

MLDA @ EEE Presents

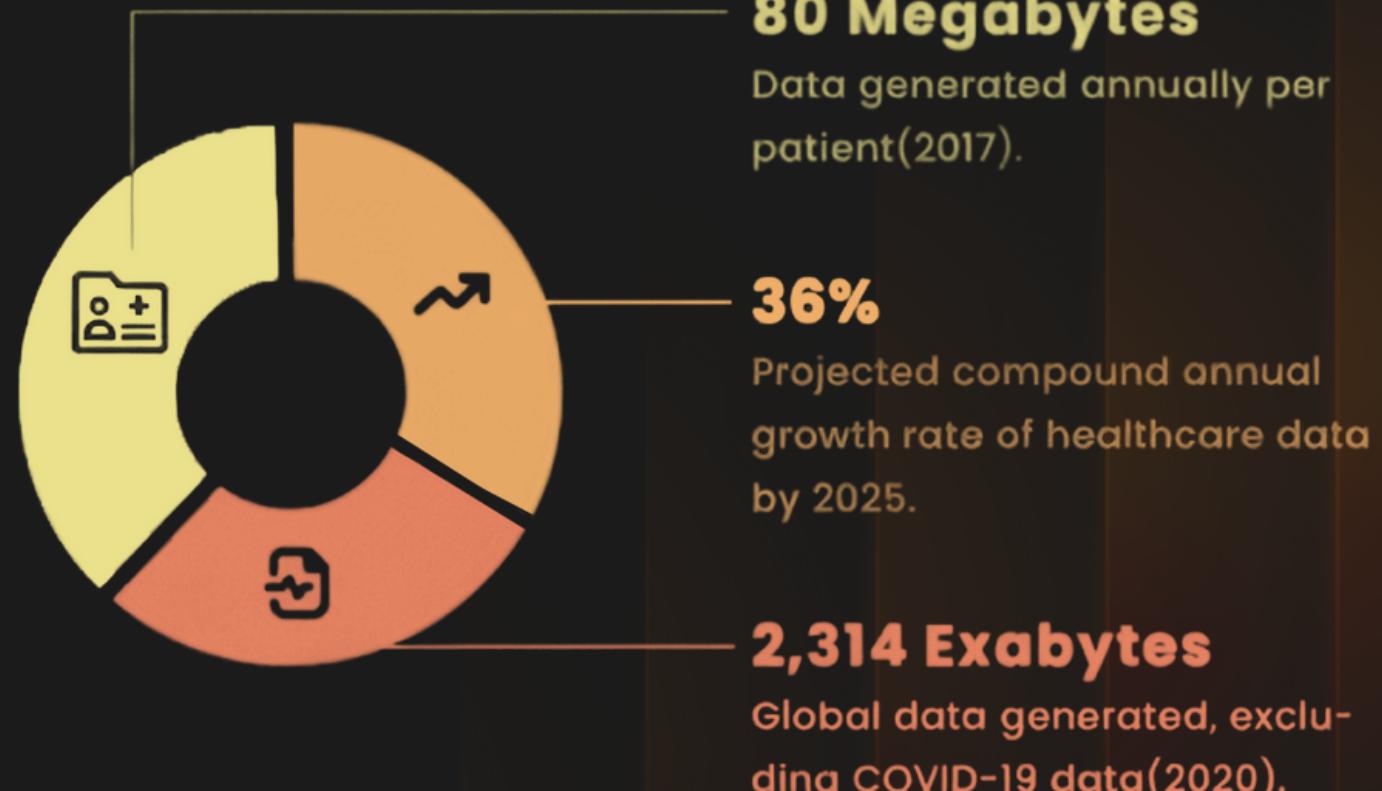
Datathon 2025

LIFELINE

A primer.

Healthcare generates over **2,314 exabytes** of data annually, yet we're still facing significant challenges in early diagnosis and treatment optimization, particularly in maternal and fetal health.

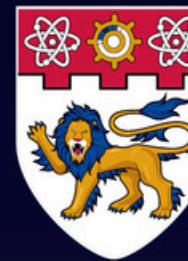
The problem or the gap isn't in the data itself; it's in how we analyze and apply it to improve patient outcomes.





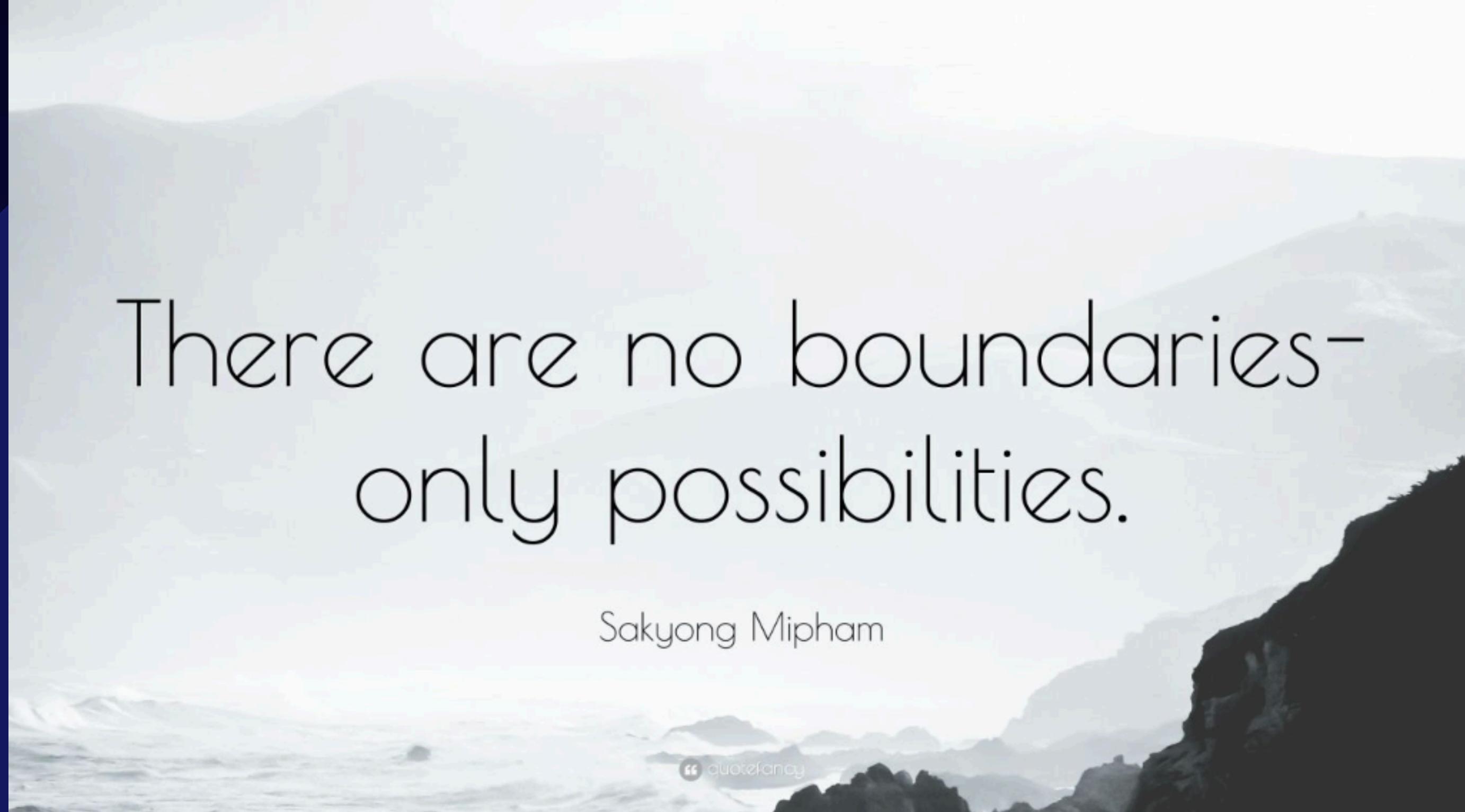
Opening Address **Dr. S. Supraja**

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NANYANG
TECHNOLOGICAL
UNIVERSITY
SINGAPORE

MLDA Datathon
29 September 2025



There are no boundaries—
only possibilities.

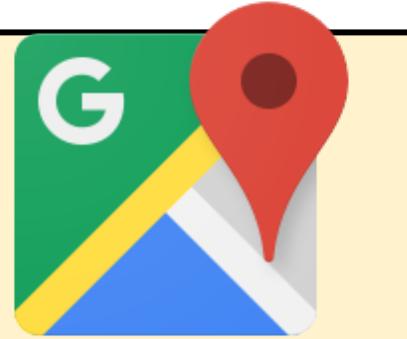
Sakyong Mipham

quotefancy

Dr S Supraja
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Altruistic algorithms: how helpful they are in our daily lives

Finding shortest path - navigation



Sorting - online shopping



Arrays - game design

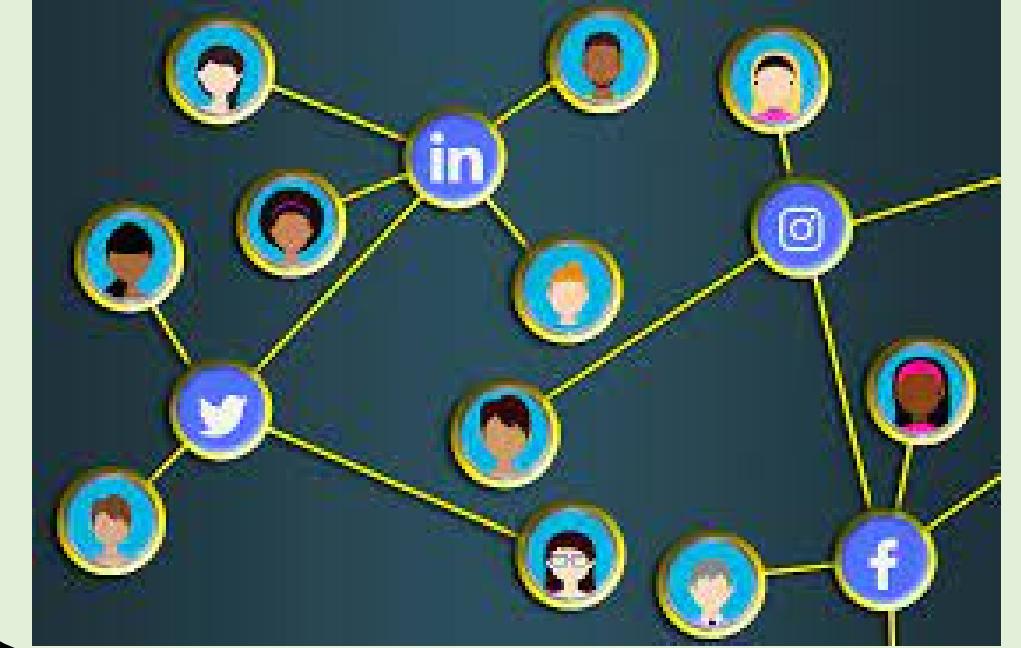
5	3		7		
6		1	9	5	
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8		6			3
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	8		7	9	



Prediction and recommendation - movies



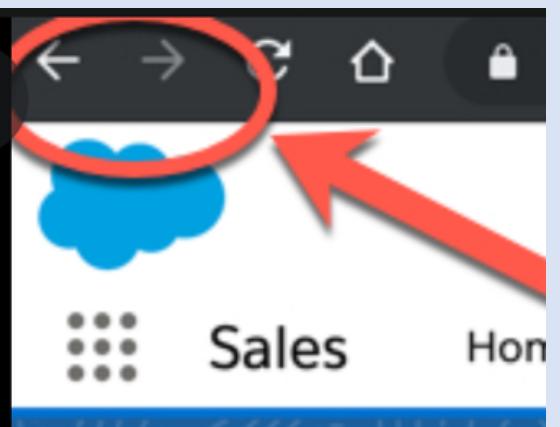
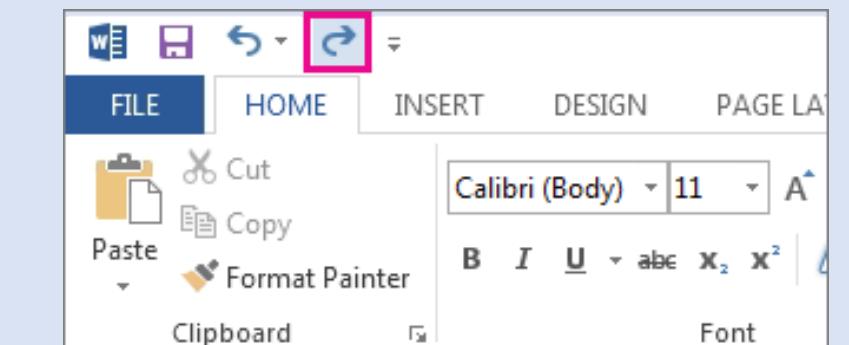
Graphs - social media networks or Covid-19 contact tracing

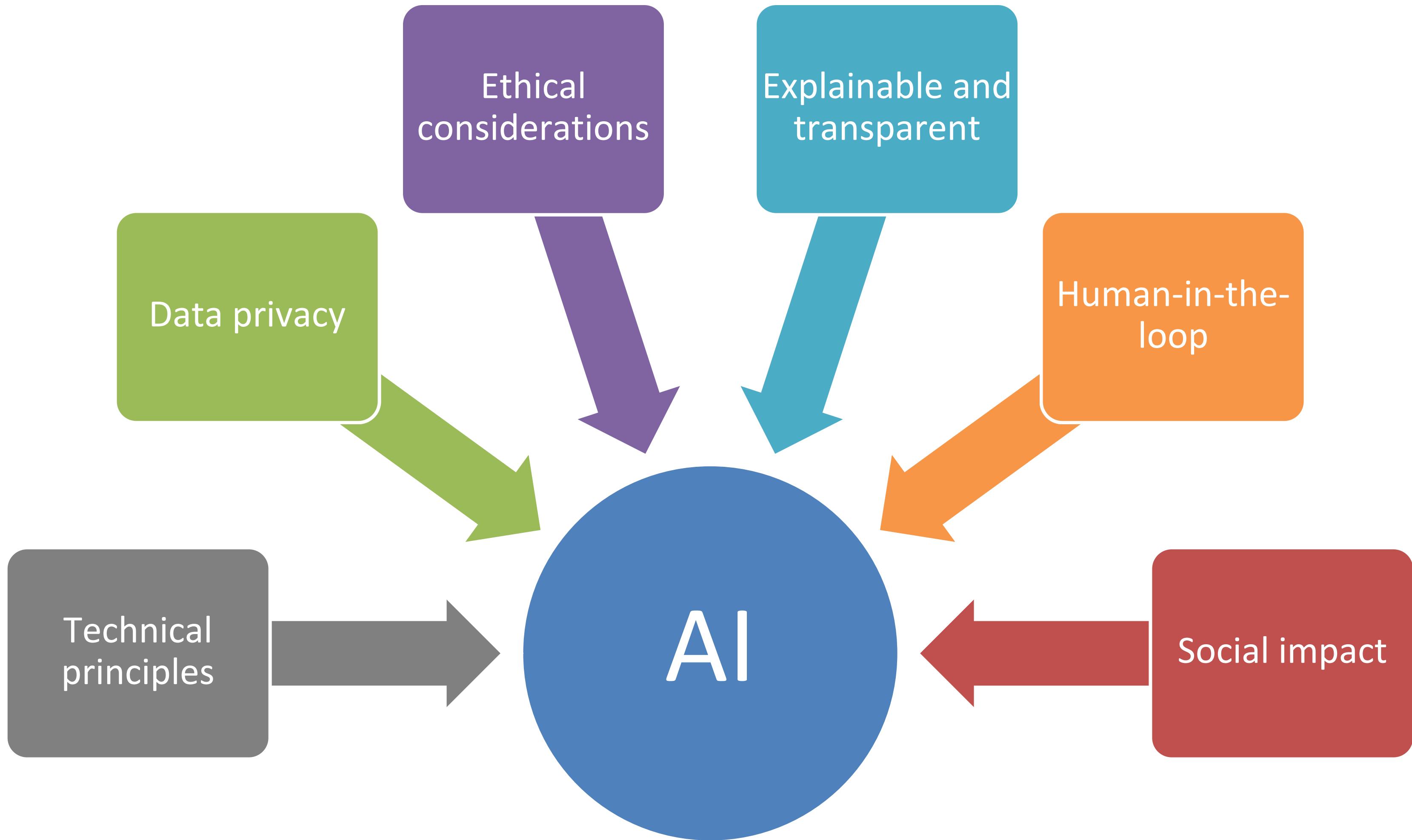


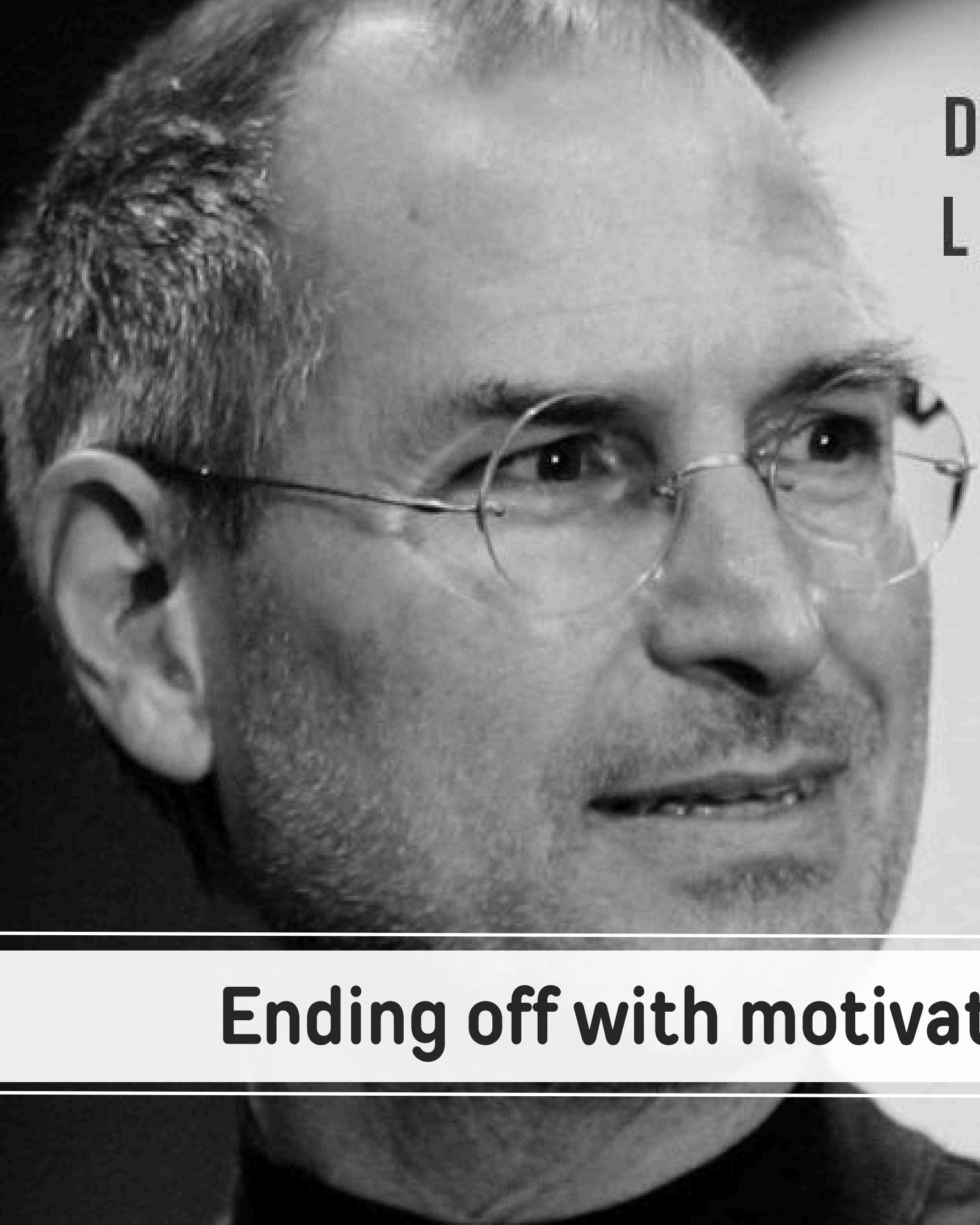
Stacks/Queues/Lists - undo/redo, browsing history/call logs, school registration, HDB balloting, music player, web browser previous/next



HOUSING &
DEVELOPMENT
BOARD





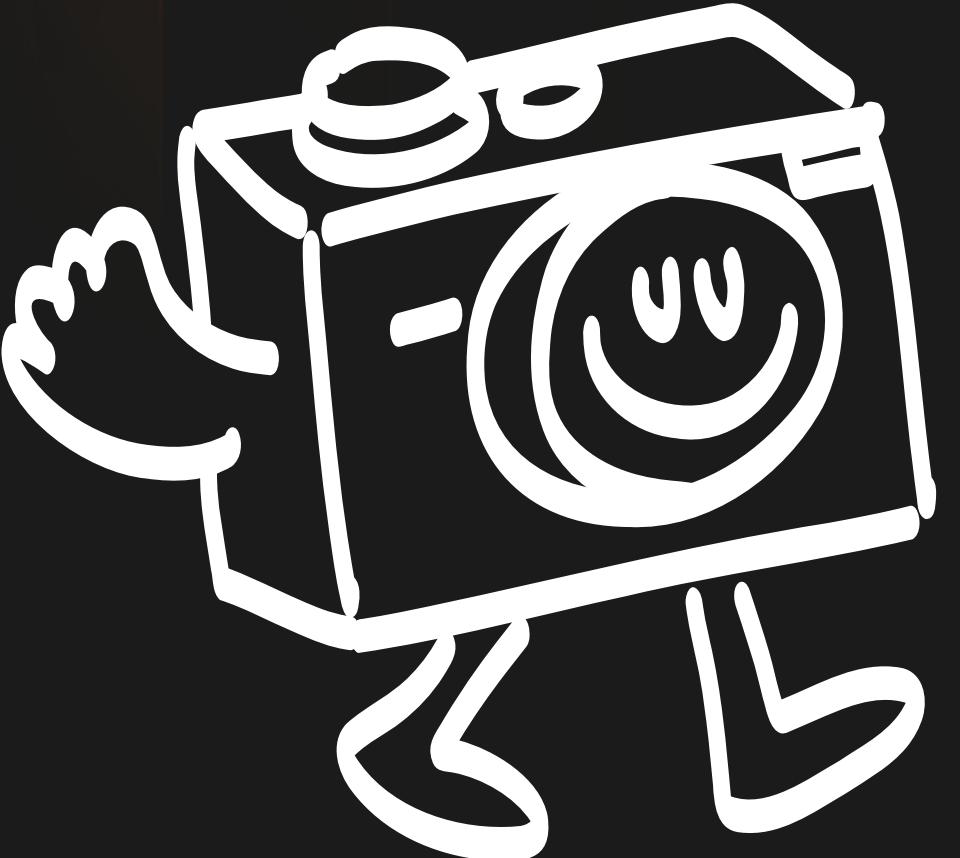


**DESIGN IS NOT JUST WHAT IT
LOOKS LIKE AND FEELS LIKE.
DESIGN IS HOW IT WORKS.
- STEVE JOBS**



Ending off with motivation on developing AI solutions

Turn on your cameras and pose!
Just for a few minutes :)



What is Datathon?

A datathon is a **time-limited analytics competition** where teams use real world data to solve a specific challenge. It's like a hackathon, but with a focus on data analysis and machine learning.



Learning and Collaboration:

Participants work in teams to use analytics, manage data, and creatively generate insights. You'll extend your knowledge by learning from peers in a fast paced, supportive setting.

Friendly Competition:

This Datathon is beginner-friendly! Questions are welcome, and there is mentorship available. You'll gain experience with data science tools and meet other students, mentors, and professionals passionate about medicine and AI. Plus, there are exclusive prizes (up to SGD 800) for the winning teams and DLW 2026 merchandise worth SGD 1000+ for the Top 10 teams!

The Theme:

Lifeline

Background

The Lifeline theme centers on **cardiotocography (CTG)**, a monitoring tool used during labor. Every year, thousands of mothers undergo CTG: it records the baby's heart rate and the mother's uterine contractions

Challenge

Early detection of fetal distress (when the baby's oxygen is threatened) can prevent complications. However, CTG readings are complex and subtle patterns can be missed by busy clinicians.

Why Lifeline?

Just as a heartbeat is a lifeline for a baby in the womb, our datathon challenge asks how data-driven tools can become a second pair of eyes in the delivery room. We aim to use ML to spot warning signs that might otherwise go unnoticed, potentially saving lives.

Problem Statement

“How can we build a solution that carefully interprets the patterns hidden in a baby’s heart rate and the mother’s contractions, in order to automatically identify signs of fetal distress that might otherwise go unnoticed during labor?”



Objectives

Use real-world CTG recordings to support clinicians in spotting fetal distress.

In practice, this means building a model that classifies each CTG trace into Normal, Suspect, or Pathologic to indicate the level of risk.

The solution should not only be accurate, but also medically interpretable and clearly presented to both technical and non-technical audiences.

Expected Tasks



Preprocess & Clean the CTG Data

Teams will fix errors and handle missing values to prepare for analysis.



Explore and Understand the Features

Learn what each medical feature (e.g. accelerations, decelerations, variability) means.



Develop Models

Use machine learning algorithms to classify fetal state (Normal/Suspect/Pathologic).



Evaluate & Iterate

Measure performance (accuracy, reliability) and consider fairness, ensuring your solution is robust



Communicate Results

Prepare a clear slide deck explaining your methods, findings, and medical insights.

Judging Criteria

01 Classification Performance

How accurately you detect fetal distress

02 Medical Insight

Understanding of features and significance

03 Presentation Clarity

Creative approaches and solid justification of methods are encouraged



Dataset

CTG Dataset: We will use the UCI Cardiotocography (CTG) dataset. This public dataset contains over 2,000 real CTG traces (fetal heart rate and uterine contractions) labeled by three obstetricians as Normal, Suspect, or Pathologic . It's a reliable real-world dataset to work with.

(See: <https://archive.ics.uci.edu/dataset/193/cardiotocography> for dataset details.)

Datathon Deliverables

All deliverables are mandatory. Submissions that do not consist of these items will not be considered valid.

GitHub Link

Submit a GitHub repository URL containing your code and solution files. Make sure we have view access through Dorahacks link (disseminated later).

Demo Video

Record a 2-minute demo video walking through your solution and results. (Explain your approach clearly).

1-Page Academic Report

The academic report should explain the model design and rationale, as well as the data processing pipeline (e.g., cleaning, transformation, preparation). Please include relevant citations to support your choices.

Important Dates

Build Sprint (Round 1)

29th September – 5th October 2025

First round, leaderboard-based coding

Demo Day (Round 2)

10th October 2025, 4:30 PM – 9:00 PM

Top 10 teams present their solutions

Be sure to submit your Round 1 results by 5 Oct and join us for the finals on 10 Oct!

**Stay Updated:**

Join our Telegram channel for announcements, clarifications, and discussions! All updates during the Datathon will be shared there.

**Mentoring:**

We will offer group mentoring sessions, workshops and one-on-one doubt-clearing help every day from 9:00PM - 10:00PM throughout the coding surge.

**Important Rule:**

Our mentors will give guidance and answer general questions, but they will not provide solutions. Please use the help sessions to learn and progress on your own project, that's how you grow.

**Datathon 2025: Lifeline**

Welcome to Datathon 2025 channel. Here, you'll find important updates, clarifications, and quick support throughout the competition. Stay tuned here for...

 [Telegram](#)



Follow Us!

Stay connected! Follow us on social media and join our mailing list (scan the QR code) to get updates on future events and resources.

@deeplearningweek



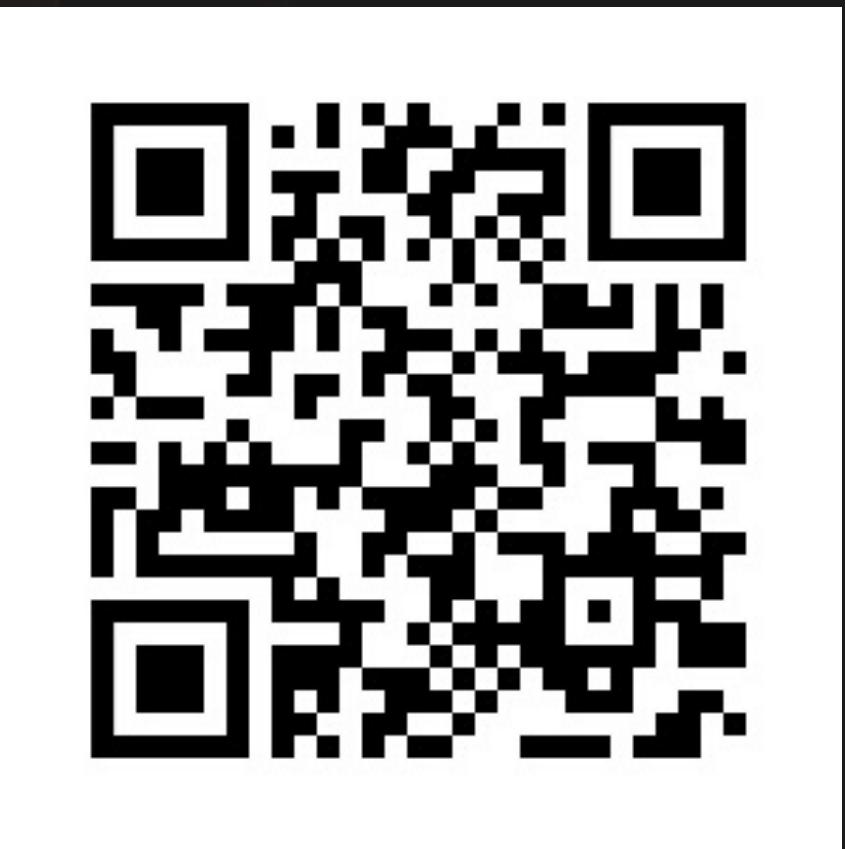
Membership Experience

<https://tinyurl.com/dlwmembership>

Sign up to get the latest updates on partner company events, resume-boosting opportunities, internship fast-track programs and more MUDA-affiliated events.

Event Feedback Form

<https://tinyurl.com/dlweventfeedback>



Thank You.