

Understanding Big Data

- Course introduction
- Concept of Big Data
- Exploring Big Data sources related to COVID-19





01

Course Introduction



What You Learn During Semester 1/2

1. Understand what big data is.
2. Understanding the global open source database and the data structures it provides for COVID-19.
3. Learn the python coding method required for big data processing.
4. Learn DBMS technology to effectively utilize the collected big data.
5. Midterm exam: Submit video presentations for each student about what they have done so far.

What You Learn During Semester 2/2

1. Analyze the correlation between COVID-19 and vaccination.
2. Analyze the correlation between COVID-19 and stock price.
3. Analyze the correlation between COVID-19 and other infectious diseases.
4. Learn how to interpret correlation analysis results using the XGBoost method.
5. Final exam: Submit video presentations for each student about what they have done so far.



02

Big Data & AI

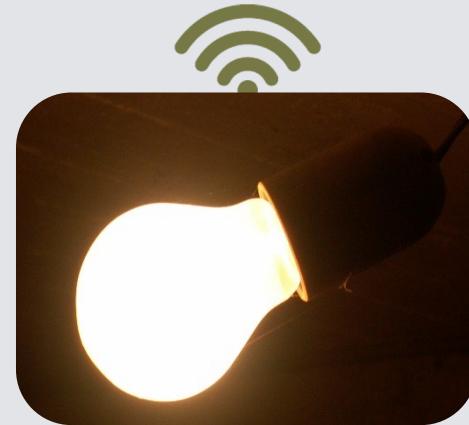


What is the 4th Industrial Revolution?



- | | | | |
|---|---|---|---|
| <ul style="list-style-type: none">✓ 18세기✓ 증기기관 + 기계화✓ 1784년 수력증기기관 활용 철도, 면사방적기
✓ 18th century✓ Steam engine & mechanization | <ul style="list-style-type: none">✓ 19세기 ~ 20세기 초✓ 전기 + 대량생산✓ ‘포드’ 자동차 회사의 ‘T형 포드’ 대량생산
✓ 19th – early 20th century✓ Electricity & Massive production | <ul style="list-style-type: none">✓ 20세기 후반✓ 컴퓨터 + 인터넷✓ 컴퓨터를 이용한 생산자동화
✓ Late 20th century✓ Computer & Internet✓ Automation | <ul style="list-style-type: none">✓ 2015년 ~ 현재✓ IoT + 인공지능✓ 초연결성, 초지능화
✓ Late 20th century✓ IoT & A.I. |
|---|---|---|---|

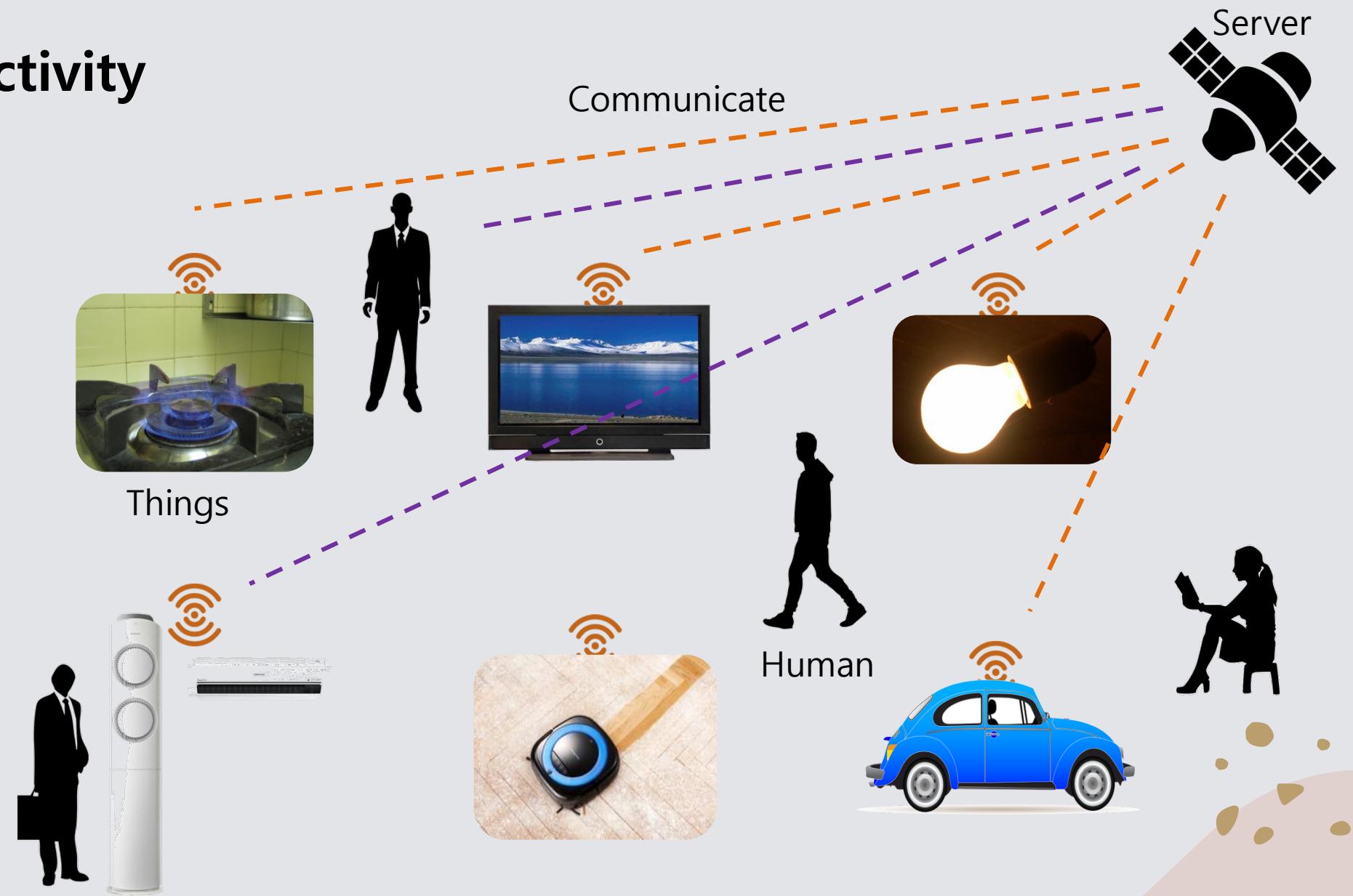
IoT, Internet of Things..?



Communication over the internet



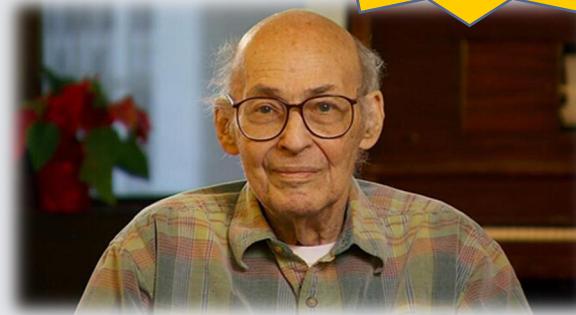
Hyper-connectivity



- ❖ The beginning of artificial intelligence
 - ✓ A workshop held at Dartmouth College in the United States in 1956.
 - ✓ A.I. == Machines that think like humans
 - ✓ The world's first artificial intelligence program
 - Logic theorist
 - A program that automatically proved theorem



John McCarthy(1927–2011)

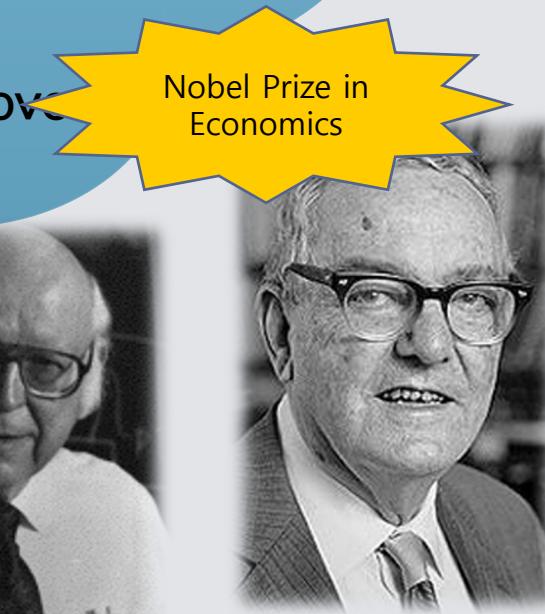


Marvin Lee Minsky(1927–2016)

Turing Award
Winner



Allen Newell(1927–1992)



Herbert Simon (1916–2001)



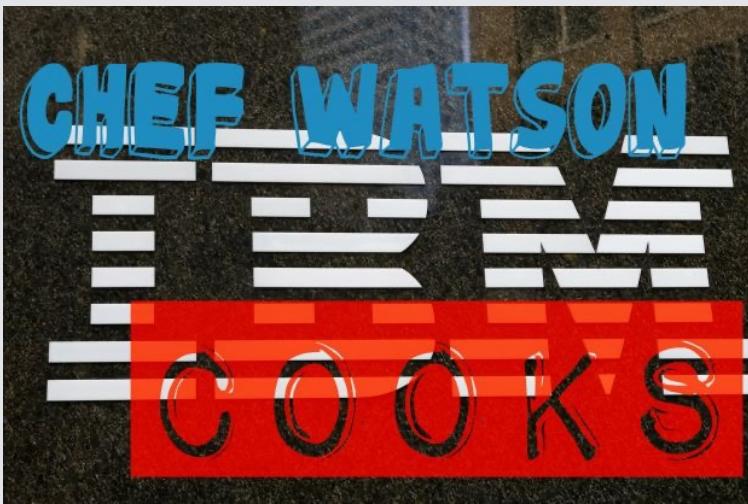
The start of the battle between humans and computers

- ❖ In 1997, IBM developed a supercomputer called 'Deep Blue'.
 - ✓ He played against world chess champion Gary Kasparov → Victory~!

- ❖ 2012 - 2014 Janggi professional software 'Born Cries'
 - ✓ Fight against Kunio Yonenaga, president of the Japan Shogi Federation → Victory~!

왓슨(Watson)

- ❑ Artificial intelligence 'Watson' developed by IBM
- ❑ 1997 Deep-Blue wins chess tournament
- ❑ In 2011, 14 years later, Watson won the quiz program champion!



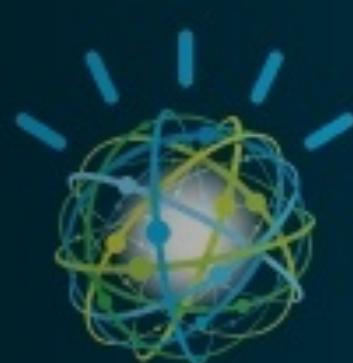
*IBM Research
Project*

왓슨(Watson)



R&D

Demonstration



*Jeopardy!
Grand
Challenge*

(Feb 2011)

*Watson
for
Healthcare*

(Aug 2011 --)



Commercialization

*Watson
Industry
Solutions*

(2012 --)



Cross-industry
Scale up

New class of
industry specific
business analytics

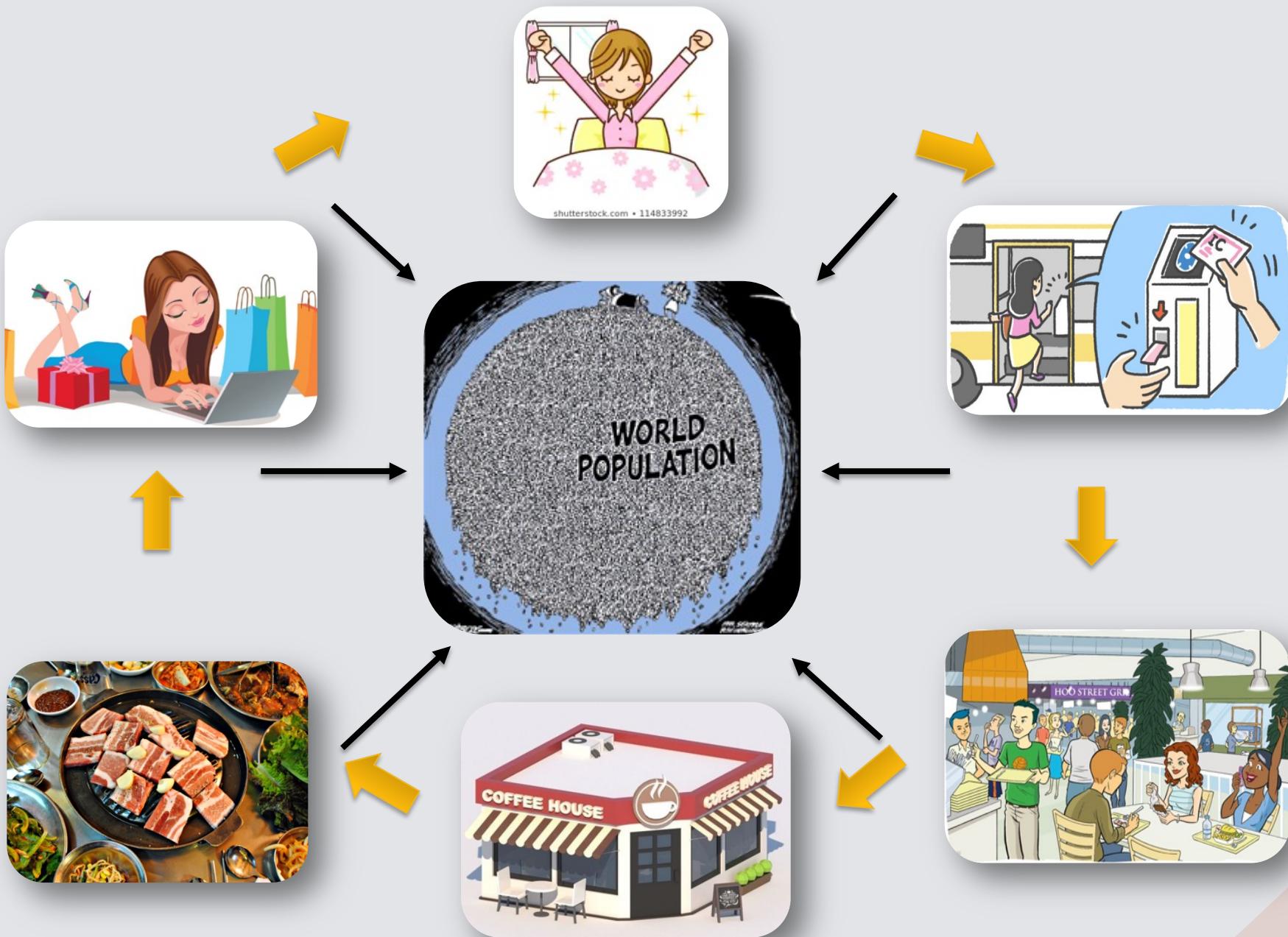
Artificial intelligence that eats Big data

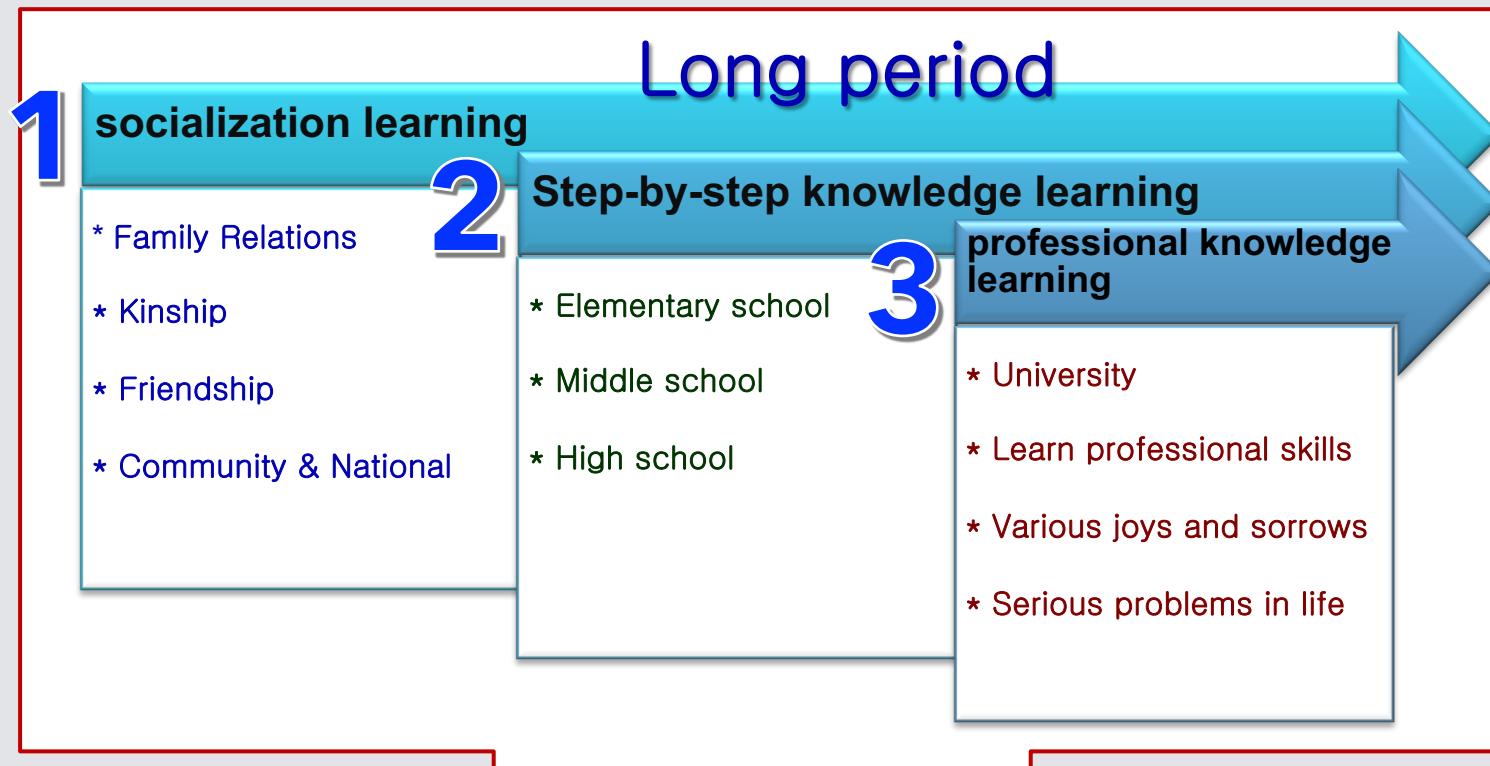


What is Big Data..?

**Big size data,
How Big..?**







Birth of natural
intelligence

Sufficient amount of learning experience (= Big Data)

What is Learning..?



Mom!



Dad!!



What is Learning...?



THANK YOU

