

A decorative graphic on the left side of the slide, consisting of a network of light green lines and circles of varying sizes, resembling a circuit board or a neural network. The lines are vertical and horizontal, with some diagonal connections. The circles are placed at various points along these lines, some at the ends and some in the middle. The overall pattern is dense and intricate, extending from the top to the bottom of the slide.

COMPUTER SCIENCE IN EVERYDAY LIFE

INTEGRATED MATHEMATICAL SCIENCES 1/59

WHY DO WE WANT COMPUTER IN OUR LIFE?

- Work is repetitive
- Work is tedious
- Human is lazy

WHAT IS COMPUTER SCIENCE?

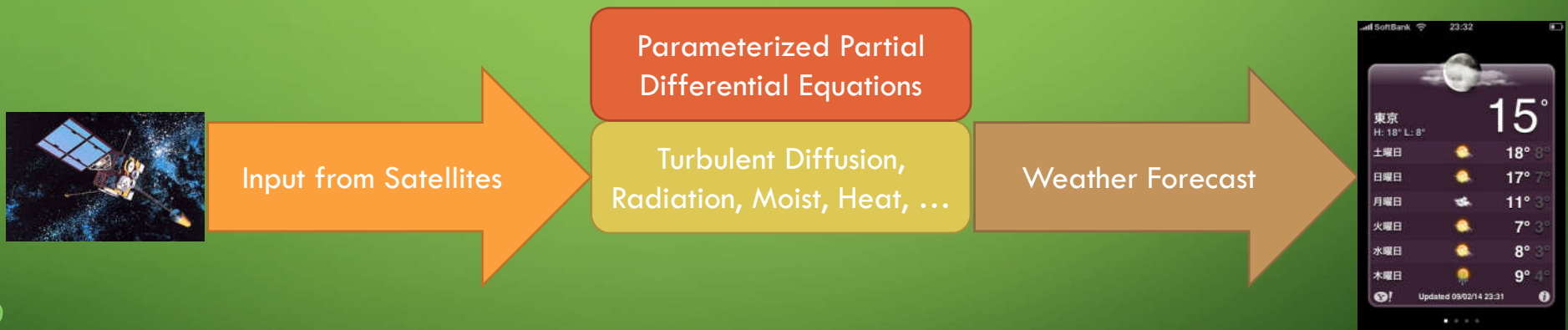
- Computer Science is Science revolving around Data



- Computer Science is not just about Programming/Coding

EXAMPLE OF COMPUTER USAGE

- Weather Forecast

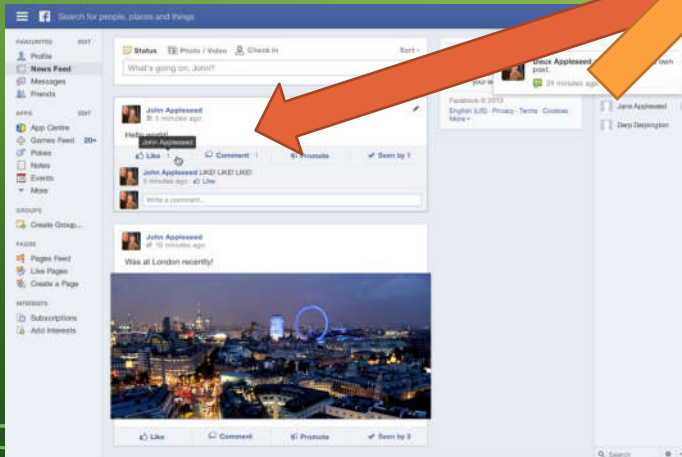
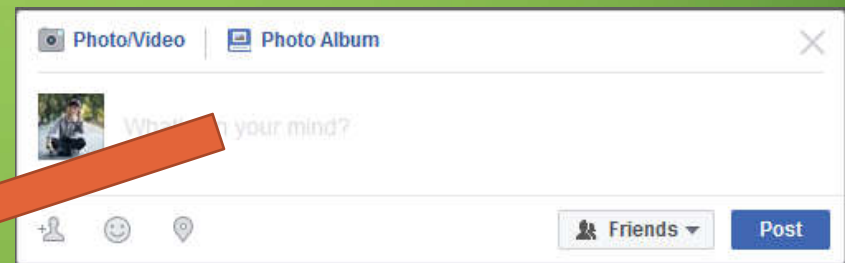


COMPUTER TECHNOLOGY

- There are many topics in Computer Science
- Each topic is developed separately but they can be cross-referenced
- Technology that we use today is a conjunction of several Computer Science topics

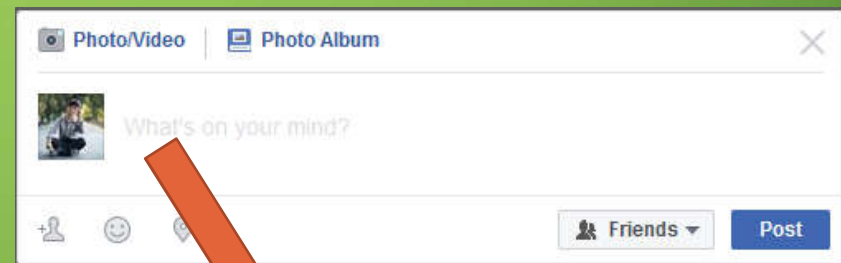
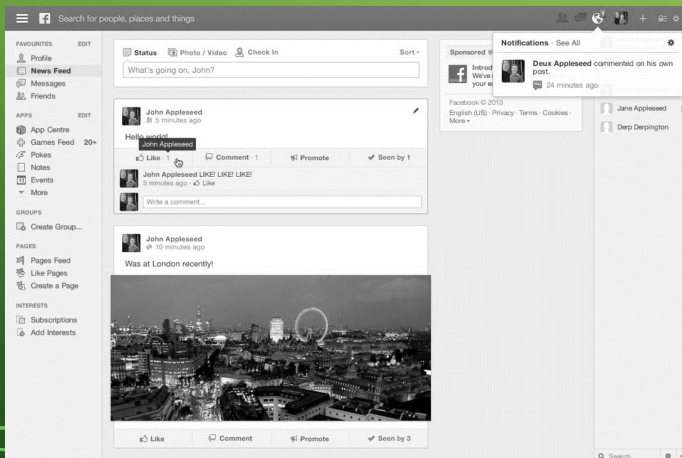
HOW DOES FACEBOOK WORK?

- Write a text and click “Post”
- Where does this text go?



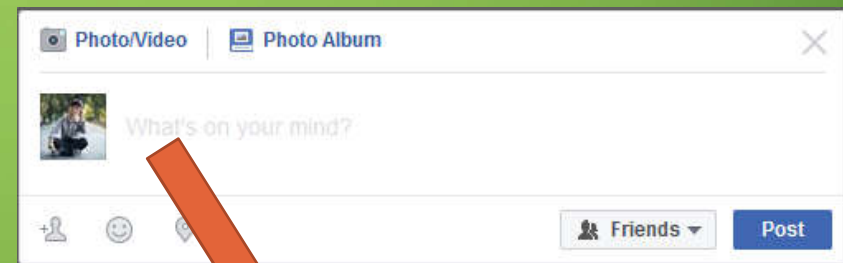
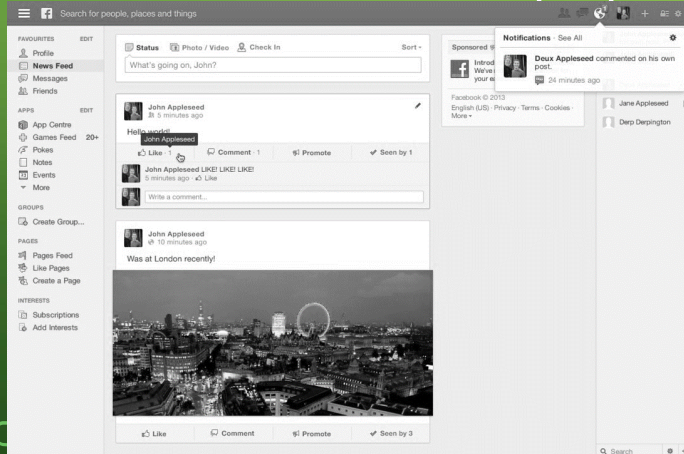
HOW DOES FACEBOOK WORK? (2)

- This text goes to Database Server
- In fact, all texts around the world go to this Database Server



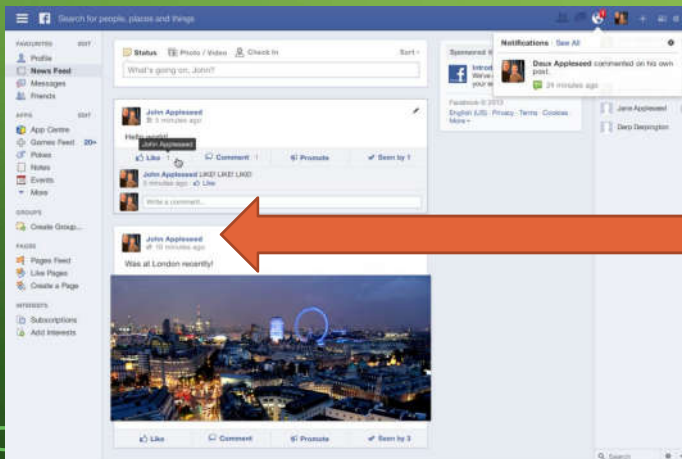
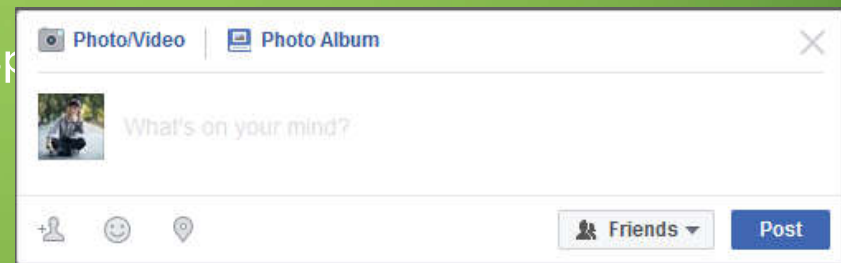
DATABASE MANAGEMENT SYSTEM

- How to store data efficiently?
- How to retrieve data swiftly?
- How to maintain data properly?



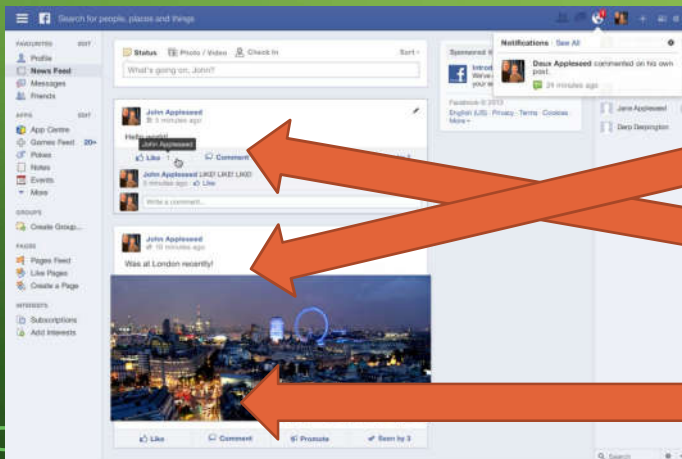
HOW DOES FACEBOOK WORK? (3)

- Are all texts from Database Server displayed?
- How does Facebook sort newsfeed?



ARTIFICIAL INTELLIGENCE

- Collect your likes/shares/posts information
- Predict your interest based on that information



TEXT 1
Score: 0.7

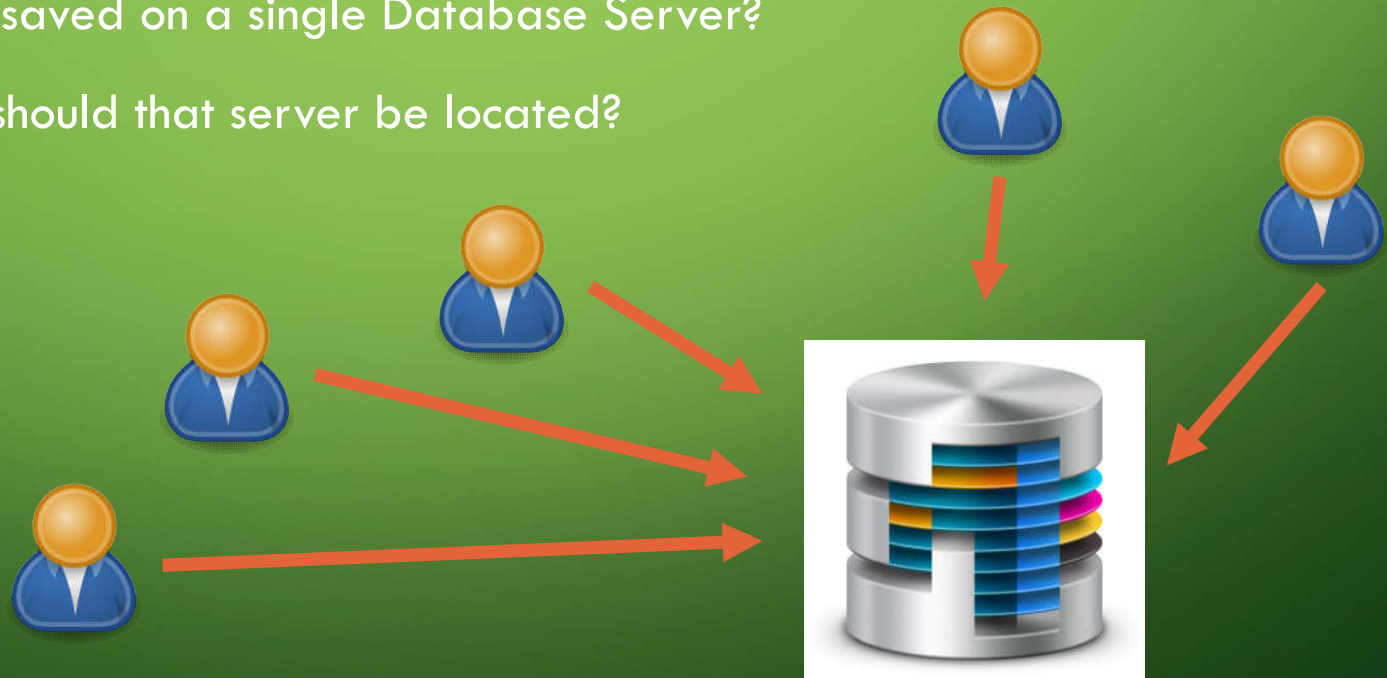
TEXT 2
Score: 0.9

TEXT 3
Score: 0.5



HOW DOES FACEBOOK WORK? (4)

- Are all texts saved on a single Database Server?
- If so, where should that server be located?



DISTRIBUTED SYSTEM

- A large number of computers help each other to do the work
- Texts are stored in multiple servers across the globe to prevent system failure



POKÉMON GO

- How does the game know where you are?
- Where does Pokémon come from?



GLOBAL POSITIONING SYSTEM (GPS)

- GPS uses information from satellites network to locate you
- Location is given by Latitude, Longitude and Altitude



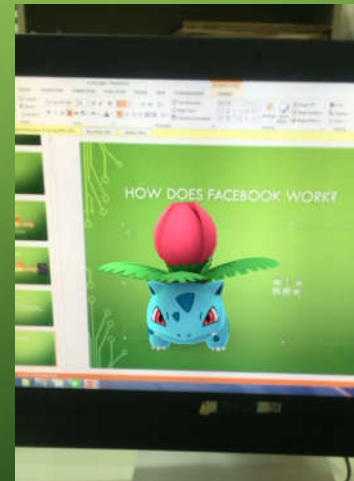
COMPUTER NETWORK

- Player sends GPS information to Server
- Server sends back Pokémon information
- Focus on fast response time to prevent latency



COMPUTER GRAPHIC

- Initially create artificial object in artificial world with semi-real physics
- Virtual Reality – Bring real person to artificial world via sensors
- Augmented Reality – Bring artificial object to the real world via cameras



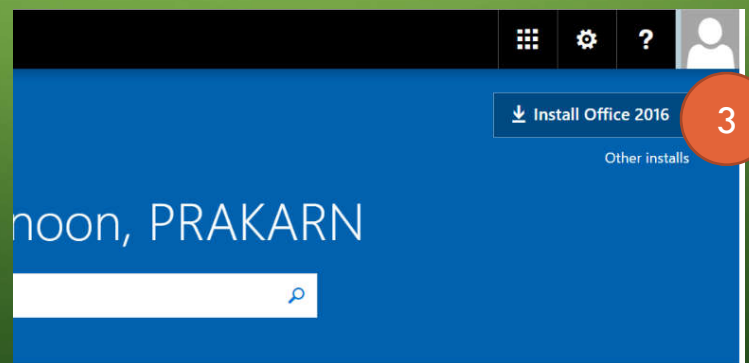
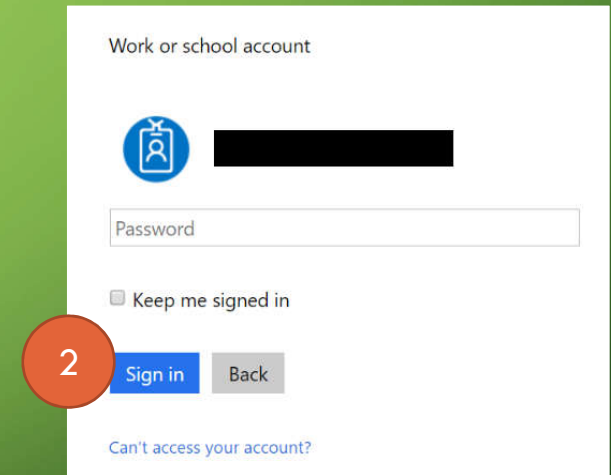
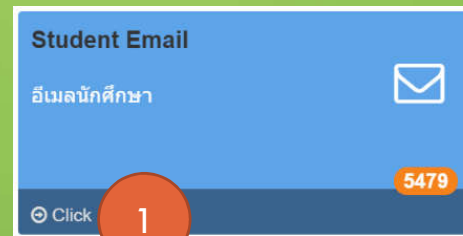
COMPUTER SECURITY

- Encrypt message so no one understand except senders and receivers
- Prevent unauthorized access
- Detect anomaly activities (virus, malware, Trojan)



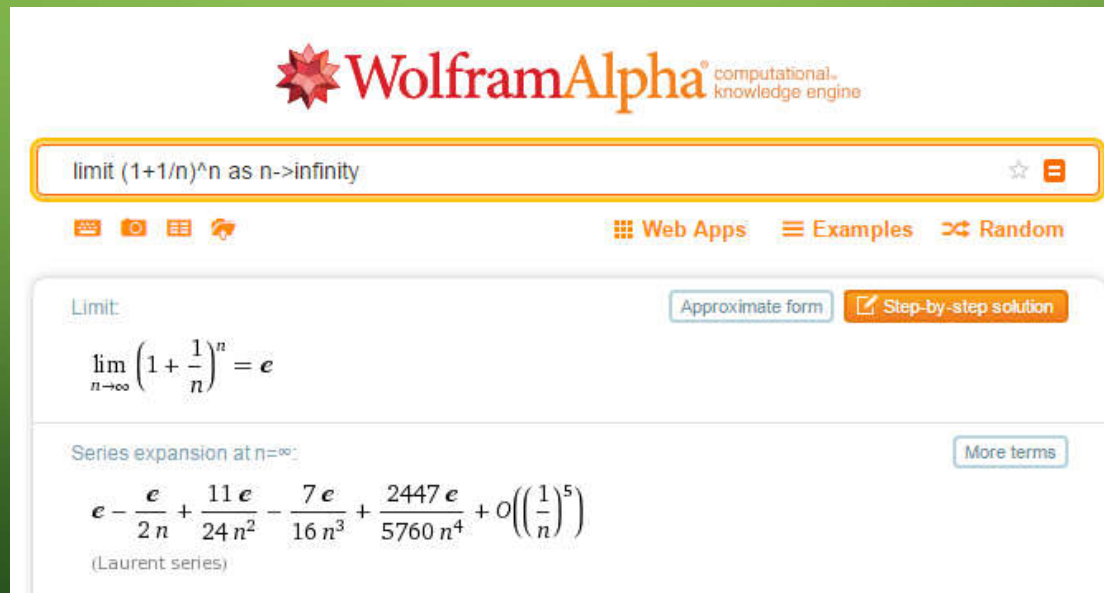
USEFUL TOOLS: MICROSOFT OFFICE

- Free for CMU students!!!
- Go to <https://portal.cmu.ac.th/>
- Click on “Student Email” and login
- Select “Install Office 2016”, save and run the installer



USEFUL TOOLS: WOLFRAM ALPHA

- Go to <https://www.wolframalpha.com/>
- Ask any Math-related problems



The screenshot shows the WolframAlpha website interface. At the top, the logo "WolframAlpha" is displayed with the tagline "computational knowledge engine". Below the logo is a search bar containing the text "limit (1+1/n)^n as n->infinity". To the right of the search bar are icons for a star and a menu. Below the search bar are several navigation links: "Web Apps", "Examples", and "Random". The main content area displays the result of the limit calculation. It starts with the word "Limit:" followed by the equation $\lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n = e$. To the right of the equation are two buttons: "Approximate form" and "Step-by-step solution". Below the limit result is the "Series expansion at n=∞:" followed by the equation
$$e - \frac{e}{2n} + \frac{11e}{24n^2} - \frac{7e}{16n^3} + \frac{2447e}{5760n^4} + O\left(\left(\frac{1}{n}\right)^5\right)$$
. A button labeled "More terms" is located to the right of the series expansion. At the bottom left of the series expansion, the text "(Laurent series)" is visible.

USEFUL TOOLS: CLOUD STORAGE

- <https://www.dropbox.com/> (2 GB Free)
- <https://onedrive.live.com/> (5 GB Free)
- <https://www.google.com/drive/> (15 GB Free)
- <https://www.box.com/> (10 GB Free)

