (including
Special Schools), Caput and Direct
Subsidy Scheme (DSS) Schools

Ref. : EDB/CSD/TE/08-40/01

Date : 19 June 2023

**Curriculum Modules on Innovation and Technology Education -
“Enriched Module on Coding Education for Upper Primary Level” and
“Module on Artificial Intelligence for Junior Secondary Level”**

Summary

The purpose of this circular memorandum is to announce the two captioned modules for adoption by schools to further promote innovation and technology (I&T) education.

Module on Artificial Intelligence for Junior Secondary Level

Learning and Teaching Resources

Description		English Version	Chinese Version
Module on Artificial Intelligence for Junior Secondary Level (Booklet 1) (Last update on 31.07.2023)	Booklet 1, Powerpoint, Worksheet	Details	詳細資料
Module on Artificial Intelligence for Junior Secondary Level (Booklet 2) (Last update on 31.07.2023)	Booklet 2, Powerpoint, Worksheet	Details	詳細資料
Module on Artificial Intelligence for Junior Secondary Level (Booklet 3) (Last update on 31.07.2023)	Booklet 3, Powerpoint, Worksheet	Details	詳細資料

Curriculum Analysis

1. Introduction to AI, AI Basics(I) & (II)
2. AI Ethical Issues
3. Computer Vision (I) & (II) & (III)
4. Computer Speech and Language (I) & (II)
5. AI and Computer Simulations (I), (II)
6. AI in Robotic Reasoning (I) & (II) & (III)
7. AI and Future of Work (I) & (II)
8. Societal Impact of AI (I) & (II)
9. Group Project Design, Development and Presentation (I) & (II)

Booklet 1	<p>7 lessons; 35 minutes each</p> <ul style="list-style-type: none">• Introduction to AI• AI Basics (I)• AI Ethical Principles• Computer Vision (I)• Computer Speech and Language (I)• AI and Computer Simulation (I)• AI in Robotic Reasoning (I)
Booklet 2	<p>8 lessons; 35 minutes each</p> <ul style="list-style-type: none">• AI Basics (II)• AI Ethical Issues• Computer Vision (II)• Computer Speech and Language (II)• AI in Robotic Reasoning (II)• AI and Future of Work (I)• Societal Impact of AI (I)• Group Project Design, Development and Presentations (I)
Booklet 3	<p>6 lessons; 35 minutes each</p> <ul style="list-style-type: none">• Computer Vision (III)• AI and Computer Simulation (II)• AI in Robotic Reasoning (III)• AI and Future of Work (II)• Societal Impact of AI (II)• Group Project Design, Development and Presentations (II)

Curriculum Analysis

1. Introduction to AI, AI Basics(I) & (II)

- *Machine Learning versus Computer Programming*
 - *AI in Robotic Reasoning (Rule-based vs Knowledge-based)*
- *Google Platforms, Colab, Edge Impulse*

2. Computer Vision (I) & (II) & (III)

- *How do computers “see” things? Ideas of CNN; Features Extraction*
 - *AI and Computer Simulation (Simulator & Generative AI)*
- *Google Platforms, Colab, Donkey Car*

3. Computer Speech and Language (I) & (II)

- *Natural Language Processing (NLP)*
- *ChatGPT (Generative Pre-trained Transformer)*
- *Google Colab, k12GPT.ai*

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Concept Mapping

Simplified Key elements

1. Introduction to AI, AI Basics(I) & (II)

- *Machine Learning versus Computer Programming*
 - *AI in Robotic Reasoning (Rule-based vs Knowledge-based)*
- *Google Platforms, Colab, Edge Impulse*

2. Computer Vision (I) & (II) & (III)

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3. Computer Speech and Language (I) & (II)

- *Natural Language Processing (NLP)*
- *ChatGPT (Generative Pre-trained Transformer)*
- *Google Colab, k12GPT.ai*

Important AI & Related Concepts

Machine Learning

Supervised Learning

Edge AI / On-device AI

Extract Image Features and Convolution
Neural Network

TensorFlow Lite

GANs (Generative Adversarial Network)

Natural Language Processing (NLP)

Prompt Engineering

Teaching A.I. in a maker culture-centred curriculum



HANDS-ON PRACTICE



EXPERIENCE TO LEARN

1. Introduction to A.I., AI Basics

What is machine learning? (Bk 1, P.14; Bk 2, P.10,11)

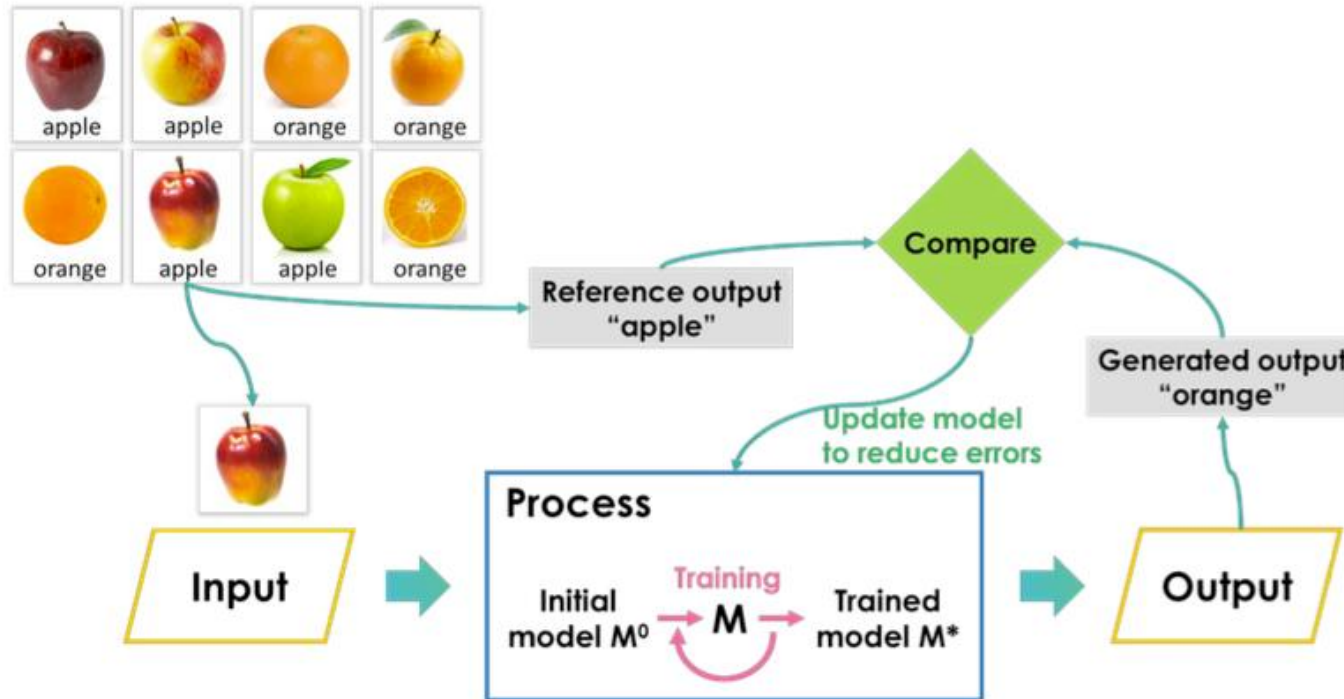


Figure 1.6: Process of machine learning

Input: Data + Labels

Building neural network; Weights of neurons



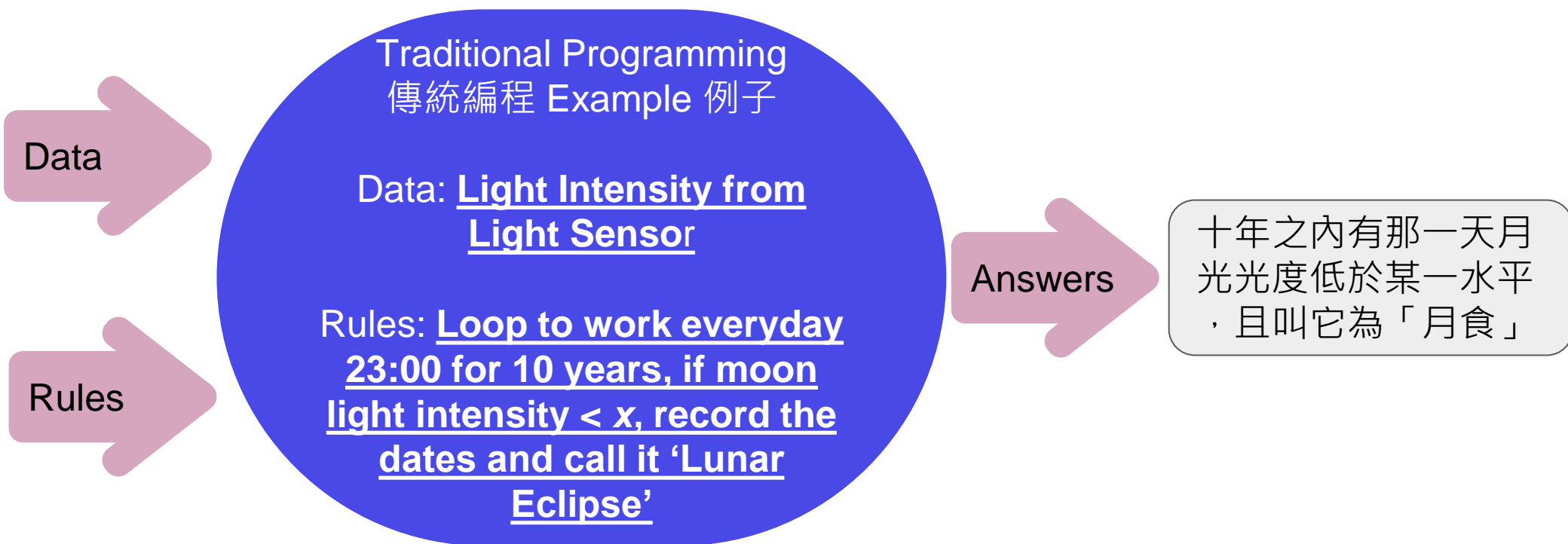
Figure 1.2: Model testing in an AI system

Further input: Data

Output: Inference by using trained module

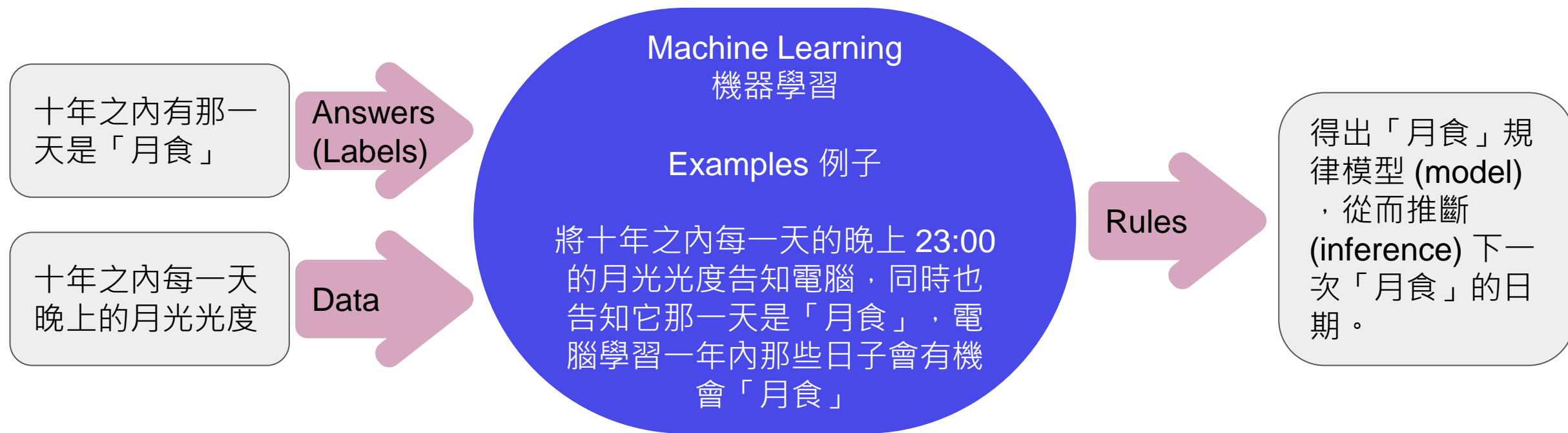
What Programming do? 編程可做到什麼？

電腦/Raspberry Pi/Objectblocks/Micro:bit 會根據人們的「編程/編碼/Codes」所定立的「規則/Rules」和「資料/Data」行事，從而得出「答案/Answers」。



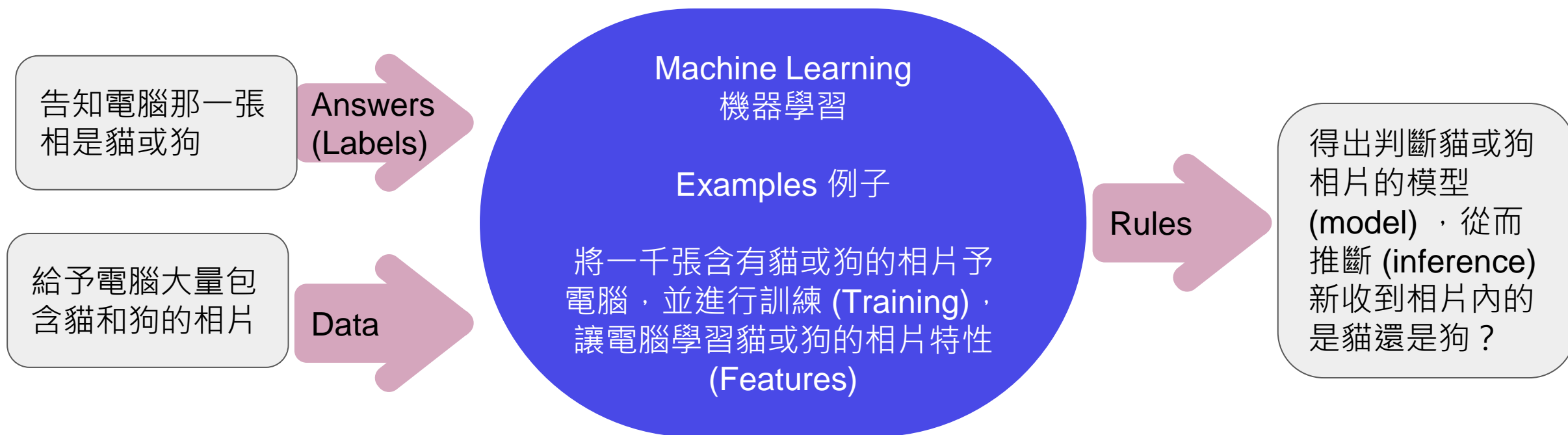
What is Machine Learning? 什麼是機器學習？

將數據(data)和答案(answers/labels)告知電腦去學習它們的特性(features)，從而得出一個模型(model) - 即其規則(rules)。我們可利用這個模型，再結予它數據，讓它去推斷(inference)其答案。



What is Machine Learning? 什麼是機器學習？

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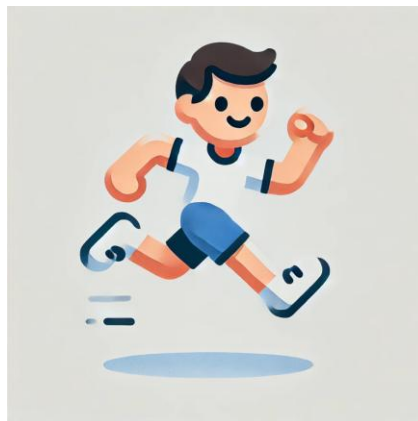




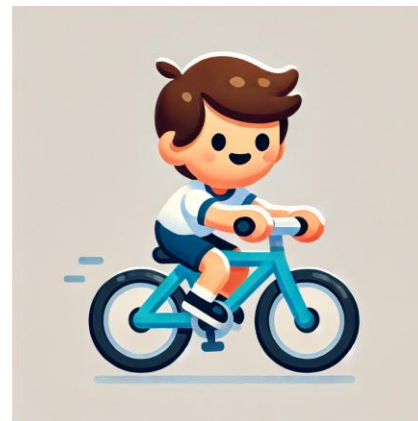
Too difficult to code in traditional programming



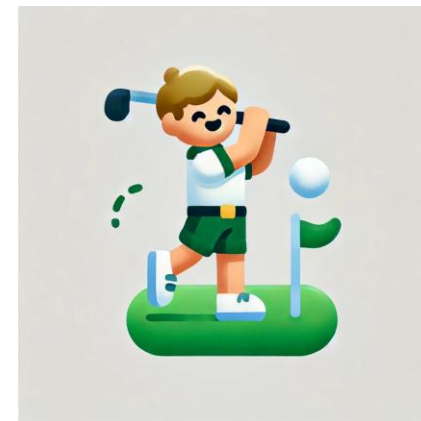
```
if(speed<4){  
    status=WALKING;  
}
```



```
if(speed<4){  
    status=WALKING;  
} else {  
    status=RUNNING;  
}
```



```
if(speed<4){  
    status=WALKING;  
} else if(speed<12){  
    status=RUNNING;  
} else {  
    status=BIKING;  
}
```



// Oh crap

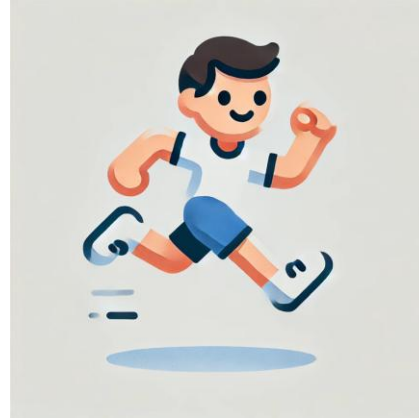


Too difficult to code in traditional programming



```
01010101010100101
10100101010100101
11010100101010010
10100101010100101
00101010
```

Label =
WALKING



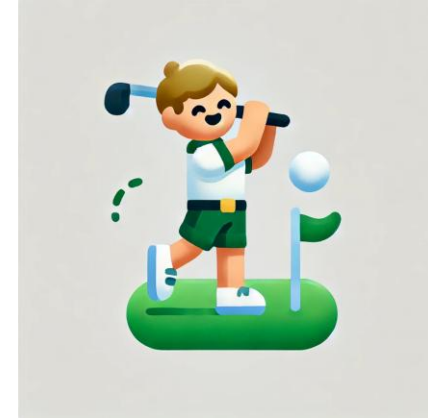
```
1010101010010101
0101010101001001
0001010011111010
1011111010100100
11101011
```

Label =
RUNNING



```
1001010011111010
0111101010111010
111010101011101
101011111110001
11010101
```

Label =
BIKING



```
111111111010011
010011110101111
010101011101010
1011110101010101
00111110
```

Label =
GOLFING

Machine Learning Demo

1st Session: 10' 50" - 13'00"

2nd Session: 18' 50" - 19'30"





Gesture Detection



Edge-impulse & Demonstration

Model

Model version: ?

Quantized (int8)

Last training performance (validation set)



ACCURACY
87.8%



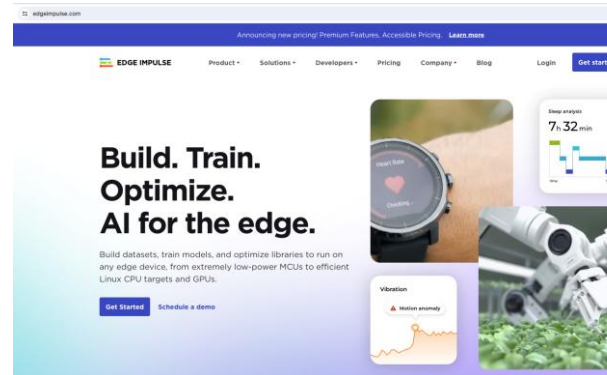
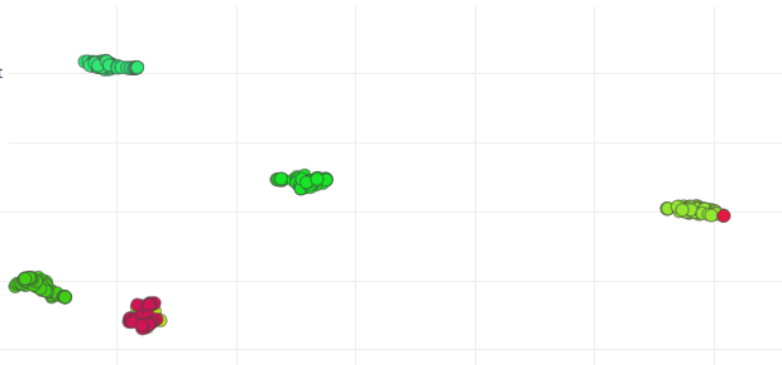
LOSS
0.36

Confusion matrix (validation set)

	CIRCLE	FLIP	FRONTBACK	LEFTRIGHT	UPDOWN
CIRCLE	28.6%	0%	71.4%	0%	0%
FLIP	0%	100%	0%	0%	0%
FRONTBACK	0%	0%	100%	0%	0%
LEFTRIGHT	0%	0%	0%	100%	0%
UPDOWN	0%	0%	0%	0%	100%
F1 SCORE	0.44	1.00	0.78	1.00	1.00

Data explorer (full training set) ?

- Circle - correct
- Flip - correct
- FrontBack - correct
- LeftRight - correct
- UpDown - correct
- Circle - incorrect
- Flip - incorrect



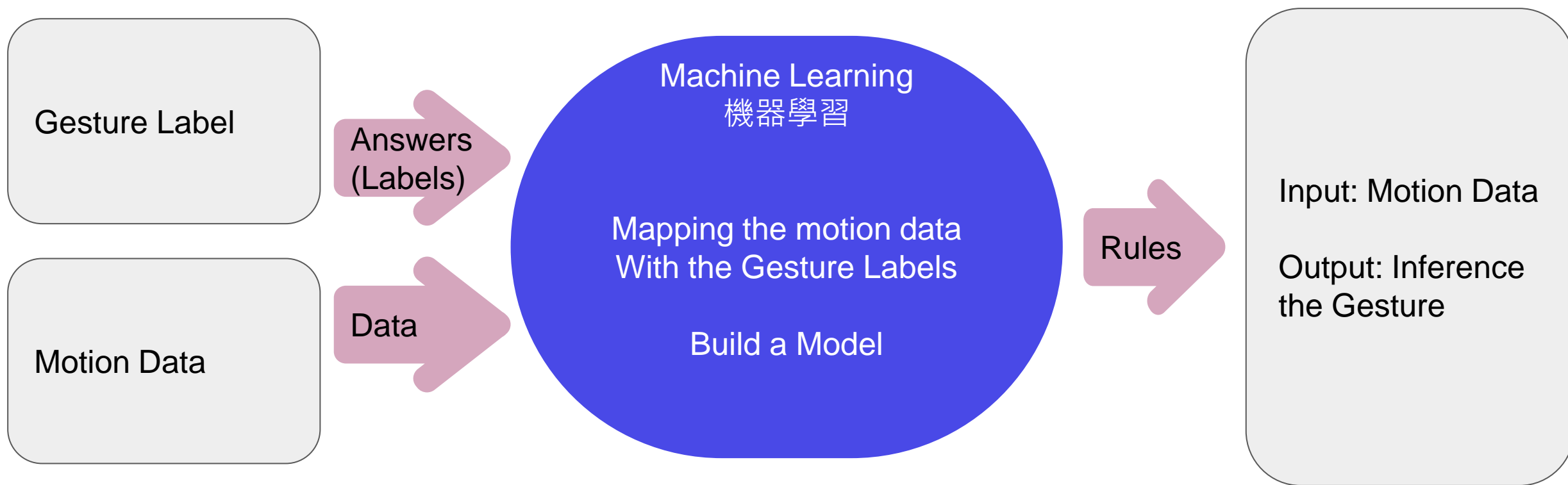
Arduino Tiny Machine Learning Kit Arduino Nano 33 BLE

[Home](#) > [Arduino Tiny Machine Learning Kit](#)



Can you think of other possibilities?

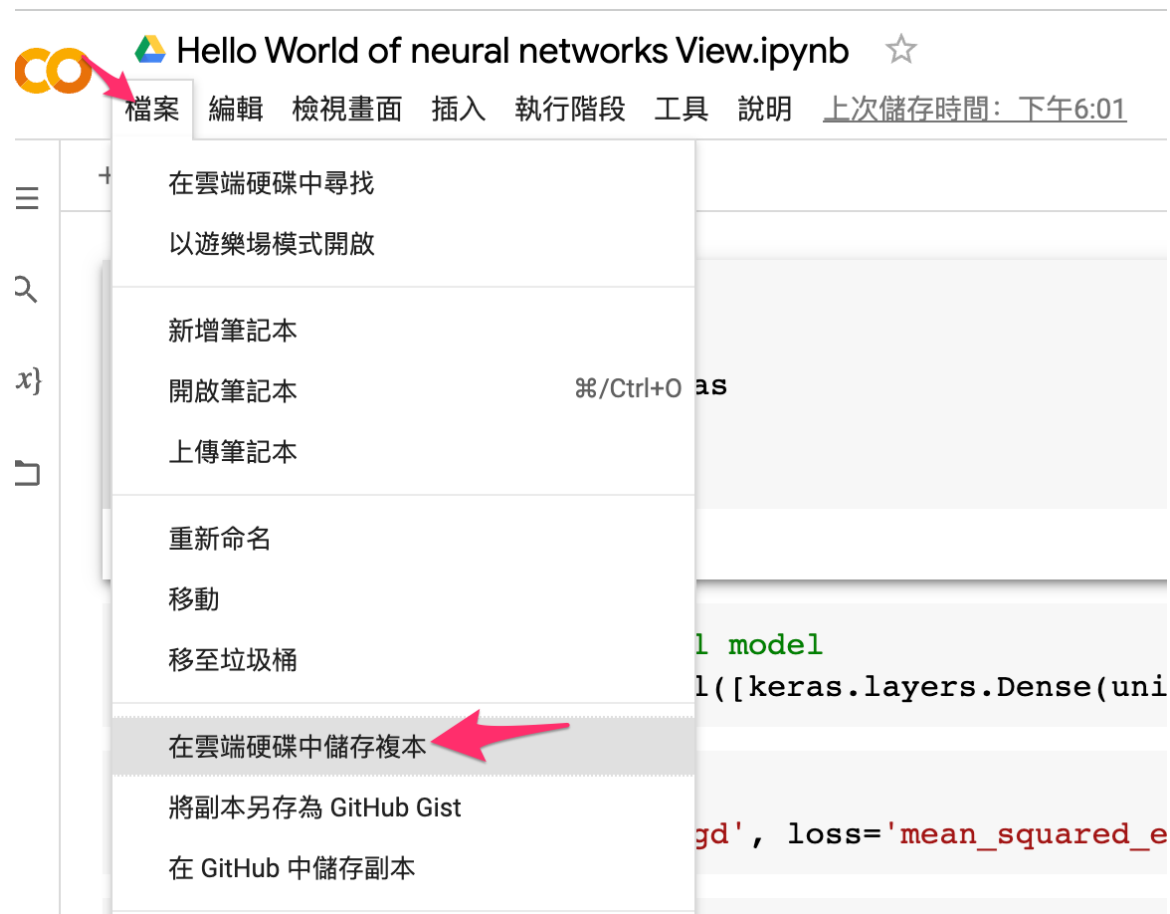
將數據(data)和答案(answers/labels)告知電腦去學習它們的特性(features)，從而得出一個模型(model) - 即其規則(rules)。我們可利用這個模型，再結予它數據，讓它去推斷(inference)其答案。



Hello World of Neural Network



Make a copy of the following Notebook:



利用數據去推斷 x 和 y 的關係

如果你已推斷得到原來 x 和 y 的關係 ($y = 2x - 1$)，你已做了一次「機器學習」的練習。讓我們試一試，電腦如何透過機器學習的編程來推斷 x 和 y 的關係：

我們將會透過 Google Colab 這平台開啟一個 Python 檔案，內裡有數段 Python Code，現在我們先了解一下：

```
import tensorflow as tf
import numpy as np
from tensorflow import keras

print(tf.__version__)
```

2.11.0

我們首先輸入一個叫 'tensorflow' 的模組，它是由 Google 研發專門處理 Machine Learning 的編程方案

將數據告知電腦：

```
✓ 0 秒 ▶ # Declare model inputs and outputs for training  
xs = np.array([-1.0, 0.0, 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0], dtype=float)  
ys = np.array([-3.0, -1.0, 1.0, 3.0, 5.0, 7.0, 9.0, 11.0, 13.0], dtype=float)
```

建立一個學習的模型：

```
✓ 0 秒 [2] # Build a simple Sequential model  
model = tf.keras.Sequential([keras.layers.Dense(units=1, input_shape=[1])])
```

加入一些學習的參數：

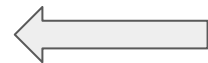
```
✓ 0 秒 ▶ # Compile the model  
model.compile(optimizer='sgd', loss='mean_squared_error')
```

利用輸入的數據訓練模型 (model)，並執行 500 次訓練：

```
# Train the model  
model.fit(xs, ys, epochs=500)
```

輸入新的 x 數值 (可更改)：

```
input_x = np.array([10.0])
```



如果模型是 $y = 2x - 1$ ，而 $x = 10$ ，那 y 是什麼呢？

利用已訓練的模型作預測 (y 值)：

```
# Make a prediction  
print(model.predict([input_x]))
```

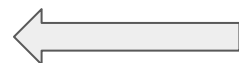
```
1/1 [=====] - 0s 97ms/step  
[[18.97995]]
```

這個 y 的預測有沒有問題呢？為什麼？



輸入新的 x 數值 (可更改) :

```
input_x = np.array([10.0])
```



如果模型是 $y = 2x - 1$, 而 $x = 10$, y 理論上是 $(2)(10) - 1 = 19$

利用已訓練的模型作預測 (y 值) :

```
# Make a prediction  
print(model.predict([input_x]))
```

```
1/1 [=====] - 0s 97ms/step
```

```
[[18.97995]]
```

利用所訓練的模組，所得出的數值非常接近 19，但並不等於 19。這結果有以下兩個主要原因：

- 1) 我們提供予電腦的數據只有 9 組，數量較少
- 2) 雖然根據 9 組數據， x 和 y 的關係是直線 $y = 2x - 1$ 但始終不是百分之百肯定下一組 x, y 值會依從上述關係而定。

2. Computer Vision (I), (II) and (III)

Computer Vision & CNN (Bk 1, P.39; Bk 2, P.34; Bk 3, P.9)



Figure 4.2: Sensors used in different CV applications

Task 1: Can CV Understand Your Drawings?

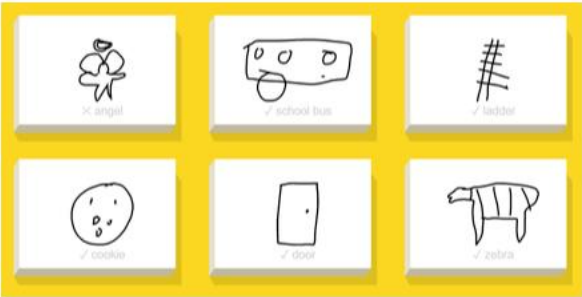


Figure 4.3: CV system recognising objects from drawings



Figure 3.1: Image of a parrot represented with different number of pixels

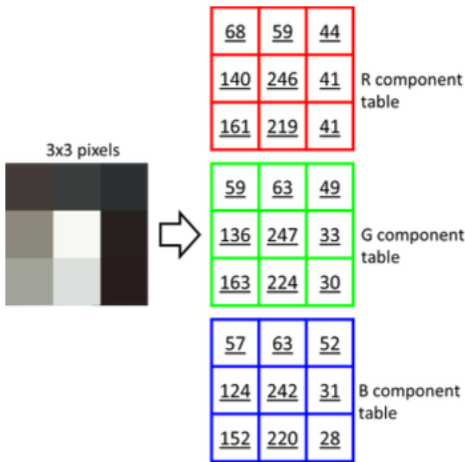


Figure 3.3: Representing an image as numbers

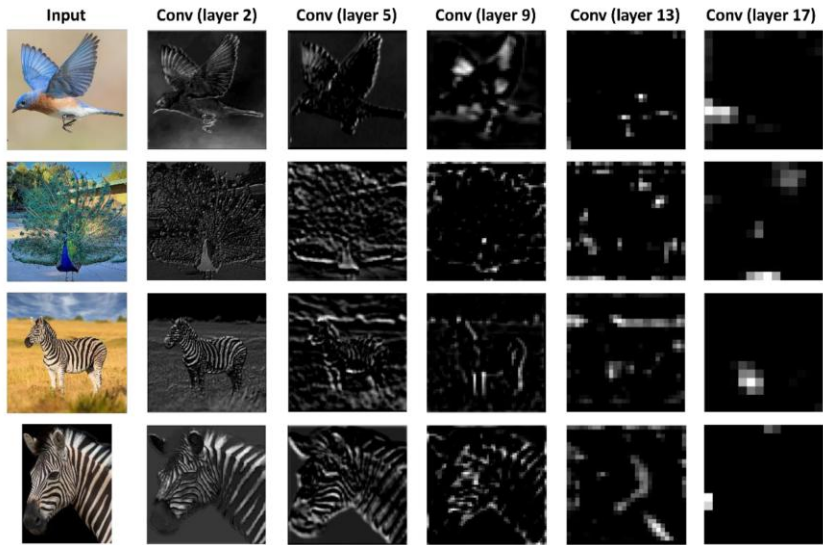
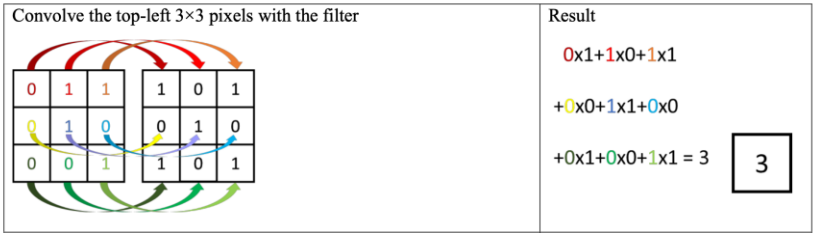


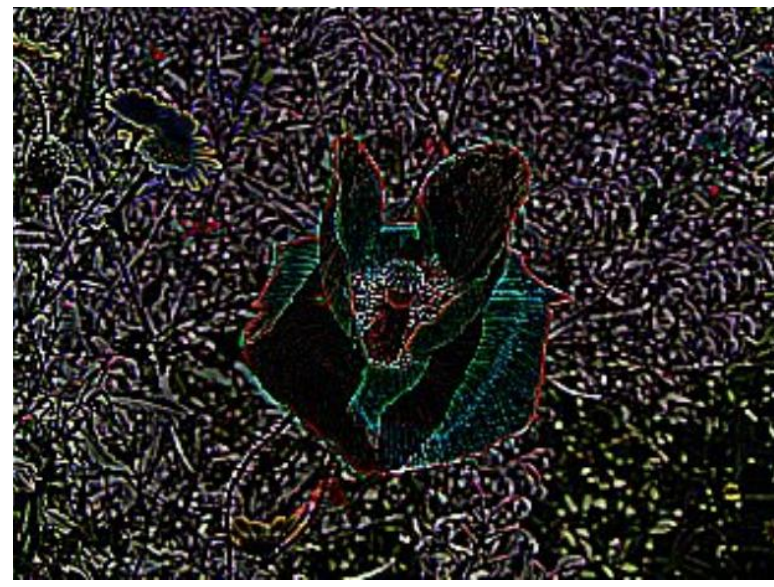
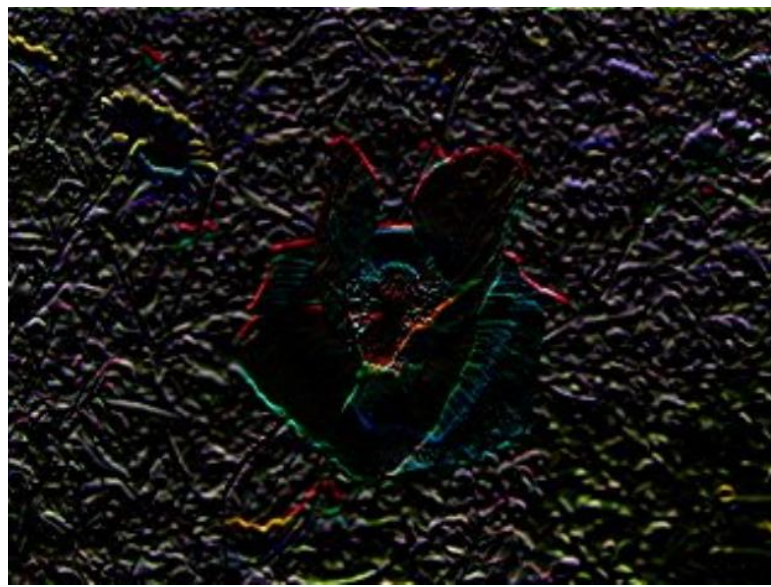
Figure 1.1: Result of convolutional layers after convolution

Step 3: Perform Convolution

To perform convolution, we multiply each number in the image patch with the number at the same location in the filter and then sum them up. Again, numbers in the same colour correspond to the same pixel. Please refer to the below illustrated examples, complete the output values of the convolution operations of all small patches.



透過不同的濾鏡，電腦可以將影像的特徵抽出來 (extracting features)。這些特徵可以幫助將影像歸類，從而學習它們是什麼。



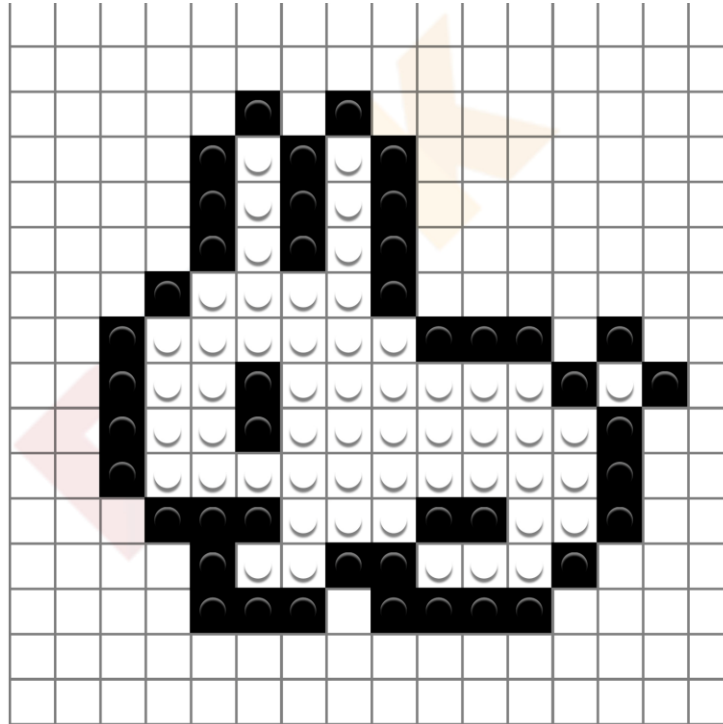
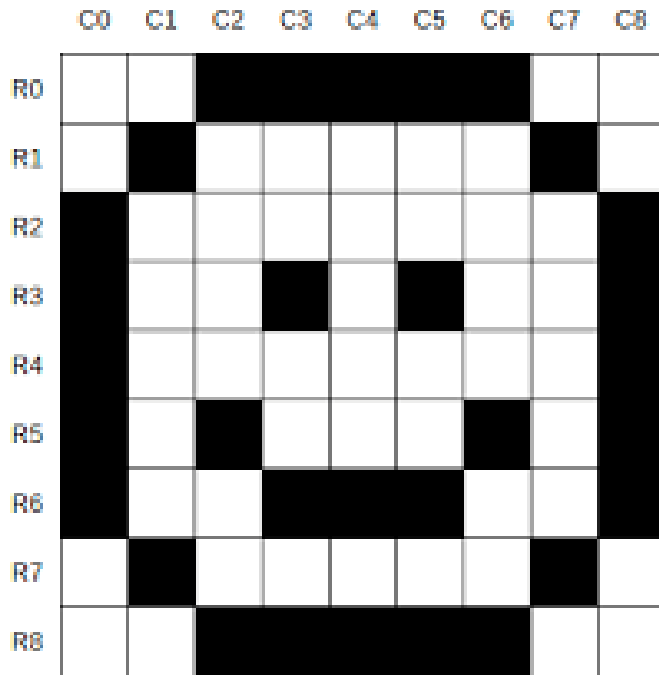


What are the features?



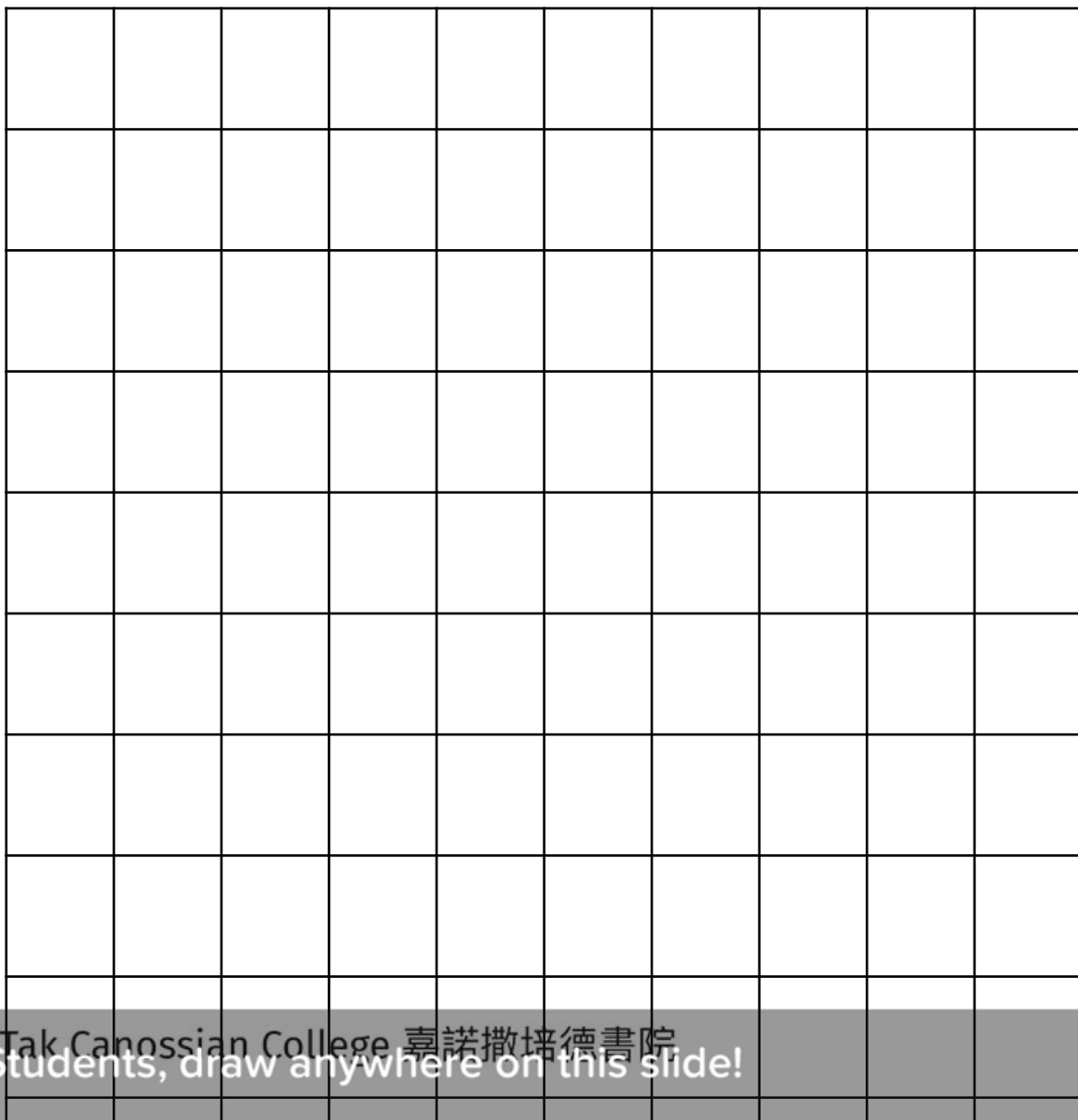
Pixel Art

What are they? Why do you know?





Try and Think!

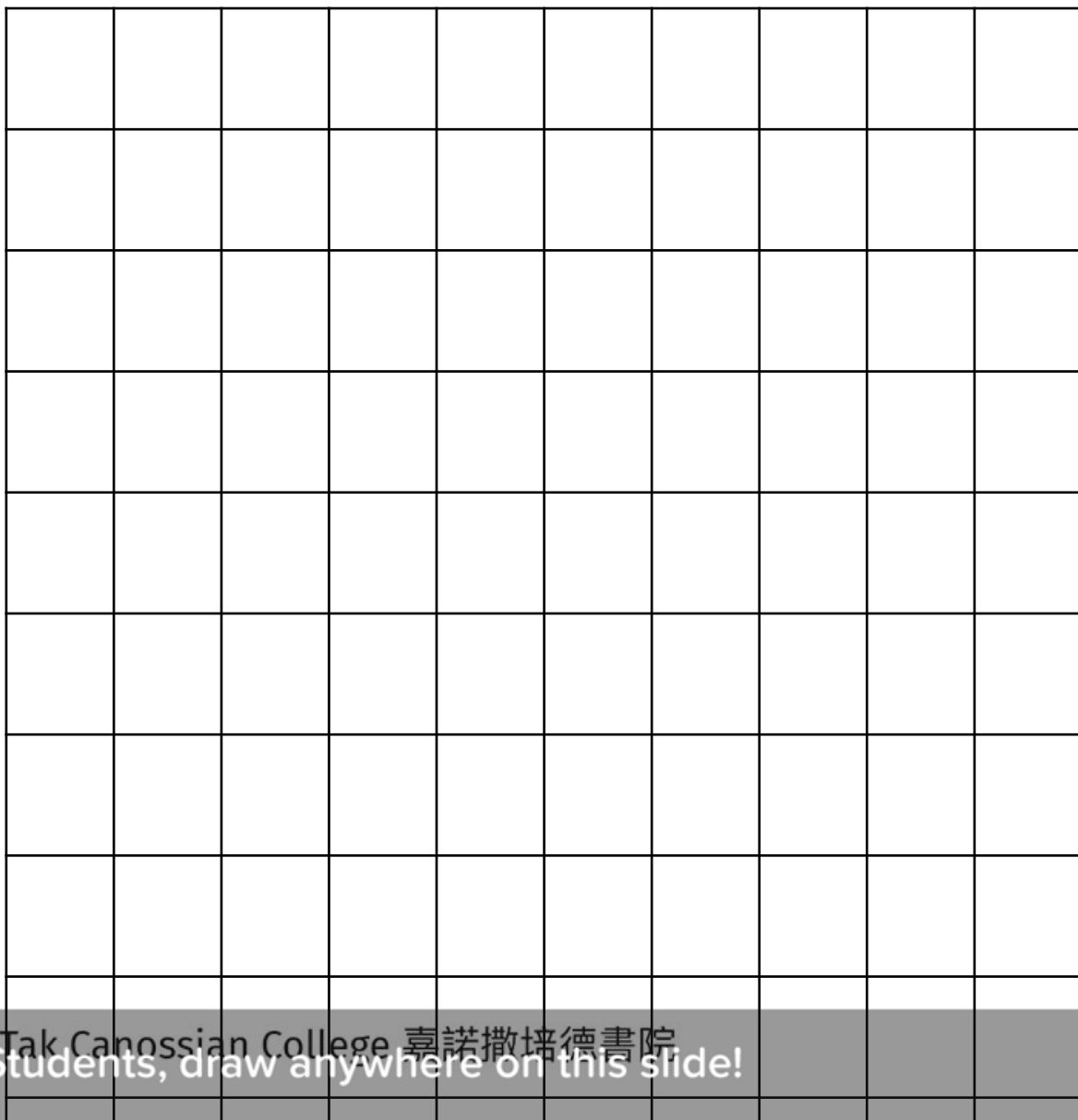


左方是一個 10 x 10
的 Pixel Box，請以
填格方式畫一頂帽。





Try and Think!



左方是一個 10 x 10
的 Pixel Box，請以
填格方式畫一部車。



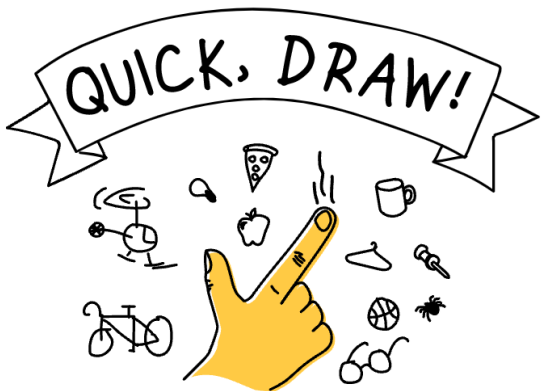


What are the features?

Let's Try

Quick, Draw! - Google

https://quickdraw.withgoogle.com/?locale=zh_HK



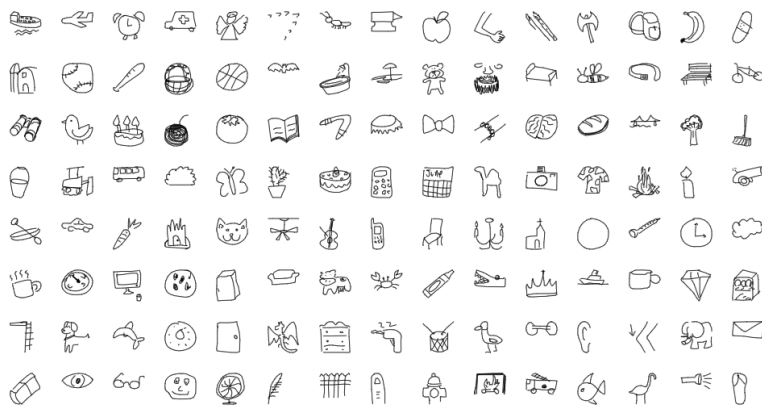
神經網絡能否學會辨識塗鴉？








立即加入教導神經網絡辨識塗鴉的行列。您的繪圖會加入公開分享的**全球最大型塗鴉資料庫**，以協助機器學習研究。

What do 50 million drawings look like?

Over 15 million players have contributed millions of drawings playing [Quick, Draw!](#) These doodles are a unique data set that can help developers train new neural networks, help researchers see patterns in how people around the world draw, and help artists create things we haven't begun to think of. That's why [we're open-sourcing them](#), for anyone to play with.

Select a drawing



 HalfanJ Merge pull request #69 from ndr/patch-1 ...			9bc2e78 on Jun 13, 2022	 66 commits
 examples	n_strokes & n_points is uint16			3 years ago
 LICENSE	Add initial readme and example			6 years ago
 README.md	Merge pull request #69 from ndr/patch-1			8 months ago
 categories.txt	Add initial readme and example			6 years ago
 preview.jpg	Add initial readme and example			6 years ago

☰ README.md

The Quick, Draw! Dataset

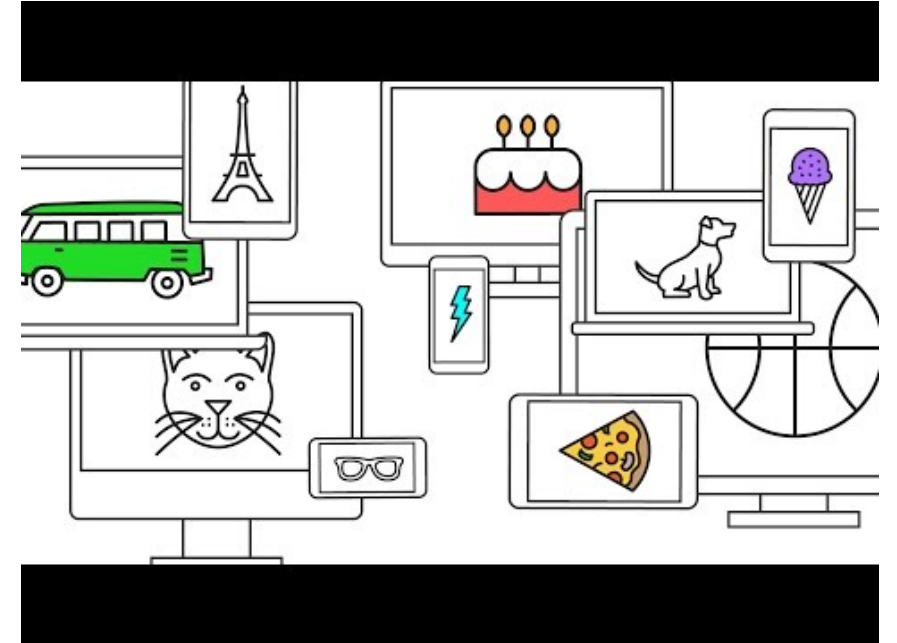


AutoDraw - Google

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

<https://experiments.withgoogle.com/autodraw>

Let's try





Try and Think!

怎樣才能確認這是一隻貓？
How to identify that it is a cat?

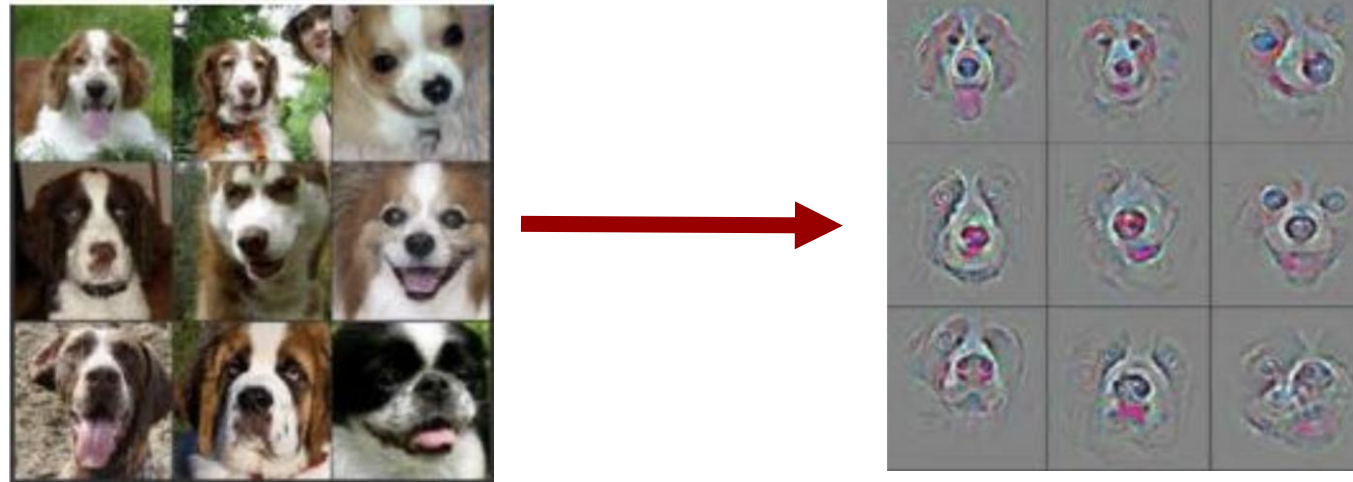
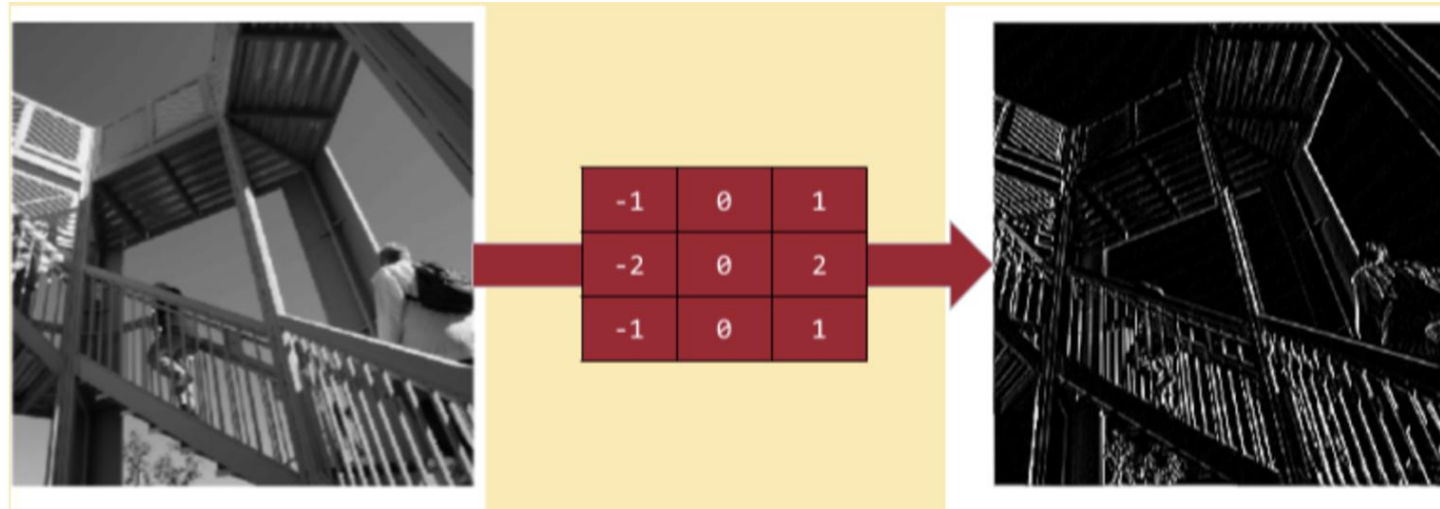
What are the features of drawing a 'cat'?

Try to use the “least” lines to show that it is a cat.





Applying Filters to get features





Experience the Visual Neural Network Building



Board Game

- To simulate the process of identifying key features of images
- Build up networks by adjusting the weights of each feature
- The connection and weights between layers build up the “model”.

Experience of Donkey Car

- Autonomous (Self-Driving) Car
- Raspberry Pi / Camera
- Model Training; Deployment; Test and Running
- Practical Experience
 - What the model trained by the simulator did not work?
 - How to solve the problem by applying the features extraction concept?

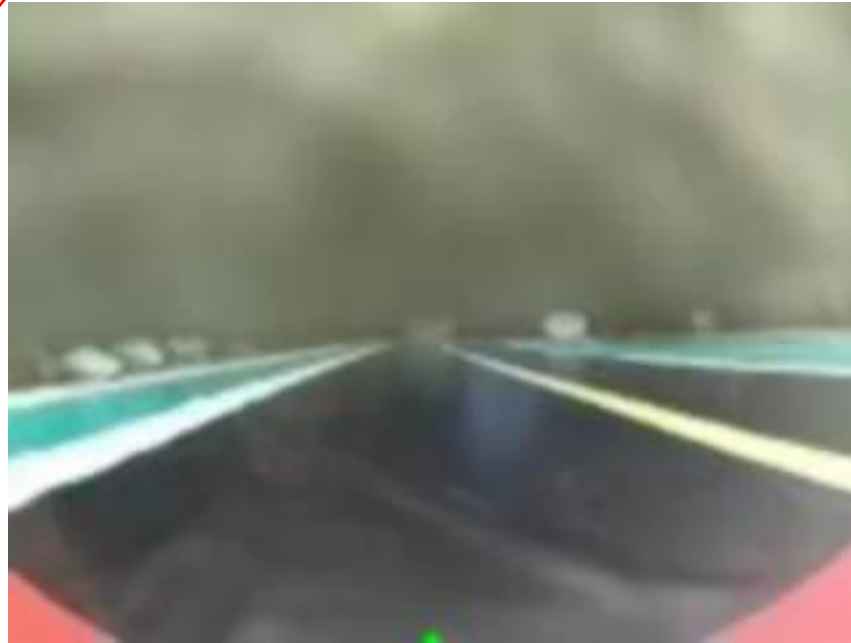
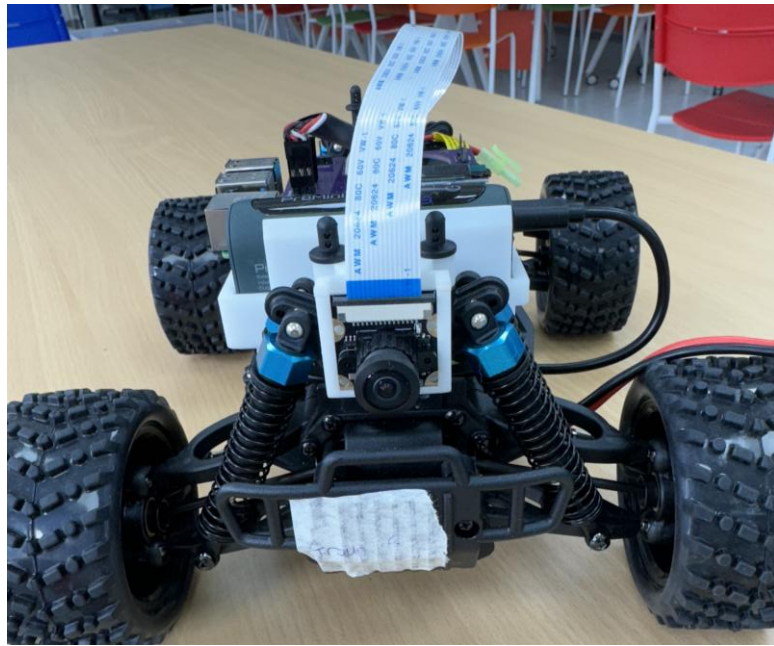


To apply what they learnt about features extraction



**Students found that their model trained by the simulator did not work in the real scenario.
We asked them what are the crucial features in building the CNN model.**

To apply what they learnt about features extraction



To apply what they learnt about features extraction



An easy way to try Computer Vision ML

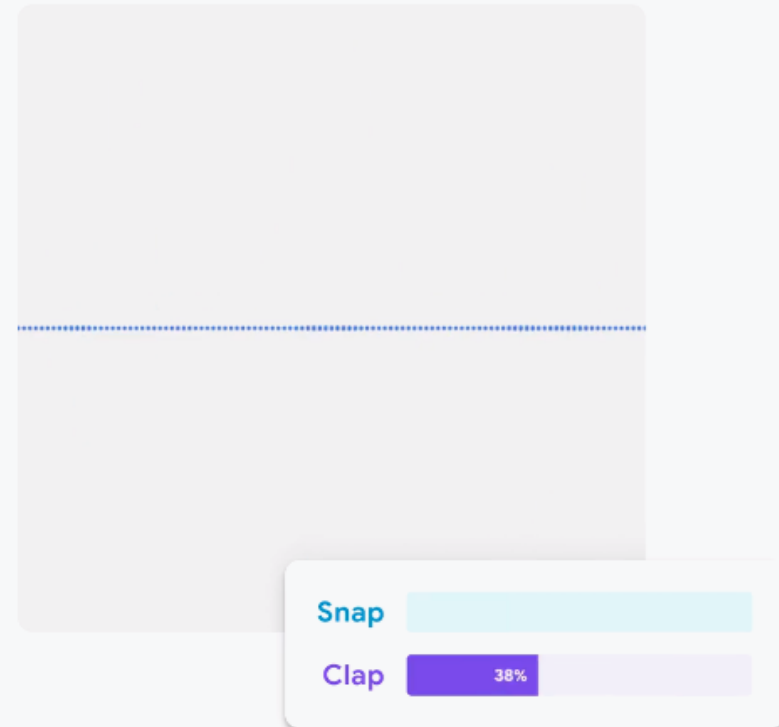
<https://teachablemachine.withgoogle.com/>

Teachable Machine

Train a computer to recognize your own images, sounds, & poses.

A fast, easy way to create machine learning models for your sites, apps, and more – no expertise or coding required.

Get Started





課堂任務一

Teachable Machine in Practice

成功使用**Google Teachable Machine**
分辨兩個或以上的同學

將過程拍攝影片並上載至**Google Classroom**



課堂任務二

Teachable Machine in Practice

- 1) 在 **Teachable Machine** 創建一個 **“Audio Project”**
- 1) 在 iPad 的 **“Garageband”** 開一個新 **Project**，利用其中一種樂器的「自動彈奏」於 **Teachable Machine** 錄製 **“C”**，**“Bb”** 和 **“G”** 三個 **Class** 的音樂
- 3) 在彈奏時，以 **Teachable Machine** 分辨正在彈奏的 **Chord**
- 4) 將過程拍攝影片並上載至 **Google Classroom**

Garageband Notes (STEM in Music)

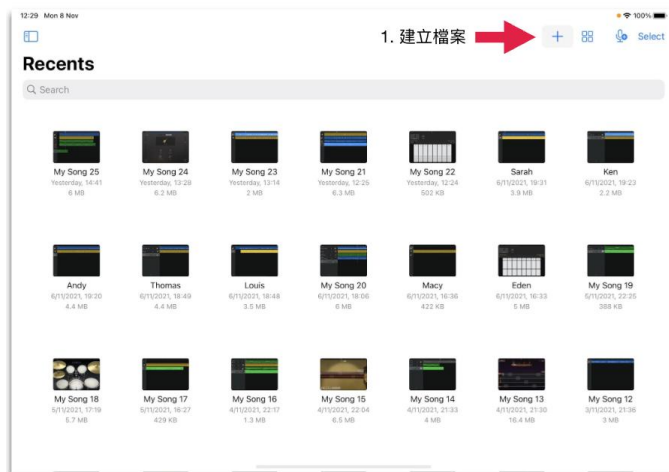
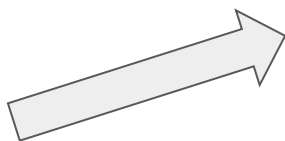
數位音樂初探

單元一

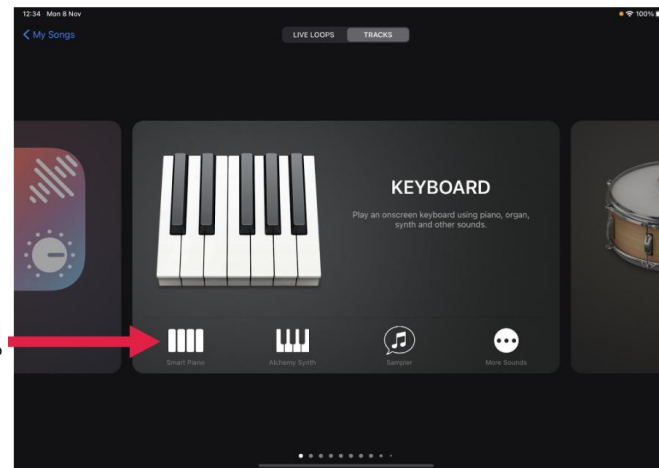
單元二

單元三

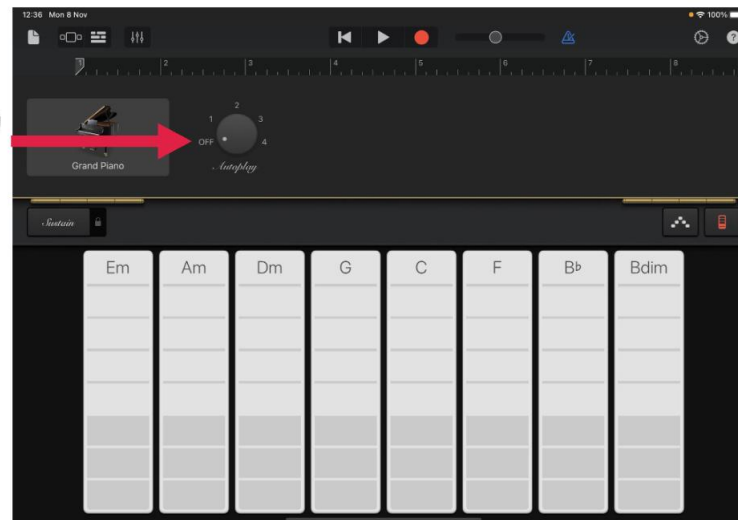
單元四



2. 選擇樂器
Smart Piano



2. 選擇自動
彈奏模式
1





課後問題

Teachable Machine in Practice

請嘗試回答以下問題，並在 **Google Classroom** 私人留言中寫下你的答案。

在 Teachable Machine 的 Audio Project 影片中，在後段播放不同的 **G Chord** 時，**Teachable** 會誤認音訊為 **C Chord**，你認為有什麼原因？



Oct 2023

因為G chord和C chord有部分音符是相似或相同的，令旋律只有細微的差異，但數據不夠多和仔細，因此Teachable Machine容易被這些相似的特徵誤導或混淆，難以區分G chord和C chord。



10 Oct 2023

因為每段旋律中都有些相同的音符，所以AI因為這些相同的音符而認辨錯誤

Image Classification Colab



Use of Generated Images in Model Training

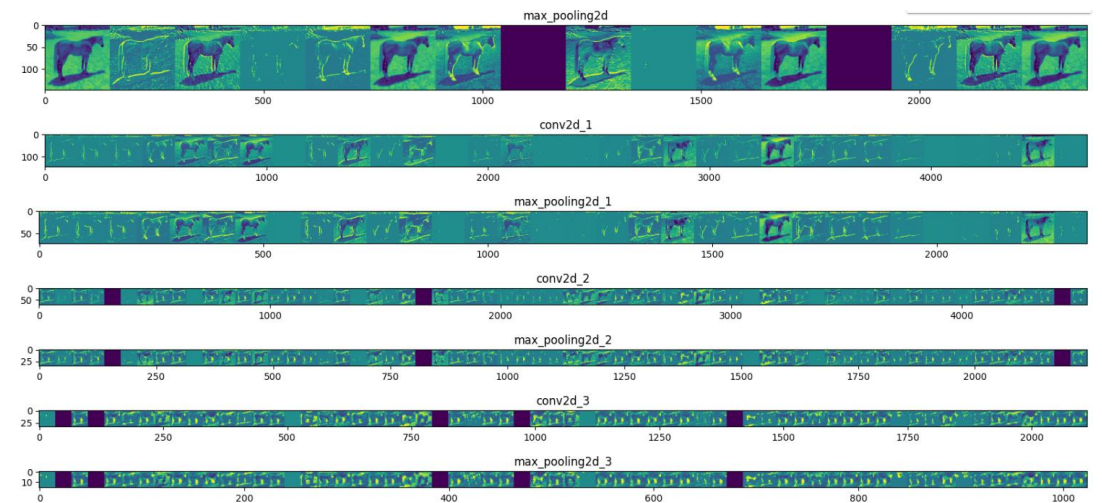
```
img = mpimg.imread(img_path)
plt.imshow(img)
plt.show()
```



Model Accuracy

```
Epoch 1/15
8/8 [=====] - 20s 1s/step - loss: 0.7736 - accuracy: 0.5606 - val_loss: 0.9471 - val_accuracy: 0.5000
Epoch 2/15
8/8 [=====] - 10s 1s/step - loss: 0.6836 - accuracy: 0.7597 - val_loss: 0.6373 - val_accuracy: 0.8672
Epoch 3/15
8/8 [=====] - 10s 1s/step - loss: 0.6915 - accuracy: 0.6963 - val_loss: 0.5979 - val_accuracy: 0.6133
Epoch 4/15
8/8 [=====] - 12s 2s/step - loss: 0.6520 - accuracy: 0.7397 - val_loss: 0.4104 - val_accuracy: 0.8633
Epoch 5/15
```

Convolution Network Visualisation



3. Computer Speech and Language (I), (II)

Text-To-Speech/Speech-To-Text/Automatic Speech Recognition

TTS / STT / ASR

4.4 How do Computers Understand Words?

In the previous unit, we learned that computers can only process numeric values and images are represented as numbers for computers. Similarly, we can represent words quantitatively, in order to be processed by computers.

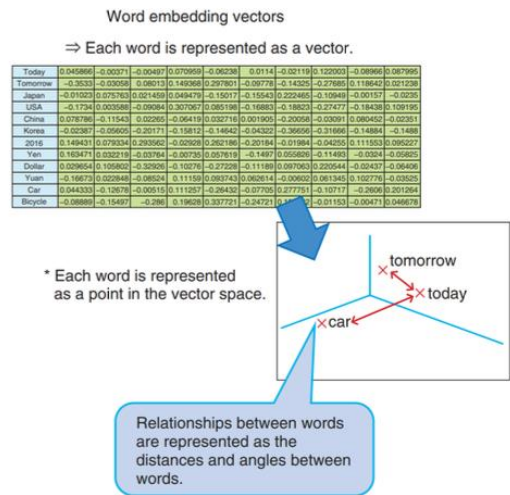




Figure 4.2: Words represented quantitatively as word embeddings, which may have more than 3 dimensions. The 3D plot is for illustrative purposes only.
[Reference: NTT Technology Review 15(11), 2017]

Word Embedding

Word embedding is an approach that involves complex computation to represent each word as a sequence of numbers (which we call a vector). Word embedding vectors can be trained using large-scale (e.g. web-scale) text data. Using the quantitative values in word embeddings, computers can calculate the meanings of words and the relationships between words. The overall idea is illustrated in Figure 4.2. The use of word embeddings enable computers to compute how strongly two words are associated with each other – for example, words

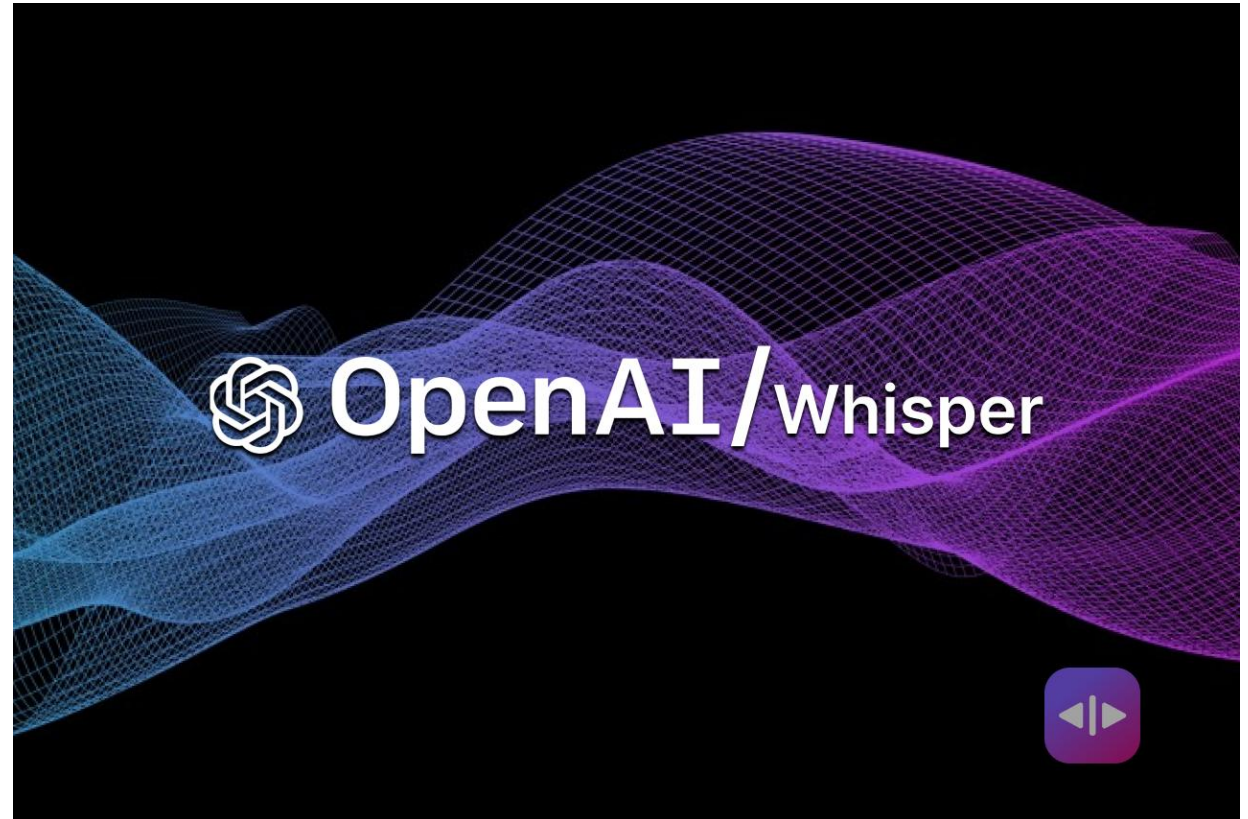
4.1 Basics of ASR

ASR is widely used in our daily lives as shown below in some common applications.

Application	More information
Dictation system	<div></div> <p>(Left) The user says -- “dear tom comma new paragraph how are you”.</p> <p>(Right) The system recognizes the speech and converts it into text, as well as executing instructions for punctuation, like “comma” and “new paragraph”, and inserting capitalization automatically.</p>
Computer-aided language learning system	<p>Allow users to practise speaking through the AI-enabled language learning system and get instant feedback to facilitate learning.</p> <p>Notes for teachers: References:</p> <div></div> <p>https://www.youtube.com/watch?v=_stf'saez--A</p>

Speech-To-Text (STT)

[OpenAI Whisper](#)



3. Computer Speech and Language (I), (II)

Natural Language Processing (NLP); Prompt Engineer (K12GPT.AI)

Application of NLP

Book 3, P.54

54

Figure 4.4: Word association game

4.5 Applications of NLP

The following are some powerful NLP applications for you to try.

Task 5: Generate Lyrics

ChatGPT is the state-of-the-art NLP application. It can perform NLP tasks such as text generation, text summarisation, question answering, language translation, etc. Let's ask ChatGPT to generate some lyrics.

Website to use ChatGPT:
<https://poe.com/ChatGPT>



Prompt to use ChatGPT to generate lyrics on e.g., the rubber ducks:
Can you write me a song with the following keywords: rubber duck, double ducks, Victoria Harbour, bathtub, bath, joy, happiness, friends, double duck is double luck, get connected, together



Figure 4.5: Rubber ducks (image generated by Midjourney)

Example of songs generated by ChatGPT:

Song 1	Song 2
(Verse 1) Rubber duck, floating in the bay, Victoria Harbour, is where it plays, Double ducks, now in sight, Turning the harbour into a giant bathtub delight.	(Verse 1) In the land of Victoria Harbour, where the water's blue, There's a little secret that I'll share with you. Grab your rubber duck, and I'll bring mine too, We'll jump into the bathtub and watch our worries undo.
(Chorus) Bath time joy, happiness surrounds, Friends together, there's no better sound, Double duck is double luck, Get connected, let's all stay stuck.	(Chorus) Double ducks, double ducks, bring joy to our faces, In the bath, we find our happy places. Double duck is double luck, we'll splash and play, Get connected, together, let's seize the day.

AI and Future of Work (II)

Book 3, P.58


4.2 Experiencing Generative AI Technologies

The recent, rapid developments of Generative AI technologies brought powerful applications such as ChatGPT, released by OpenAI in November 2022. A more advanced model, GPT4, was released in March 2023. These models are trained on a vast amount of data on the internet, including hundreds of billions of words from Wikipedia, books, news articles, journals, and other sources. Hence the models can generate language and code. The application attempts to conduct a human-like dialog with the user. You may access ChatGPT and try it in Task 2:


Task 2: Experiencing Generative AI through ChatGPT

You may access a website related to ChatGPT (e.g. www.poe.com), input a request, and see what it can do for you. For example, you may consider seeking help from the AI technology to write a cover letter for a job application (see left part of Figure 4.2):

Upon receiving the input request, we found that ChatGPT can immediately generate the output below (see right part of Figure 4.2):



Write a cover letter for me to apply for a job as an office assistant. My English is good and I achieved a 5 in the HKDSE exam. My Chinese is good and I achieved a 4 in the HKDSE exam. I am a responsible person and hardworking.



Dear Hiring Manager,

I am writing to express my interest in the [Office Assistant position](#) at your company. I am a responsible and hardworking individual with a strong command of both English and Chinese. I achieved a 5 in the HKDSE exam for English and a 4 for Chinese.

As an office assistant, I am confident that I possess the necessary skills and experience to excel in this role. I have experience providing [administrative support](#), [managing calendars](#), [coordinating meetings](#), and performing general office tasks. Furthermore, I am proficient in using [Microsoft Office applications](#) such as [Word](#), [Excel](#), and [PowerPoint](#).

I am a quick learner and am always willing to take on new challenges. In my previous roles, I have demonstrated my ability to work well under pressure and to prioritize tasks effectively. I am confident that my strong [work ethic](#), [attention to detail](#), and [positive attitude](#) would be an asset to your team.

I am excited about the opportunity to contribute my skills and experience to your organization. Thank you for considering my application. I look forward to the opportunity to discuss my qualifications further.

Sincerely,

[Your Name]

Figure 4.2 Response of ChatGPT to the request for writing a letter.

Understand my teachers

Worries

Realization and exploration of the potential of Generative AI

- Visual Arts
- Chinese Language
- English Language
- Economics

Tools and Platforms

- ChatGPT, POE, Copilot, Midjourney, Stable Diffusion...
- **k12GPT.ai**

Major Paradigm Shift

1

- Teacher is the master of knowledge.
- Role: Knowledge Deliverer



Google大神

2

- Teacher is the master of skills.
- Role: Skills Trainer



7 x 24 Tutor

3

- Teacher is a master learner.
- Role: Learning Tour Guide & Companion



Shepherd

Understand my students

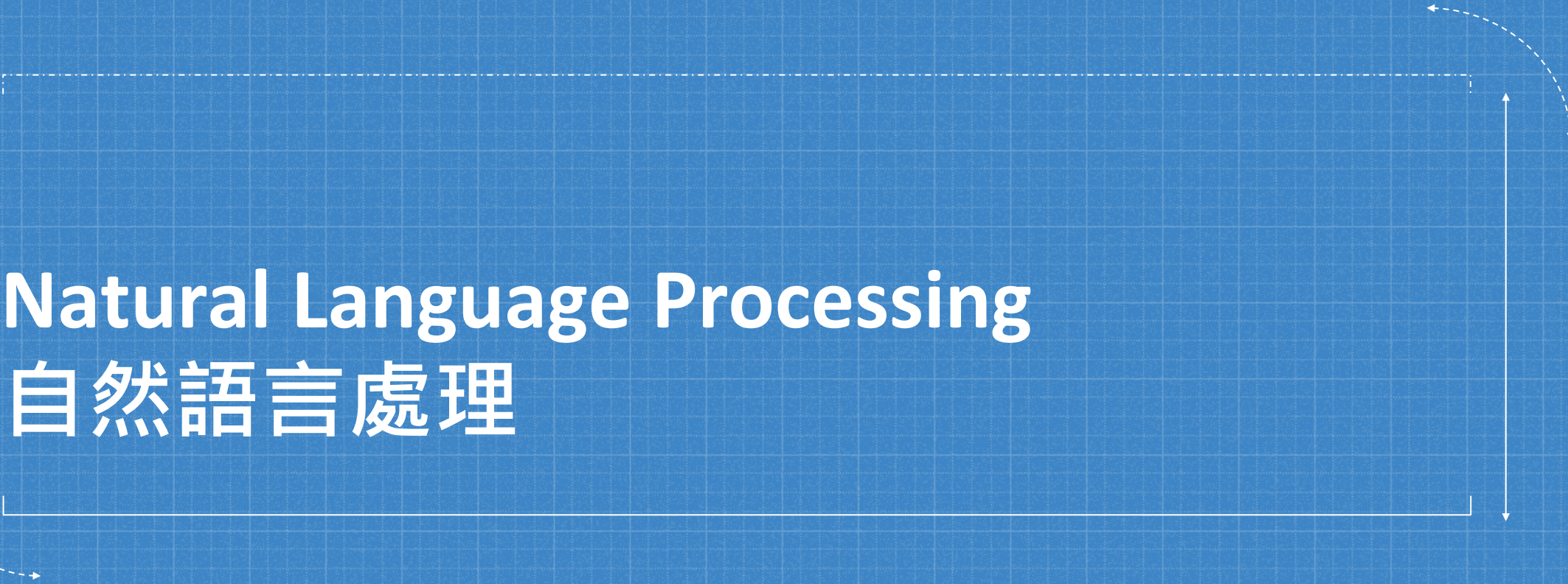
S.2 Students' Competition Sharing

S.6 Students' Trial

S.3 STEM Generative AI Module

Providing tools for students to accomplish different tasks

- Competitions
- Composition Tasks



Natural Language Processing

自然語言處理

What is the main theme of the following text?

下文的主旨是什麼？

On a sunny winter day, Hana walked in her town, her heart full of love and care for those around her. As she walked, she saw Mr. Wong in a park, looking cold in his light jacket. With so much care in her heart, Hana went up to him and shared her warm scarf. His eyes shined with love and thanks. She found out Mr. Wong was a retired teacher. He missed the love of his family who lived far away and wished for more care and company in the busy town. Hana felt a lot of love for him and decided to meet him often. They spent time together, talking and laughing, showing care and love to each other. Their bond became a symbol of love and care in the town. People who passed by saw their friendship and felt the power of love and care. Their moments together reminded everyone how simple acts of love and care can bring people closer, no matter how old they are.

Copy the text to the following website and generate the word cloud:
<https://monkeylearn.com/word-cloud/>

WordCloud Generator
By MonkeyLearn

Word cloud powered by artificial Intelligence 🤖

Source text

Upload text file

On a sunny winter day, Hana walked in her town, her heart full of love and care for those around her. As she walked, she saw Mr. Wong in a park, looking cold in his light jacket. With so much care in her heart, Hana went up to him and shared her warm scarf. His eyes shined with love and thanks. She found out Mr. Wong was a retired teacher. He missed the love of his family who lived far away and wished for more care and company in the busy town. Hana felt a lot of love for him and decided to meet him often. They spent time together, talking and laughing, showing care and love to each other. Their bond became a symbol of love and care in the town. People who passed by saw their friendship and felt the power of love and care. Their moments together reminded everyone how simple acts of love and care can bring people closer, no matter how old they are.

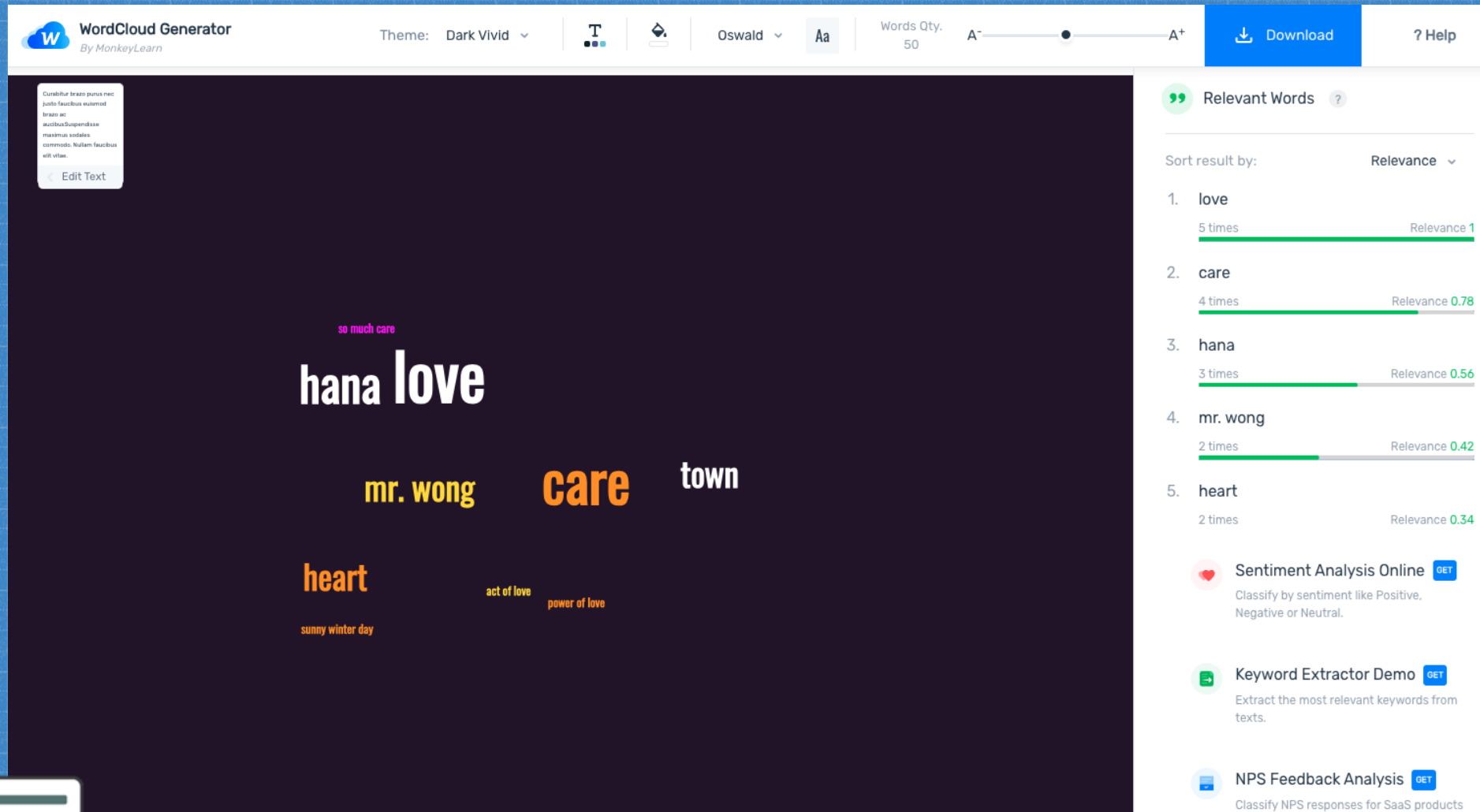
Generate cloud →

What Is a Word Cloud?

A word cloud (also known as a tag cloud) is a visual representation of words. Cloud creators are used to highlight popular words and phrases based on frequency and relevance. They provide you with quick and simple visual insights that can lead to more in-depth analyses.



What is the main theme of the following text?
下文的主旨是什麼？



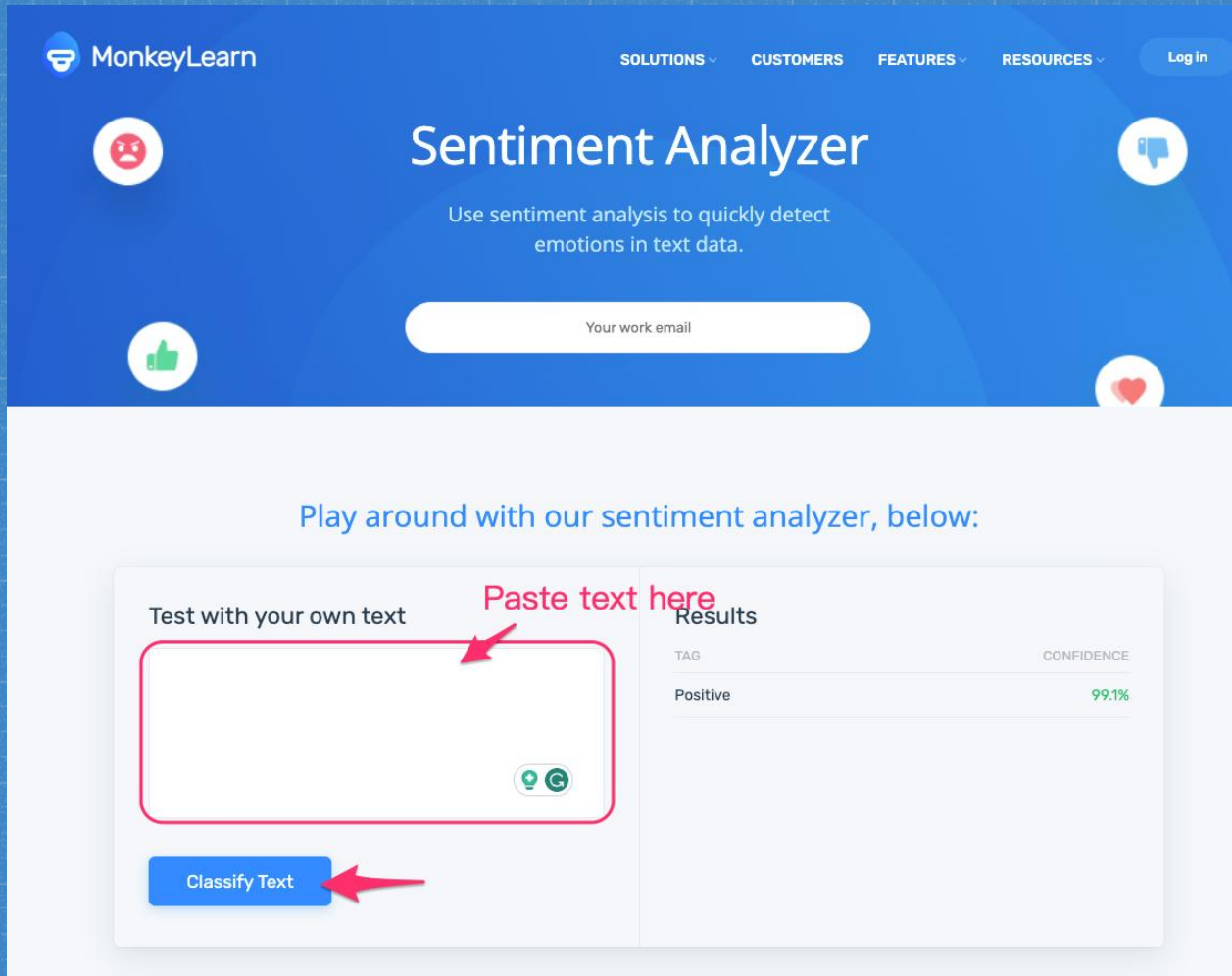
Students, write your response!

What is the sentiment of the following movie review?

以下的電影評論的語意是什麼？

"Fantastic Tour" is a mesmerizing cinematic masterpiece that captivates from start to finish. Director Jane Doe has woven a tale that's visually enchanting, with breathtaking landscapes and meticulously crafted sets that transport viewers to a world of wonder. The film's strength lies not just in its visuals but also in its compelling performances. John Smith delivers a standout portrayal, brilliantly walking the line between vulnerability and strength, and he's ably supported by a cast that brings depth to their roles. Another highlight is the evocative soundtrack, which perfectly complements every scene, enhancing the emotion and drama. But beyond the aesthetics and performances, "Fantastic Tour" is a triumph in storytelling, blending fantasy with deep-rooted emotions that resonate long after the credits roll. It's a testament to the transformative power of cinema, offering audiences an immersive experience that's both entertaining and introspective. In a world of fleeting cinematic experiences, "Fantastic Tour" stands out as a modern classic that's not just to be watched, but to be felt. A must-watch for anyone seeking a film that truly touches the soul.

Copy the text to the following website and analyze its sentiment:
<https://monkeylearn.com/sentiment-analysis-online/>



MonkeyLearn

SOLUTIONS CUSTOMERS FEATURES RESOURCES Log in

Sentiment Analyzer

Use sentiment analysis to quickly detect emotions in text data.

Your work email

Play around with our sentiment analyzer, below:

Test with your own text

Paste text here

Classify Text

TAG	CONFIDENCE
Positive	99.1%



Analyze the text by using Google Cloud Natural Language:
<https://cloud.google.com/natural-language?hl=en>



Natural Language API demo

Try the API

Paste text

Try the API

Enter text to be analyzed...

ANALYZE

[See supported languages](#)

Analysis 分析

Try the API

cinematic experiences, "Fantastic Tour" stands out as a modern classic that's not just to be watched, but to be felt. A must-watch for anyone seeking a film that truly touches the soul.

↻ RESET

[See supported languages](#)



Entities



Sentiment



Moderation



Categories

"**<Fantastic Tour>**₄" is a mesmerizing cinematic **<masterpiece>**₂₈ that captivates from **<start>**₃₉ to **<finish>**₂₄. **<Director>**₁ **<Jane Doe>**₅ has woven a **<tale>**₄₃ that's visually enchanting, with breathtaking **<landscapes>**₂₆ and meticulously crafted **<sets>**₃₆ that transport **<viewers>**₄₆ to a **<world>**₅₀ of **<wonder>**₄₉. The **<film>**₂₂'s **<strength>**₄₁ lies not just in its **<visuals>**₄₇ but also in its compelling **<performances>**₃₀. **<John Smith>**₆ delivers a standout **<portrayal>**₃₂, brilliantly walking the **<line>**₂₇ between **<vulnerability>**₄₈ and **<strength>**₄₂, and he's ably supported by a **<cast>**₁₁ that brings **<depth>**₁₅ to their **<roles>**₃₄. Another **<highlight>**₂₅ is the evocative **<soundtrack>**₃₈, which perfectly complements every **<scene>**₃₅, enhancing the **<emotion>**₁₇ and **<drama>**₁₆. But beyond the **<aesthetics>**₈ and **<performances>**₃₁, "**<Fantastic Tour>**₃" is a **<triumph>**₄₅ in **<storytelling>**₄₀, blending **<fantasy>**₂₁ with deep-rooted **<emotions>**₁₈ that resonate long after the **<credits roll>**₁₄. It's a **<testament>**₄₄ to the transformative **<power>**₃₃ of **<cinema>**₁₂, offering **<audiences>**₁₀ an immersive **<experience>**₁₉ that's both entertaining and introspective. In a **<world>**₅₁ of fleeting cinematic **<experiences>**₂₀, "**<Fantastic>**₂ **<Tour>**₇" stands out as a modern **<classic>**₁₃ that's not just to be watched, but to be felt. A **<must-watch>**₂₉ for **<anyone>**₉ seeking a **<film>**₂₃ that truly touches the **<soul>**₃₇.

1. Director

PERSON

2. Fantastic

WORK OF ART

3. Fantastic Tour

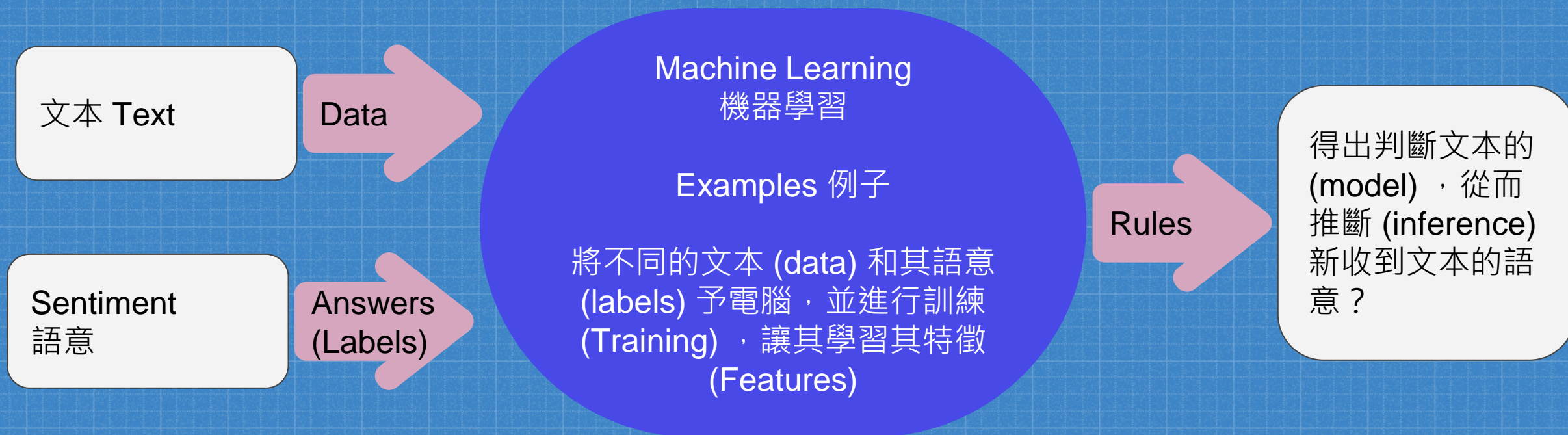
EVENT

4. Fantastic Tour

WORK OF ART

How NLP is possible? 自然語言處理的原理？

將數據(data)和標籤(answers/labels)告知電腦去學習它們的特性(features)，從而得出一個模型(model) - 即其規則(rules)。我們可利用這個模型，再結予它數據，讓它去推斷(inference)其答案。



Word filling game

1. After working all day, I feel _____.
2. After working all day and finishing my work early, I feel _____.
3. After working all day, finishing early, but arguing with a friend, I feel _____.
4. After working all day, finishing early, arguing with a friend, but we understood each other better and getting a thank you note, I feel _____.



Students, write your response!

填寫遊戲

1. 工作了一整天後，我感覺_____。
2. 工作了一整天且提早完成了我的工作後，我感覺_____。
3. 工作了一整天，提早完成工作，但與朋友發生了爭吵後，我感覺_____。
4. 工作了一整天，提早完成工作，與朋友發生爭吵，但我們彼此明白了更多且收到他的一張感謝卡後，我感覺_____。



Students, write your response!



Generative A.I. 生成式人工智能

ChatGPT, Midjourney, Stable
Diffusion

Generative A.I. 生成式人工智能

生成式人工智能(例如 ChatGPT 和 Midjourney) 是指人工智能的一個子領域，其中可以使用複雜的神經網絡來生成新的內容，例如文本、圖像、語音、代碼、音樂、影片等。最近生成式人工智能的突破有可能徹底改變藝術、設計和娛樂等許多範疇。

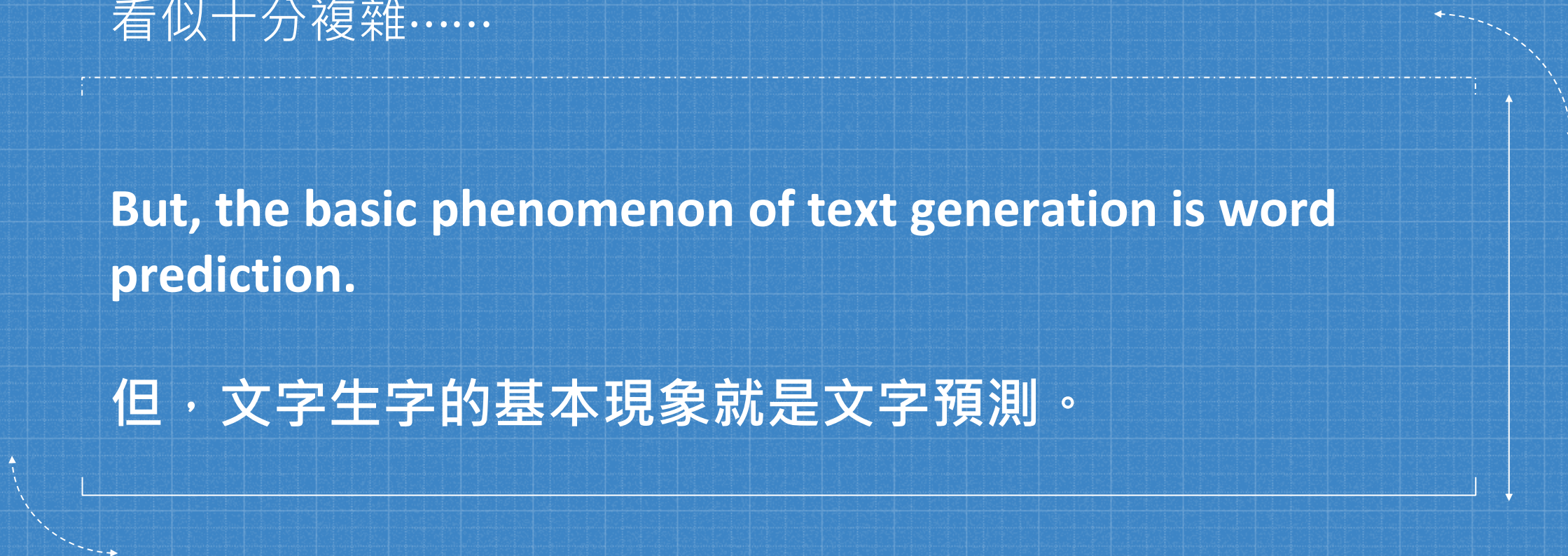
Generative AI (such as ChatGPT and Midjourney) refers to a subfield of AI where complex neural networks can be used to generate new content, such as text, images, audio, code, music, videos, etc. Recent breakthroughs in generative AI have the potential to revolutionize many fields such as arts, design and entertainment.

It seems complicated...

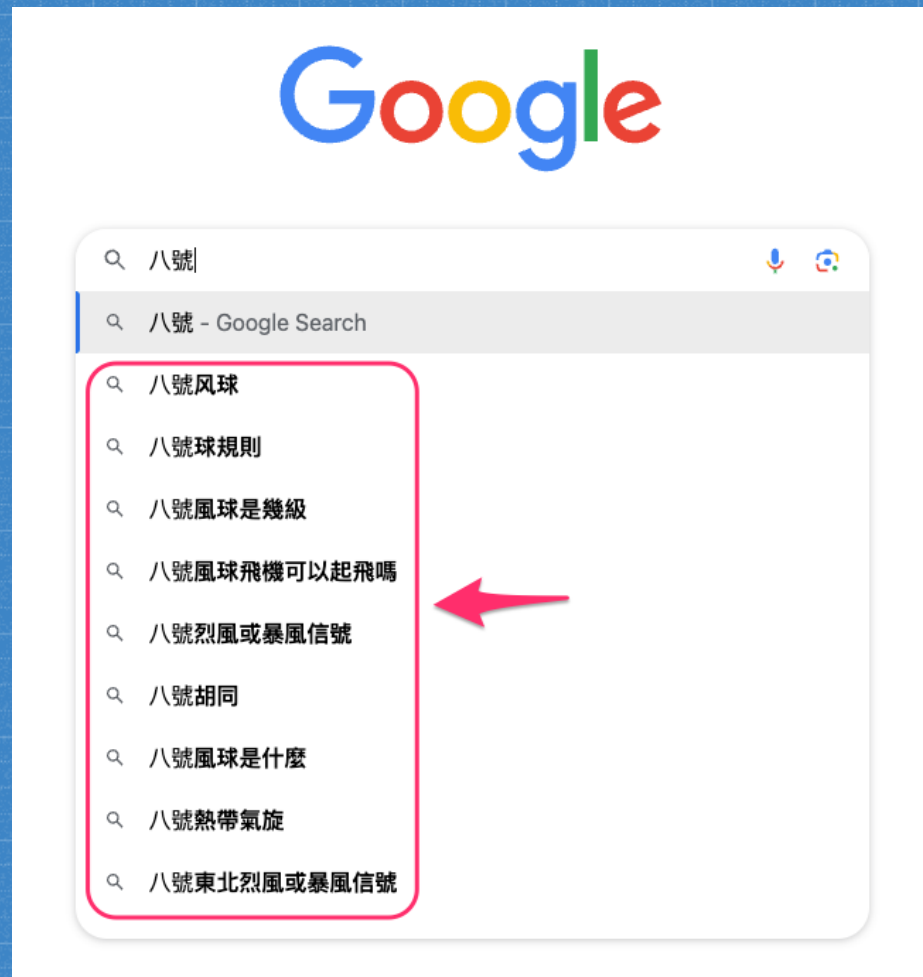
看似十分複雜.....

But, the basic phenomenon of text generation is word prediction.

但，文字生字的基本現象就是文字預測。



The text generated after you key in something in Google Search.
你在 Google Search 輸入關鍵詞後，它會顯示關連詞。





當你和其他同學於 Google 輸入相同的關鍵字，它會顯示相同的關連詞嗎？


輸入關鍵字「香港」並讓 Google 顯示關連詞，Screen Capture 並上載至 Google Classroom



為什麼會出現不同的關聯詞？ Why different related words appears?



Google 除了利用本身的數據，例如某字的搜尋熱度去判斷應顯示那些關聯詞外，還會利用你的上網習慣去判斷那些關聯詞更「適合你」！



請注意：Google 給予的建議並非完全「客觀」而是「客制化」的結果。這導至你想要的結果，會更多出現在你的搜尋中。不自覺，你可能以為其他人會搜尋到相同的資料，並視之為「客觀」，其實並不然。

<A kind of A.I. Biased>



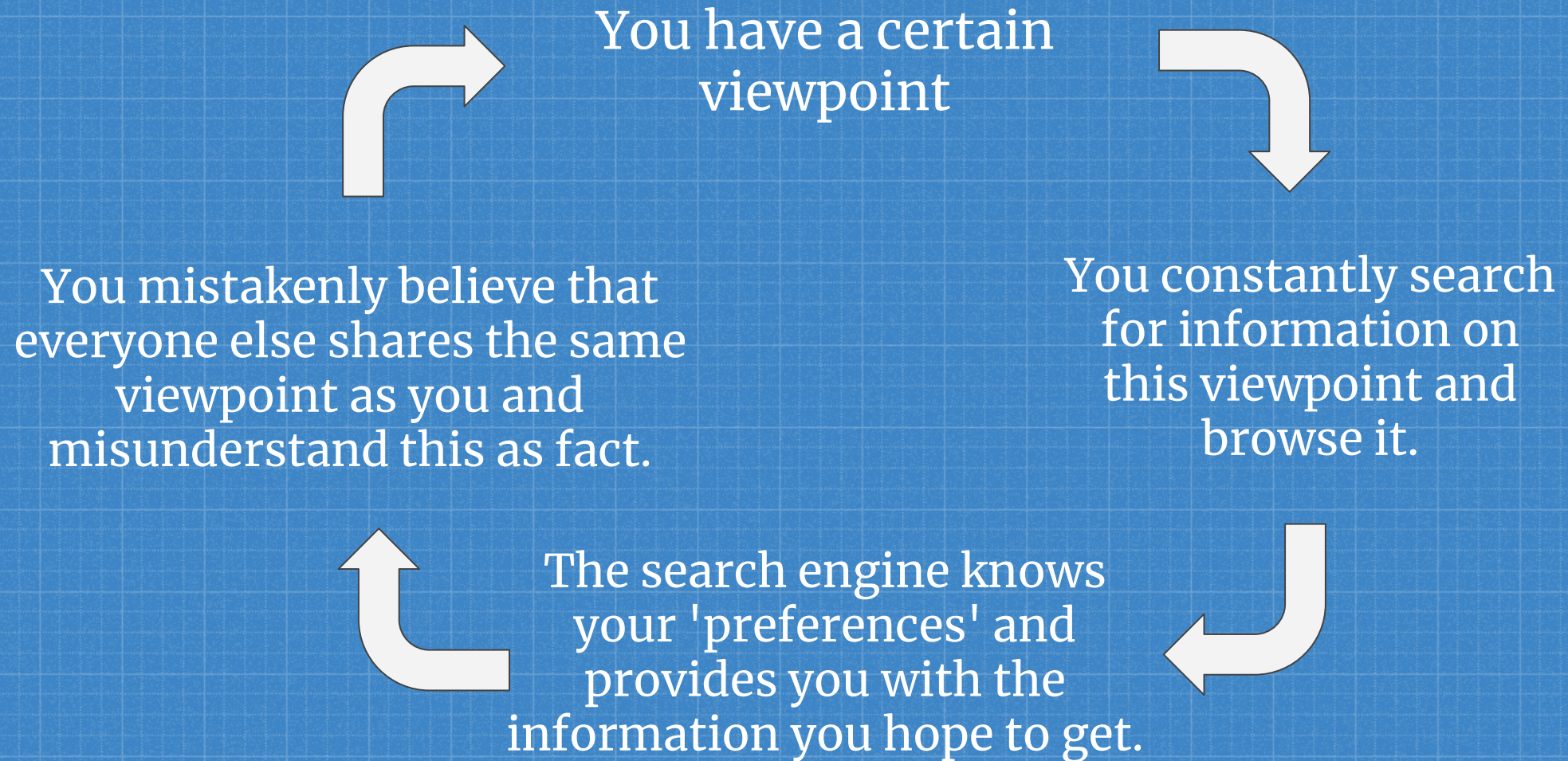
NETFLIX影集下一位來賓:第一集影片一奧巴馬訪問

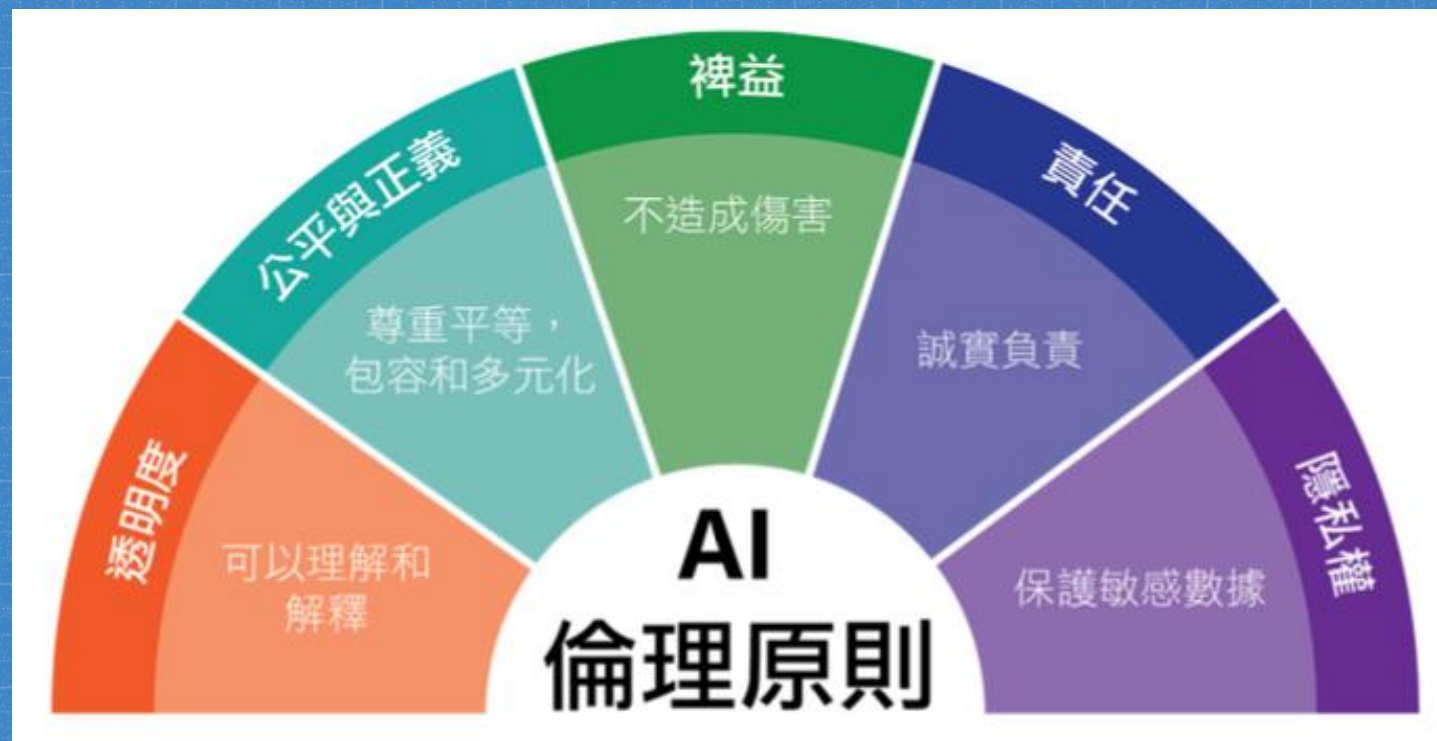
14:30-18:30



我們的民主體制面臨最大的挑戰之一

Vicious cycle





1. **透明度**：確保人工智能的應用是可以向用戶解釋的，使他們能夠了解如何做出決策是以及背後原因。
2. **正義與公平**：發展人工智能科技及應用必須著重平等、包容及多元，通過考慮人工智能對不同個人和社區的影響並避免偏見和歧視。
3. **裨益**：人工智能科技的發展及應用必不可造成任何危害，應優先考慮個人的安全和福祉，盡量減少對人類、社會和環境的負面影響。。
4. **責任**：人工智能科技的發展及應用必須誠實及負責，考慮其潛在風險並為其對社會的影響承擔責任。
5. **私隱**：在開發人工智能科技並將其融入實際應用時必須保護敏感數據，並遵守有關保護數據和私隱的法規。



k12GPT.ai



ChatGPT

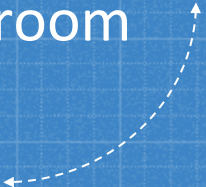
Let us have a try
讓我們測試一下



任務 TASK 1

Login k12GPT.ai

進入後輸入班別代碼，後選取預設Template
Screen Capture 並上載至 Google Classroom





任務 TASK 2

向ChatGPT提問同一條問題三次
Ask same question for 3 times



看看是否會得出不同的答案？

Observe if you can get different answers?
Screen Capture 並上載至 Google Classroom



Task 1

Start a new chat with ChatGPT in k12GPT.ai
以 k12GPT.ai 的 ChatGPT 開啟一個新的對話

Login by using **Google Login**





Task 2

Use the following prompt to improve the way of dialogue and interaction

利用以下的提示 Prompt 去改善對話和互動的質素。

Essential way to avoid the response
randomness

避免隨機性回覆的關鍵方法



Copy and Paste the
following text to
ChatGPT

將以下文字複製並
貼上 ChatGPT

Regulate it 規範它

Please act as a tutorial teacher to a Hong Kong Secondary 3 students. If you don't know the answers of certain questions, please reply "I don't know" instead of creating fake content. Also, dialog with me in a respectful way and use appropriate languages. If I use traditional chinese, please reply me in traditional chinese. If I use English, please reply me in English.

雖然有上述規範，但 ChatGPT 仍可能不跟從，例如回覆的語言、內容真確性等。同學仍需小心驗證和以不同的提示改善其回覆質素。

Despite the above guidelines, ChatGPT may still not comply, for example in terms of language of response or accuracy of content. Students should still exercise caution in verifying and improving the quality of its responses with different prompts.



Task 3

Ask the following question and compare its reply with your classmates.

詢問以下的問題，與同學比較它給予的回覆。

我可以怎樣改善我的英文水平？

How can I improve my Chinese Language level?



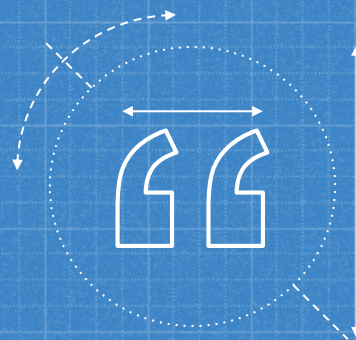
Task 4: Ask the following questions one by one. Compare the replies. 逐一詢問以下問題，並比較其回覆。

- 1) How to improve my Chinese level?
- 2) How to improve my Chinese level by using ChatGPT?
- 3) How to improve my Chinese level by using ChatGPT especially in vocabulary building?
- 4) How to improve my Chinese level by using ChatGPT especially in vocabulary building? Give me three key suggestions. Reply in 80 words.

- 1) 可以怎樣改善我的英文水平？
- 2) 可以怎樣利用 ChatGPT 改善我的英文水平？
- 3) 可以怎樣利用 ChatGPT 改善我的英文水平尤其在詞彙建構方面？
- 4) 可以怎樣利用 ChatGPT 改善我的英文水平尤其在詞彙建構方面？給予我三個建議並以80字回覆。

好的提示

Good Prompts



Clarity: Be Specific, Avoid ambiguous terms

清晰性：要具體，避免用意思含糊的用詞

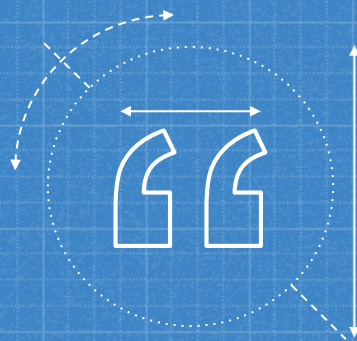
Example (not clear enough) : Tell me about Apple.

Example (clearer): Tell me about the fruit apple.

Tell me about Apple Inc., the technology company.

好的提示

Good Prompts



Context: provide background information

脈絡：提供背景訊息資料

Q1：請解釋量子力學。

Q2：我是一名高中物理學生，請解釋量子力學的基本原理。

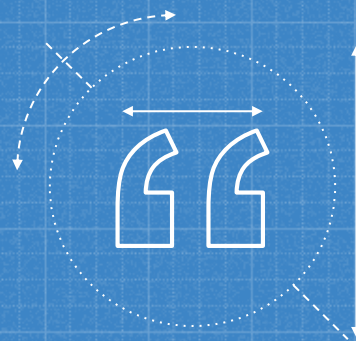
Q3：我是一名初中學生，請解釋量子力學的基本概念。

Q4：我是一名初中學生，請以一些具體例子給我解釋量子力學的基本概念。

Q5：我是一名小學生，請以一些具體例子給我解釋量子力學的基本概念。

好的提示

Good Prompts



Constraints: limit reply length and format

約束條件：提供長度限制和回覆格式

複製與貼上以下文字 Copy and Paste the following text

請將以不同年份來歸納重點，每個簡要約 100 字，並利用以下形式回覆：

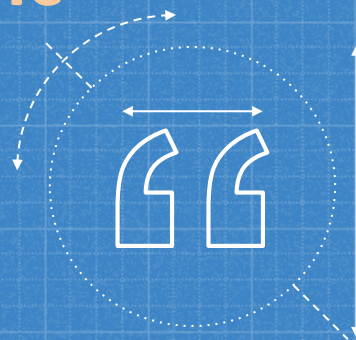
年分：<年分>

簡要：<簡要>

第3代移動通信系統(3G)自西元1990年代末期開始研發，於西元2000年代前中期開始在世界各國陸續開始服務，目前已經逐漸得到廣泛的應用。第3代手機的開始目標之一是開發一種可以輕易地連接上網路，並能在全球通用的無線通訊系統，但實際上在最後還是逐漸演變出了多種不同的制式規格。目前在世界上主要有W-CDMA、CDMA2000和TD-SCDMA等規格在競爭。這些新的規格都基於CDMA (碼分多址) 技術，在頻寬利用和數據通信方面都有進一步發展。而在高速數據傳輸和蜂窩移動通訊技術方面，於西元2007年10月新增WiMAX標準為第四種技術體制。臺灣第三代的數位式行動電話網路於西元2005年由歷經合併和增設之後的五大業者所分別引進，在2010年起智慧型手機逐漸普及之後，已成為行動電話服務的主力。3G的後續改良規格又被稱為「3.5G」，它包括了HSPA (HSDPA、HSUPA)及HSPA+等技術規格，可以讓使用者享用7.2M到42M的下載速率。在提供高速數據服務的同時，安全性也得到了改善。3.5G手機偏重於安全和數據通訊，一方面加強個人隱私的保護，另一方面加強數據業務的研發，更多的多媒體功能被引入進來，手機具有更加強勁的運算能力，不再只是個人的通話和文字信息終端，而是更多功能性的選擇。移動辦公及對通訊的強勁需求將使得手機與個人電腦的融合趨向加速，手機將逐漸擁有個人電腦的功能，這方面在手機市場上已經得到了充分的體現。第四代行動電話網路(4G)是在西元2010年代中期之時世界上所普遍使用的高速行動網路，可分為TDD-LTE (分時型長期演進技術)、FDD-LTE (分頻型長期演進技術) 及WiMAX (IEEE 802.16m)；而TDD-LTE、FDD-LTE規格在結構上已經進行了統一。第四代行動電話網路最重要的功能，就是搭配能夠上網執行各種網路服務的智慧型手機。第四代的行動電話技術將一般傳統的語音通訊完全當作是數據封包加以傳輸，這是和之前第三代網路非常不同的地方。由於作為第四代行動網路終端的智慧型手機在功能上已經猶如小型電腦一般，因此第四代行動網路與其說是數位式的高速電話通訊網路，更不如形容為是一種可以隨著基地台擴展使用範圍的巨大網際網路服務網路。臺灣第四代的數位式行動電話網路於西元2014年開始服務，是以智慧型手機行動上網服務的新一代主力。預計在西元2017年將接收第二代行動電話網路撤除之後所留下的通信頻寬。4.5G採用LTE Advance Pro，其概念由華為於2014年底首次提出，並於2015年10月被3GPP確認成為LTE的新標準。如名字所示意般，4.5G是LTE、LTE Advance的進一步技術演進，亦是各大網絡商進入5G前的重要一站。4.5G透過聚合載波、4x4 MIMO以及256 QAM等技術，網絡商可提供服務的4G網絡容量及下載速度會較以往更多更快，有助解決網絡塞車等問題。

要求它以特定形式回覆

Request it to reply in specific format



請將以不同年份來歸納重點，並利用以下形式回覆，：

年分：<年分>

簡要：<簡要>



將剛才的 Task 分兩次來輸入
Divide the previous task into two prompts

利用「請記下」的功能
Use “Remember” function

Step 1: 複製與貼上以下文字 Copy and Paste the following text

請記下以下文字，且不用給予特別回應。

第3代移動通信系統(3G)自西元1990年代末期開始研發，於西元2000年代前中期開始在世界各國陸續開始服務，目前已經逐漸得到廣泛的應用。第3代手機的開始目標之一是開發一種可以輕易地連接上網路，並能在全球通用的無線通訊系統，但實際上在最後還是逐漸演變出了多種不同的制式規格。目前在世界上主要有W-CDMA、CDMA2000和TD-SCDMA等規格在競爭。這些新的規格都基於CDMA（碼分多址）技術，在頻寬利用和數據通信方面都有進一步發展。而在高速數據傳輸和蜂窩移動通訊技術方面，於西元2007年10月新增WiMAX標準為第四種技術體制。臺灣第三代的數位式行動電話網路於西元2005年由歷經合併和增設之後的五大業者所分別引進，在2010年起智慧型手機逐漸普及之後，已成為行動電話服務的主力。3G的後續改良規格又被稱為「3.5G」，它包括了HSPA（HSDPA、HSUPA）及HSPA+等技術規格，可以讓使用者享用7.2M到42M的下載速率。在提供高速數據服務的同時，安全性也得到了改善。3.5G手機偏重於安全和數據通訊，一方面加強個人隱私的保護，另一方面加強數據業務的研發，更多的多媒體功能被引入進來，手機具有更加強勁的運算能力，不再只是個人的通話和文字信息終端，而是更多功能性的選擇。移動辦公及對通訊的強勁需求將使得手機與個人電腦的融合趨向加速，手機將逐漸擁有個人電腦的功能，這方面在手機市場上已經得到了充分的體現。第四代行動電話網路(4G)是在西元2010年代中期之時世界上所普遍使用的高速行動網路，可分為TDD-LTE（分時型長期演進技術）、FDD-LTE（分頻型長期演進技術）及WiMAX（IEEE 802.16m）；而TDD-LTE、FDD-LTE規格在結構上已經進行了統一。第四代行動電話網路最重要的功能，就是搭配能夠上網執行各種網路服務的智慧型手機。第四代的行動電話技術將一般傳統的語音通訊完全當作是數據封包加以傳輸，這是和之前第三代網路非常不同的地方。由於作為第四代行動網路終端的智慧型手機在功能上已經猶如小型電腦一般，因此第四代行動網路與其說是數位式的高速電話通訊網路，更不如形容為是一種可以隨著基地台擴展使用範圍的巨大網際網路服務網路。臺灣第四代的數位式行動電話網路於西元2014年開始服務，是以智慧型手機行動上網服務的新一代主力。預計在西元2017年將接收第二代行動電話網路撤除之後所留下的通信頻寬。4.5G採用LTE Advance Pro，其概念由華為於2014年底首次提出，並於2015年10月被3GPP確認成為LTE的新標準。如名字所示意般，4.5G是LTE、LTE Advance的進一步技術演進，亦是各大網絡商進入5G前的重要一站。4.5G透過聚合載波、4x4 MIMO以及256 QAM等技術，網絡商可提供服務的4G網絡容量及下載速度會較以往更多更快，有助解決網絡塞車等問題。

Step 2: 複製與貼上以下文字 Copy and Paste the following text

請將以不同年份來歸納剛才記下文字的重點，每個簡約 100 字，並利用以下形式回覆，：

年分：<年分>

簡要：<簡要>

ChatGPT 應能給予更佳的回覆！



Student Generate Learning Examples



Simulate the class exercises

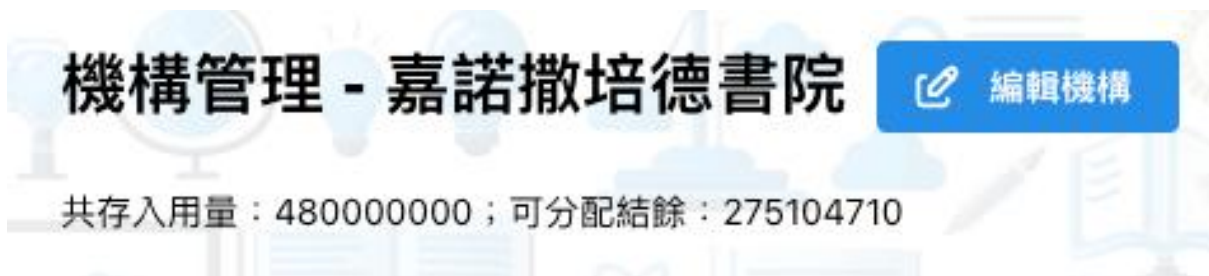


The importance of prompt history

閱覽聊天記錄 - 3C STEM						
以名稱或電郵搜尋成員		搜尋訊息		顯示已刪除項目		
建立時間	發送人	訊息	回覆	用量	操作	
2023-12-12 11:38:29	s2021056@ptc.c.edu.hk	Please act as a tutorial teacher to a Hong Kong Secondary 3 students. If you don't know the answers of certain questions, please reply "I don't know" instead of creating fake content. Also, dialog with me in	Sure, I'll be happy to act as your tutorial teacher for a Secondary 3 student in Hong Kong. I'll respond to your questions respectfully and use appropriate language. If you use traditional Chinese, I'll reply in traditional Chinese. If you use English, I'll respond in English. Feel free to ask any questions you have!	1852		
2023-12-12 11:38:45	s2021032@ptc.c.edu.hk	Please act as a tutorial teacher to a Hong Kong Secondary 3 students. If you don't know the answers of certain questions, please reply "I don't know" instead of creating fake content. Also, dialog with me in	Of course! I'll be happy to act as your tutorial teacher. Please feel free to ask me any questions you have, and I'll do my best to provide you with accurate and helpful answers. Let's begin our lesson! What would you like to know or discuss?	1980		
2023-12-12 11:39:1	s2021017@ptc.c.edu.hk	Please act as a tutorial teacher to a Hong Kong Secondary 3 students. If you don't know the answers of certain questions, please reply "I don't know" instead of creating fake content. Also, dialog with me in	Of course, I'll be happy to act as your tutorial teacher for a Secondary 3 student in Hong Kong. I'll respond to your questions respectfully and in the appropriate language as per your instructions. Please feel free to ask any questions you have, and I'll do my best to provide accurate and helpful answers.	2156		
2023-12-12 11:39:2	cls@ptcc.edu.hk	我可以怎樣改善我的英文水平？	要改善你的英文水平有一些方法和策略可以遵循： 1. 多聽、多說：多聆聽英語，例如透過英文音樂、電影、廣播等方式。嘗試用英文與他人交談，增加口說練習的機會。 2. 多閱讀：閱讀英文書籍、報紙、雜誌等，有助於擴充詞彙量和提高閱讀理解能力。	3508		
2023-12-12 11:39:5	s2021018@ptc.c.edu.hk	我可以怎樣改善我的英文水平？	你可以採取以下方法來提升你的英文水平： 1. 多聽多讀：多聆聽英語音樂、廣播、或觀看英語電影、紀錄片等。同時閱讀英語書籍、報紙和雜誌，這能幫助你熟悉不同的詞彙和語法結構。	3304		

Costing Issue

- Learn from experience



主頁 價目 聊天 機構管理	
100,000 單位 = HKD\$1	
AI 模型名	每 token 用量
ChatGPT 3.5	2
ChatGPT 3.5 (16K context)	4
ChatGPT 4	60
ChatGPT 4 Vision	30
Dall-E 3	40000~120000

以名稱或電郵搜尋成員











搜尋訊息

顯示已刪除項目

建立時間	發送人	訊息	回覆	用量	操作
2024-04-13 21:49:9		300字	aborted	66180	
2024-04-13 21:52:30		我叫王苡心，我嚟來自嘉諾撒培德書院，現在就讀中四。我對科技和數碼產業有著濃厚的興趣，特別是電腦編程和網頁設計。我對數碼產業的興趣源於我對科技的熱愛。我從小就對電腦和互聯網充滿好奇，經常自學編程和網頁設計。	我叫王苡心，來自嘉諾撒培德書院，現就讀中四。我對科技與數碼產業有濃厚興趣，尤其是電腦編程與網頁設計。我曾自學Python編程，成功編寫一個簡易計算機程式，這經驗更加深了我對編程的熱愛。 我認為數碼產業是未來的趨勢，我希望能在這領域發揮所長。我相信我創新的思維和學習能力，能為數碼產業帶來新視角和解決方案。 對於這次的工作體驗，我期待能學到更多關於數碼產業的實際運作和管理知識，並提升我在編程和網頁設計方面的技能。我希望透過這次的體驗，能更深入了解這個行業，為我未來的學習和職業規劃提供方向。	115500	
2024-04-13 21:55:57		闡述您對於未來數碼產業工作的興趣: (A) 是什麼因素激發了您對於未來投入數碼產業工作的興趣?或 (B) 您認為自己未來能為數碼產業帶來哪些貢獻? (3) 進一步說明您對這次工作體驗的熱切期望。(A) 你期待透過這次的工作體驗	我對數碼產業的興趣源自我對科技的熱愛和好奇心。我從小就對電腦和互聯網充滿好奇，經常自學編程和網頁設計。我認為數碼產業是未來的趨勢，我希望能在這個領域中發揮自己的才能。我相信自己的創新思維和學習能力，能為數碼產業帶來新的視角和解決方案。 對於這次的工作體驗，我期待能學到更多關於數碼產業的實際運作和管理知識，並提升我在編程和網頁設計方面的技能。我希望透過這次的體驗，能更深入了解這個行業，為我未來的學習和職業規劃提供方向。	156360	
2024-04-13 21:57:32		可以用例子來豐富內容，例如什麼編程語言？HTML/ SQL/ JAVA? 例如什麼科技？	我叫王苡心，來自嘉諾撒培德書院，現就讀中四。我對科技與數碼產業有濃厚興趣，尤其是電腦編程與網頁設計。我曾自學Python和Java編程，並成功編寫出一個簡易計算機程式，這經驗更加深了我對編程的熱愛。 我認為數碼產業是未來的趨勢，我希望能在這領域發揮所長。我相信我創新的思維和學習能力，能為數碼產業帶來新視角和解決方案。我也期待能將我在HTML和SQL的知識應用到實際工作中，為數碼產業帶來實質的貢獻。	187800	
2024-04-13 21:58:50		300字	我叫王苡心，就讀嘉諾撒培德書院中四。我對科技與數碼產業有濃厚興趣，尤其是電腦編程與網頁設計。我曾自學Python和Java編程，成功編寫一個簡易計算機程式，這經驗更加深了我對編程的熱愛。 我認為數碼產業是未來的趨勢，我希望能在這領域發揮所長。我相信我創新的思維和學習能力，能為數碼產業帶來新視角和解決方案。我也期待能將我在HTML和SQL的知識應用到實際工作中，為數碼產業帶來實質的貢獻。	218460	

$$\begin{aligned} & \$1.15 + \$1.56 + \$1.87 + \$2.18 \\ & = \$6.76 \end{aligned}$$

An example (ChatGPT 4.0)

建立時間	發送人	訊息	回覆	用量	操作
2024-04-05 23:38:58				4000 0	
2024-04-06 2:43:51				4000 0	
2024-04-06 2:45:28				4000 0	
2024-04-06 2:49:4				4000 0	
2024-04-06 2:51:23				4000 0	

Dalle-E 3.0 (5000000 Tokens assigned to each student)

Conclusion

Well equip my students to face the future challenge

Teach them how to use the powerful learning productivity tool

Narrow the AI competencies between students

Providing tools for students to accomplish different tasks

- Competitions
- Composition Tasks