

Briefing Slides  
2024

**HACK IT UP  
A NOTCH!**

# Safety Briefing

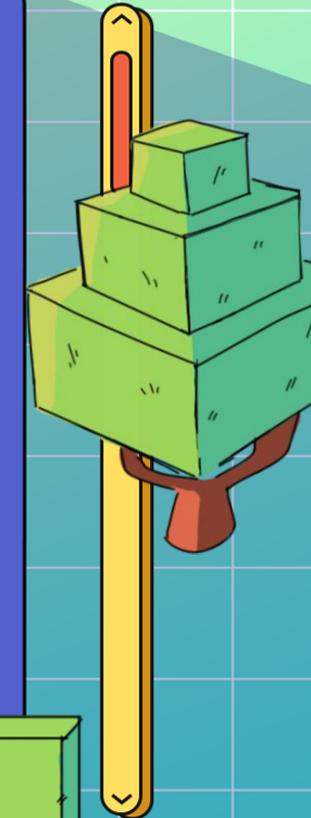


# General



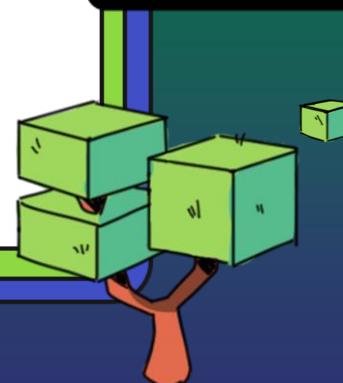
< > 🔎

- First aid kits are available in every cohort classrooms
- Inform our volunteers if any injuries occur (including minor ones!)
- Our volunteers are wearing WTH shirts and lanyards





- Call 999/995 immediately, proceed to inform the organisers
- SUTD security: 6303 6666
- Organisers: located at ROOT Cove (Building 2 Level 3)



# Fire Evacuation Plan

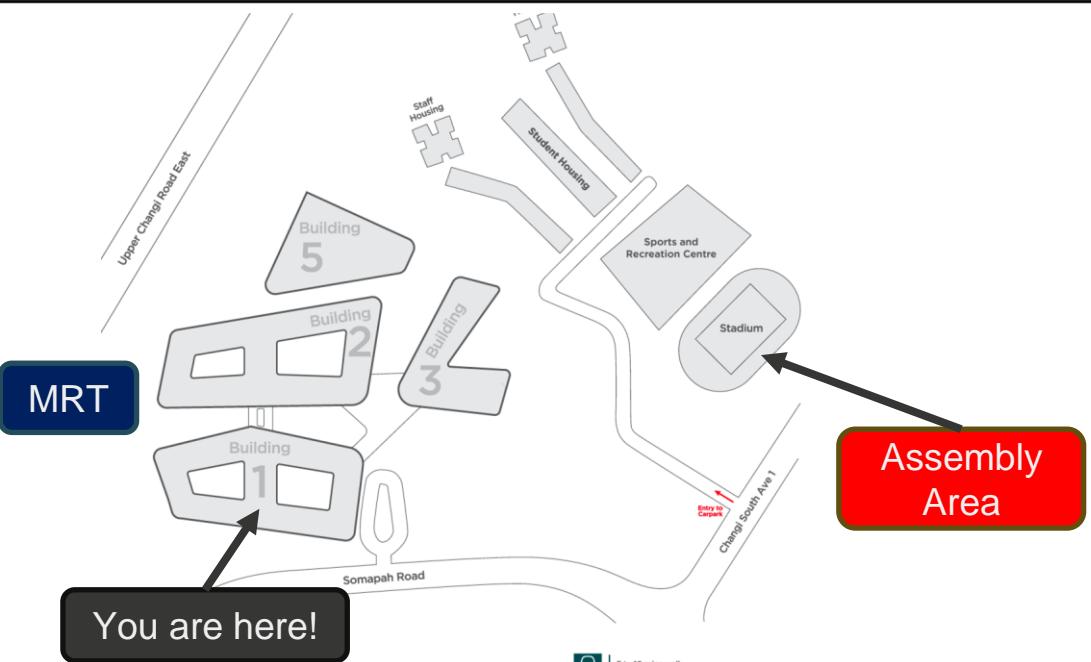


Please do not panic in the event the Fire Alarm is activated

Crew will be on standby as guides

Assembly Area is the Sports Field, Sports and Recreation Centre

# Fire Evacuation Plan



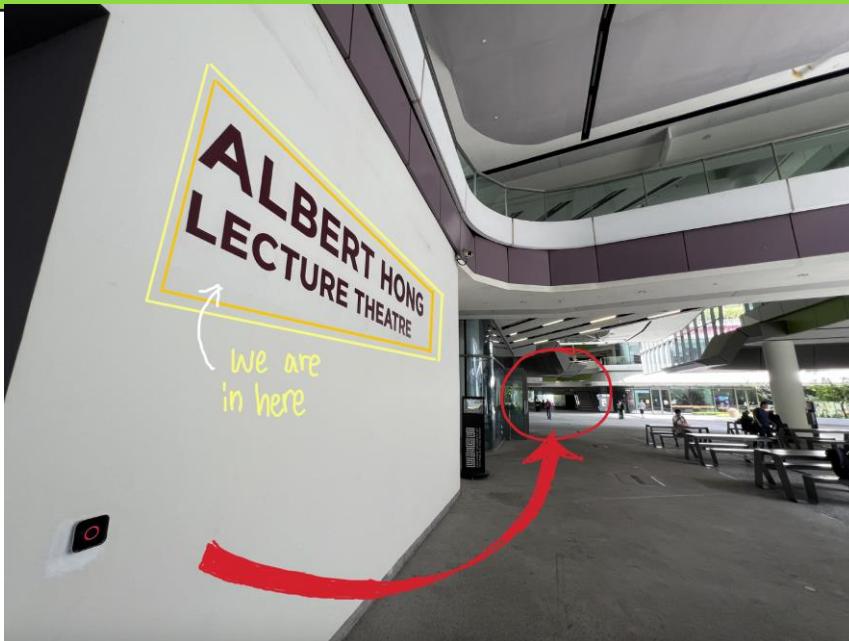
## How to Contact Us?

- Let any of the organizers know of any injuries (including minor ones!)
- During event hours, find us at: **ROOT Cove (Building 2 Level 3)**
- **Or through our Telegram channel!**

# Getting to Fablab

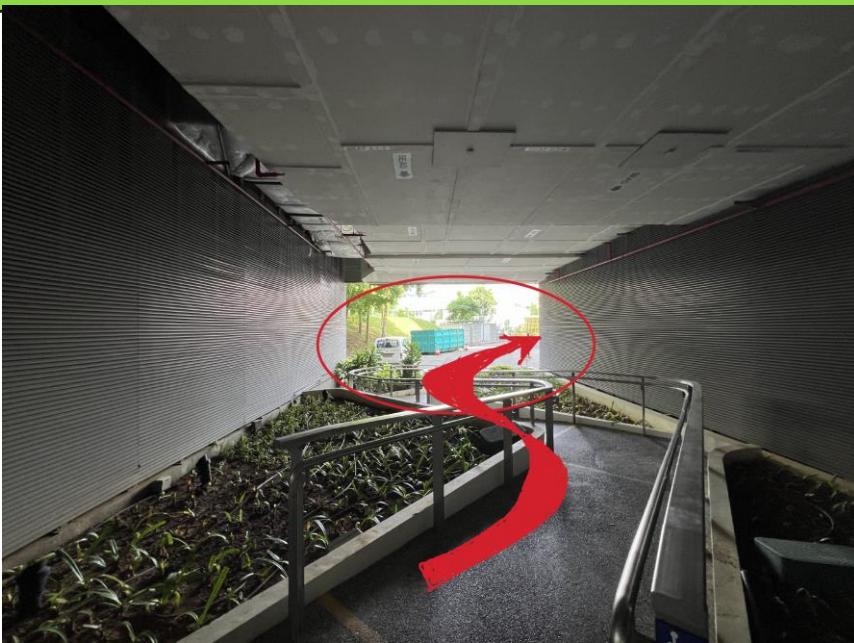


# Directions



# Directions

<> 



# Directions



# Directions

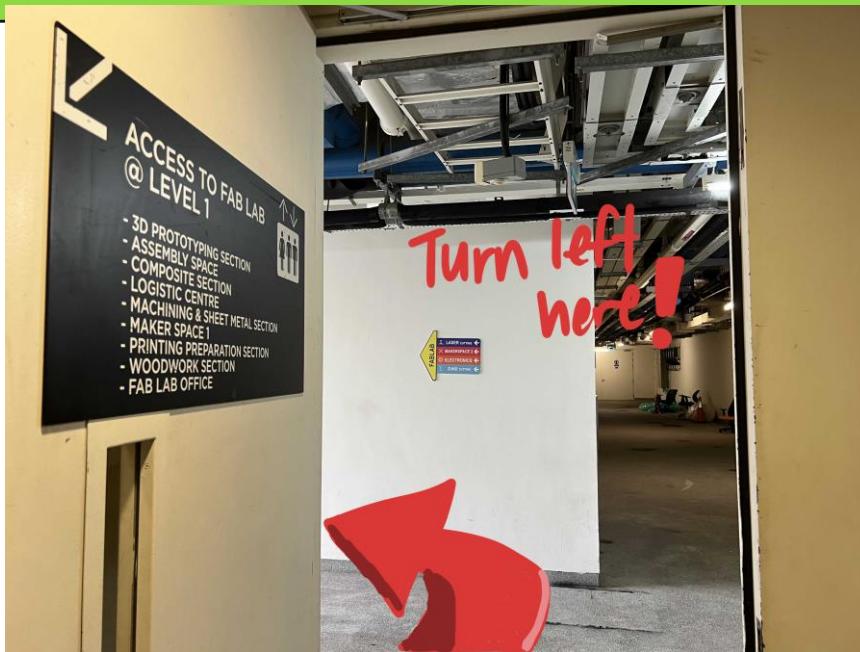
<> 



# Directions



# Directions



# Directions



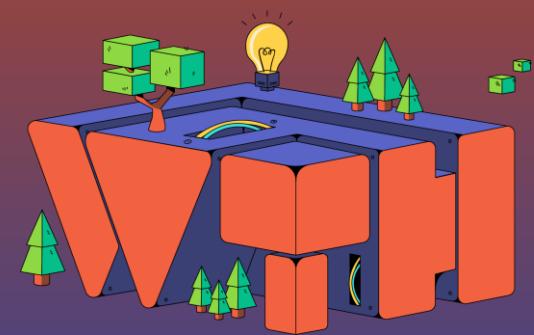
# Directions



# Directions



# Fablab Facilities



# Key Information

Day 1: Until 6pm

Day 2: 9am to 2pm

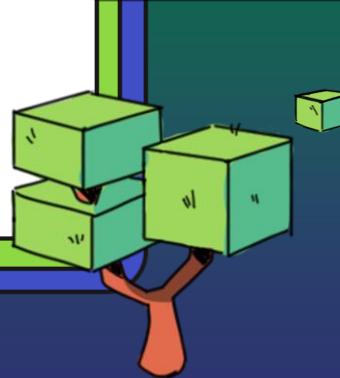
Participants are not allowed to leave their items overnight in the Fablab

Non-SUTD students will need to use equipment under the supervision of our volunteers

A digital interface with a green header bar featuring three orange circles and four blue rounded rectangles. Below the header is a search bar containing the text "Attire and PPE" with a magnifying glass icon and a cursor pointing at it. The main content area contains three images: one showing a person tying their hair back, another showing a person's legs in jeans and sneakers, and a third showing various colorful sneakers.

## Compulsory!

- Long hair must be tied up
- Must wear long pants and covered shoes
- Must use provided safety goggles when using power tools



# Tools Available

- 3D Printers
- Laser cutters
- Bandsaw
- Drill Press
- Sander
- Soldering station
- Basic hand tools

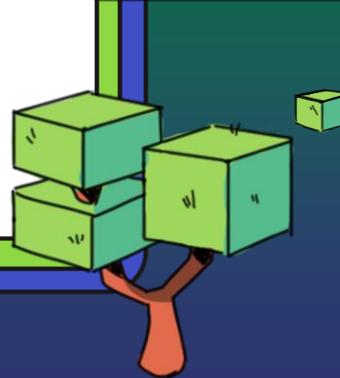
**3D Printer**

3D Printer: Bambu X1E

Slicer: Bambu Studio

How to use?

1. Provide .STL files to the fabrication assistants in the Fablab
2. STL files will be sliced into .gcode files
3. Choose colour (subject to availability)
4. 6 printers provided



**Laser Cutter**

Use with supervision of student volunteers if not trained

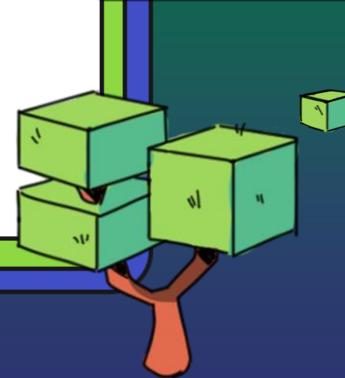
Software: Adobe Illustrator or Fusion 360

- Prepare .dxf files or .dwg files beforehand for cutting

Model: AEON Nova 10 Laser Cutter

Working Area: 980 x 680mm

Materials: Acrylic, Wood



# Bandsaw, Drill Press, Sander

Request for  
assistance if unsure

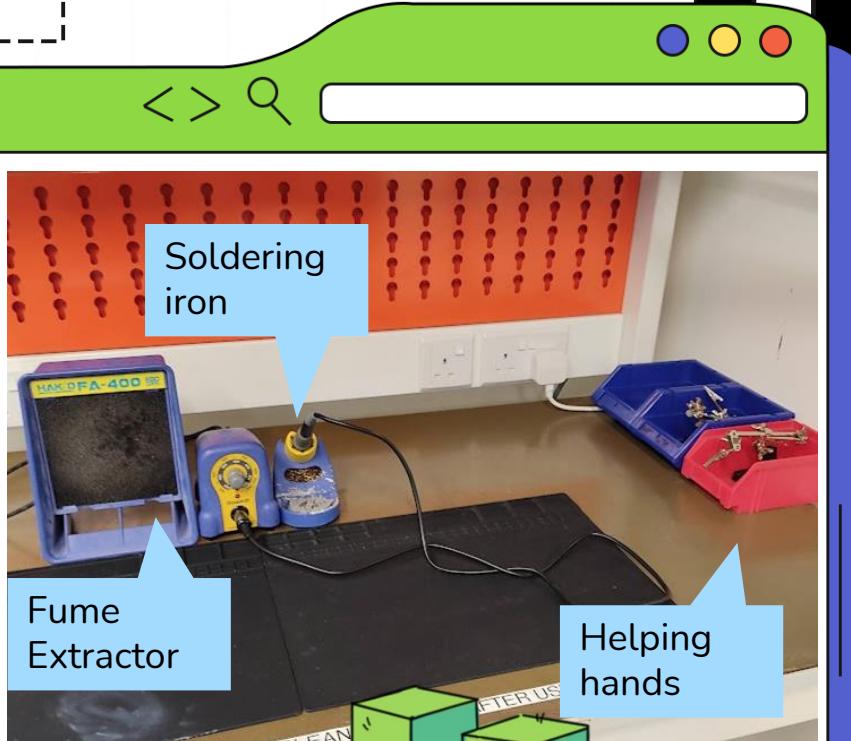
When not in use,  
return iron to stand  
and turn it off



# Soldering iron

Use with supervision  
from fabrication  
assistants

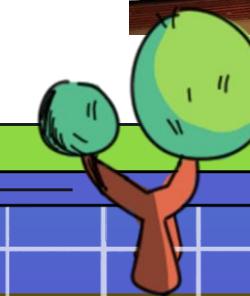
Wear safety goggles  
when using



# Scroll Saw & Acrylic Bender

Use with supervision  
from fabrication  
assistants

Wear safety goggles  
when using



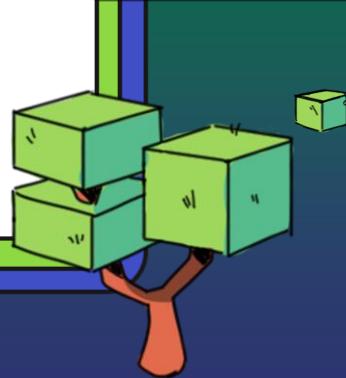
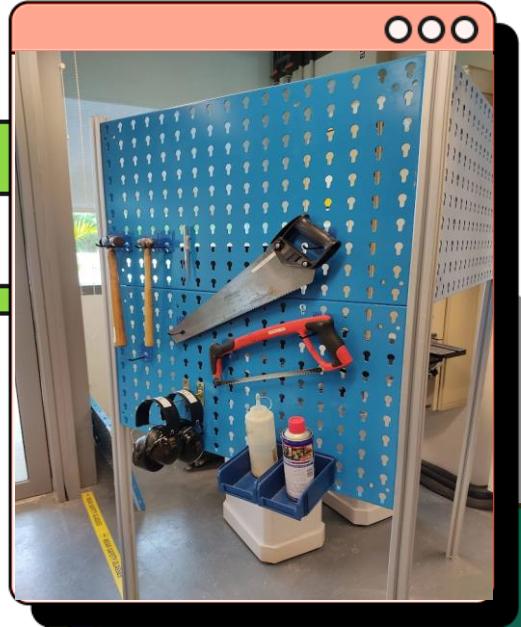
Assorted hand tools are provided

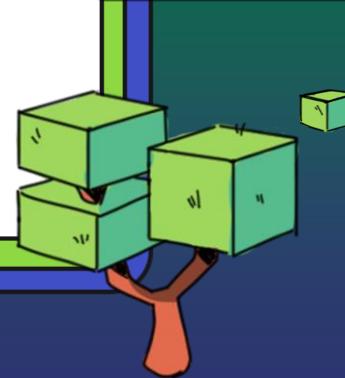
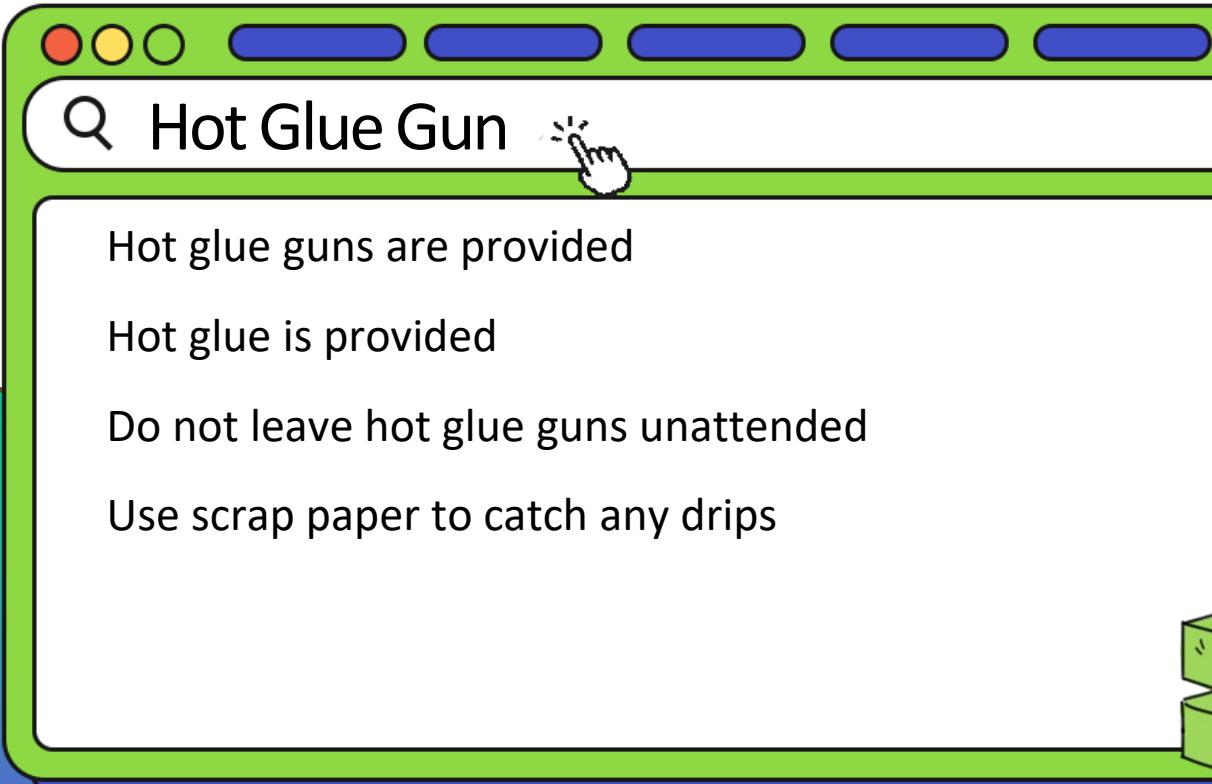
Be careful when using them

Seek assistance if necessary

Return when done, please don't hog tools!

Wear safety goggles when using







# Tips!



Prepare and start your 3D prints early as the printers will be provided on a first-come-first-serve basis

Limited material for laser cutting are provided. Check with the fabrication assistants what materials are able to be cut and what thickness

Feel free to ask our fabrication assistants for help





# Other Rules & Regulations



- Fablab closes at 6pm.
  - Participants are only allowed to work in Hackerspace in the presence of a Fabrication Assistant.
  - All work on and development of electrical equipment must be inspected by Fabrication Assistants.
- The work and surrounding area in which you are working must be kept neat, clean and safe at all times. If you see a mess, spilled liquid or debris, whether you created it or not, take the time to clean it up.

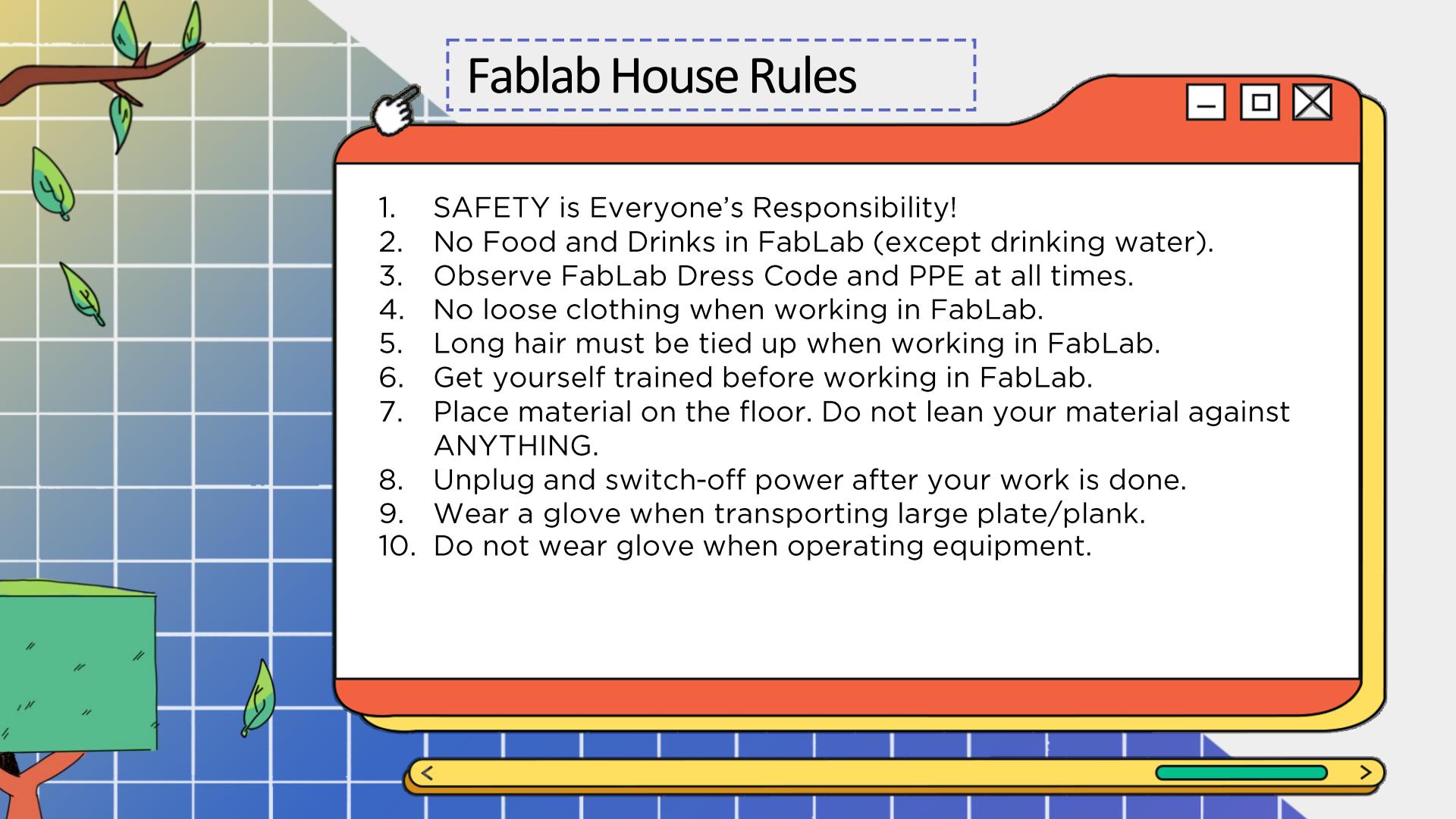




# Emergency Response

- The nearest hospital will be Changi General Hospital.
- If you are feeling unwell, let any staff or organizer know.
- If need be, we will evacuate you to Changi General Hospital





# Fablab House Rules



1. SAFETY is Everyone's Responsibility!
2. No Food and Drinks in FabLab (except drinking water).
3. Observe FabLab Dress Code and PPE at all times.
4. No loose clothing when working in FabLab.
5. Long hair must be tied up when working in FabLab.
6. Get yourself trained before working in FabLab.
7. Place material on the floor. Do not lean your material against ANYTHING.
8. Unplug and switch-off power after your work is done.
9. Wear a glove when transporting large plate/plank.
10. Do not wear glove when operating equipment.

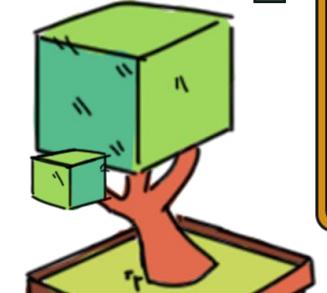
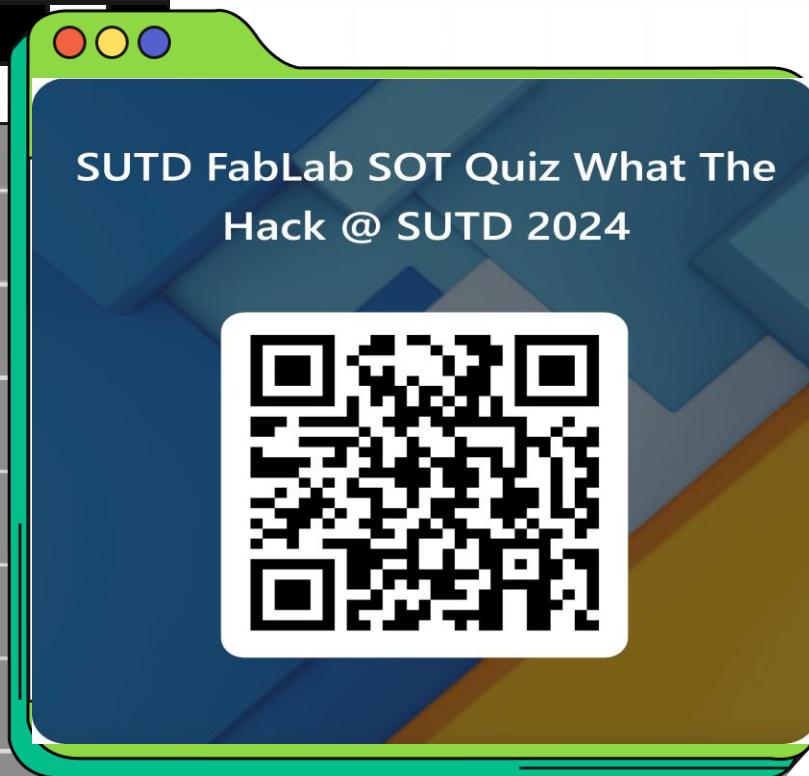


# Fablab House Rules



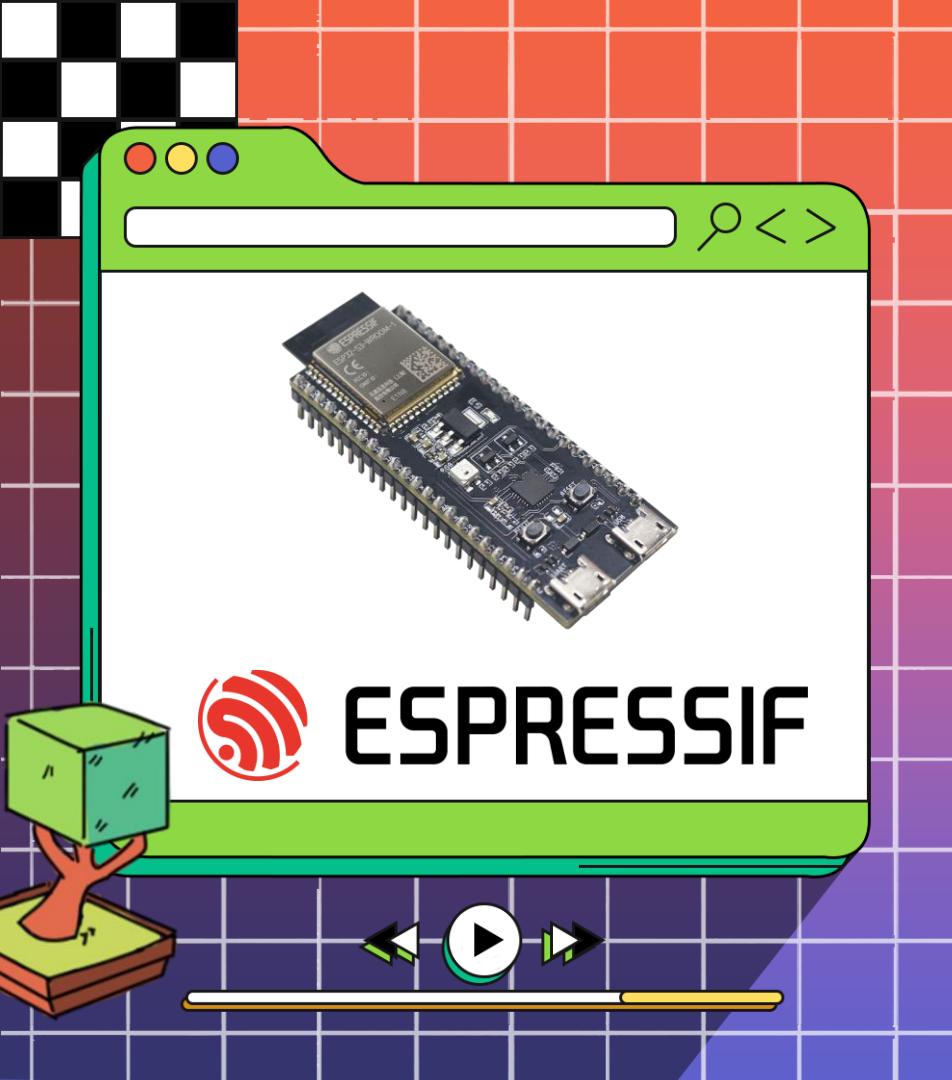
11. Inform FabLab Staff of all anomalies encountered when working in FabLab.
12. Never work alone! Get a buddy!
13. Focus on your task! Attend to your Equipment!
14. No making of any weapon, or any parts of weapon!
15. Use the Right Tool for the Right Job in the Right Way.
16. Always maintain neat and tidy workspace.
17. Clean Up & Pack Up after working.
18. Leave nothing behind.
19. Keep clear of aisles, exits, and access to emergency equipment.  
Do not block them.
20. If unsure? Please ask FabLab Staff!

# SUTD Fabrication Lab Undertaking Form



# Resources





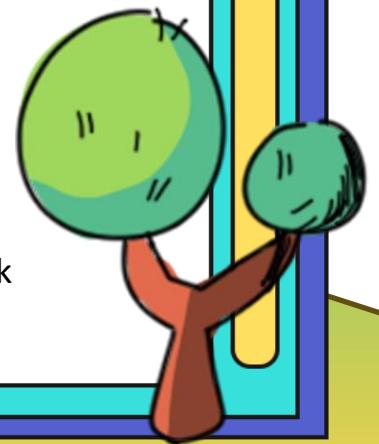
## Hackpack

- ESP32-S3 Microcontroller
- Jumper wires
- Breadboard
- Resistors
- Single colour LEDs
- LCD
- Buzzer
- RFID kit
- IR
- Water level sensor
- capacitive soil moisture sensor
- Temp/Humidity sensor
- Ultrasonic sensor
- USB Type A to micro USB cable + Espressif Teddy Bear!

# Bazaar Items

Bazaar Items have limited quantity. They will be issued on an as-needed basis. You may claim them at Fablab through one of our volunteers.

- Spare hackpacks
- WS2812 LED Strips(5m 30 IP30)
- USB type C to type A cable 20cm
- ZY12PDN (Type C to screw terminal voltage supply 3-20V)
- MPU6050 Accelerometer
- Potentiometer joystick
- Colour sensor
- Heart rate sensor
- Camera
- Microphone
- OLED displays
- 5V relay
- Servo
- **Diodes**
- **Piezoelectric cells**
- Acrylic - Clear, Frosted, Black
- Plywood
- + more!



## Bazaar Items (cont'd)



ESP32-S3-BOX-3



ESP32-S3-EYE

# Technical Help



**Muthu**

Tele @muthur2

- Computer Science and Design Year 3
- Machine Learning & AI
- Python (Flask)
- JavaScript (Express.js, Node.js, MongoDB)



**Heera**

Telegram @suheera

- Freshmore, Year 1
- Fusion360 3D Modeling
- Circuit
- assembly
- Precision machine work
- 3D Printing
- Soldering



**Karthik**

Telegram @i\_m\_Karthik

- Engineering Product Development, Year 3
- Python
- C++
- 3D printing
- Arduino
- Fablab tools
- ESP32

# Technical Help



Thei

Tele @diantheii

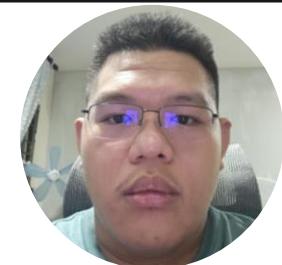
- Computer Science and Design Year 3
- Python
- C++
- Available tomorrow only



Issac

Telegram @IssacLimJJ

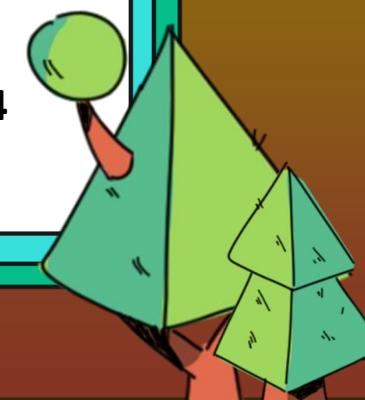
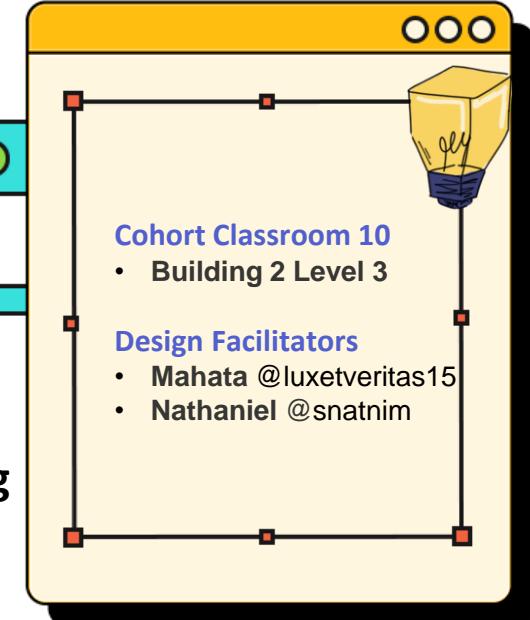
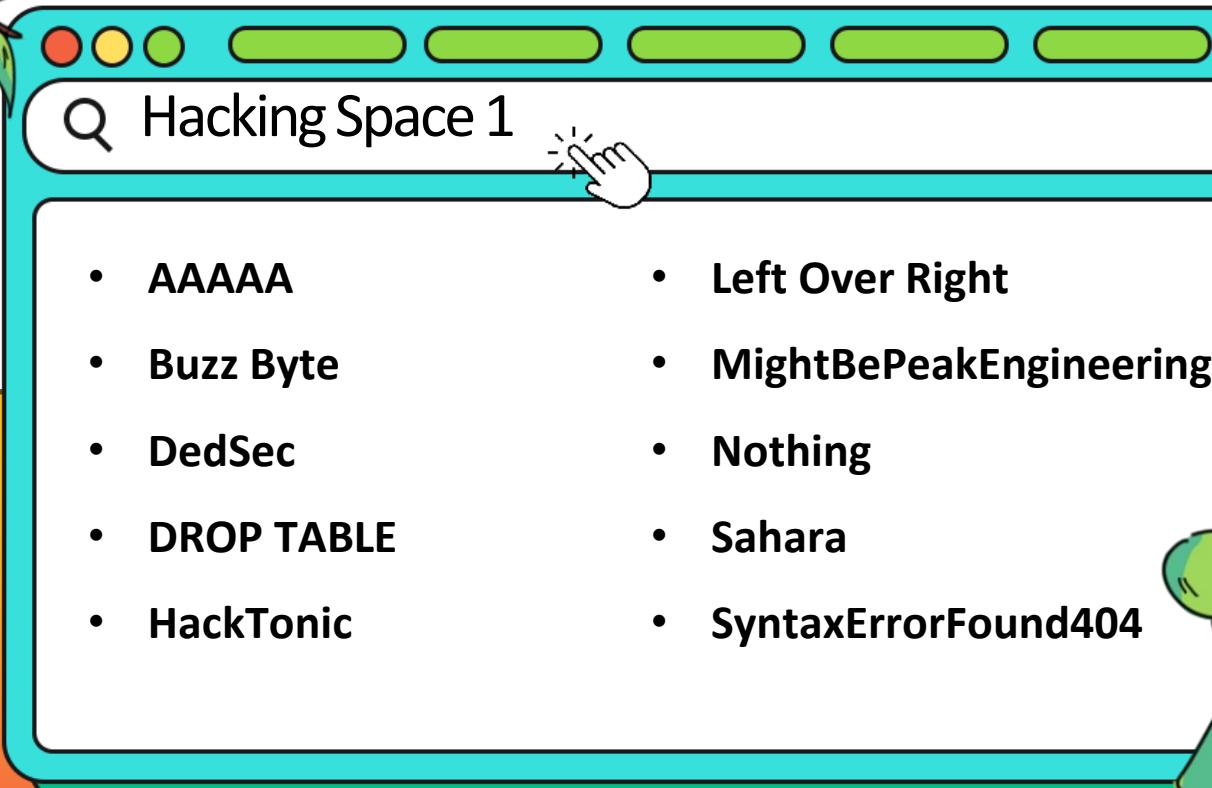
- Engineering Product Development, Year 3
- Python
- Circuit design
- Soldering
- 3D printing
- Fablab tools
- ESP IDF
- Arduino

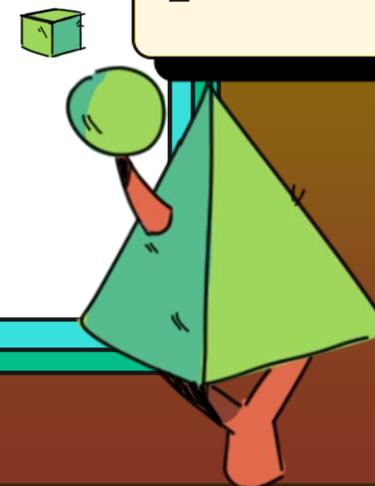
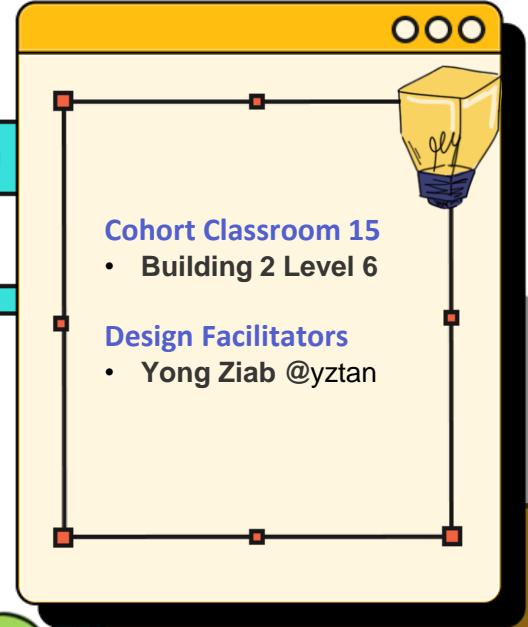
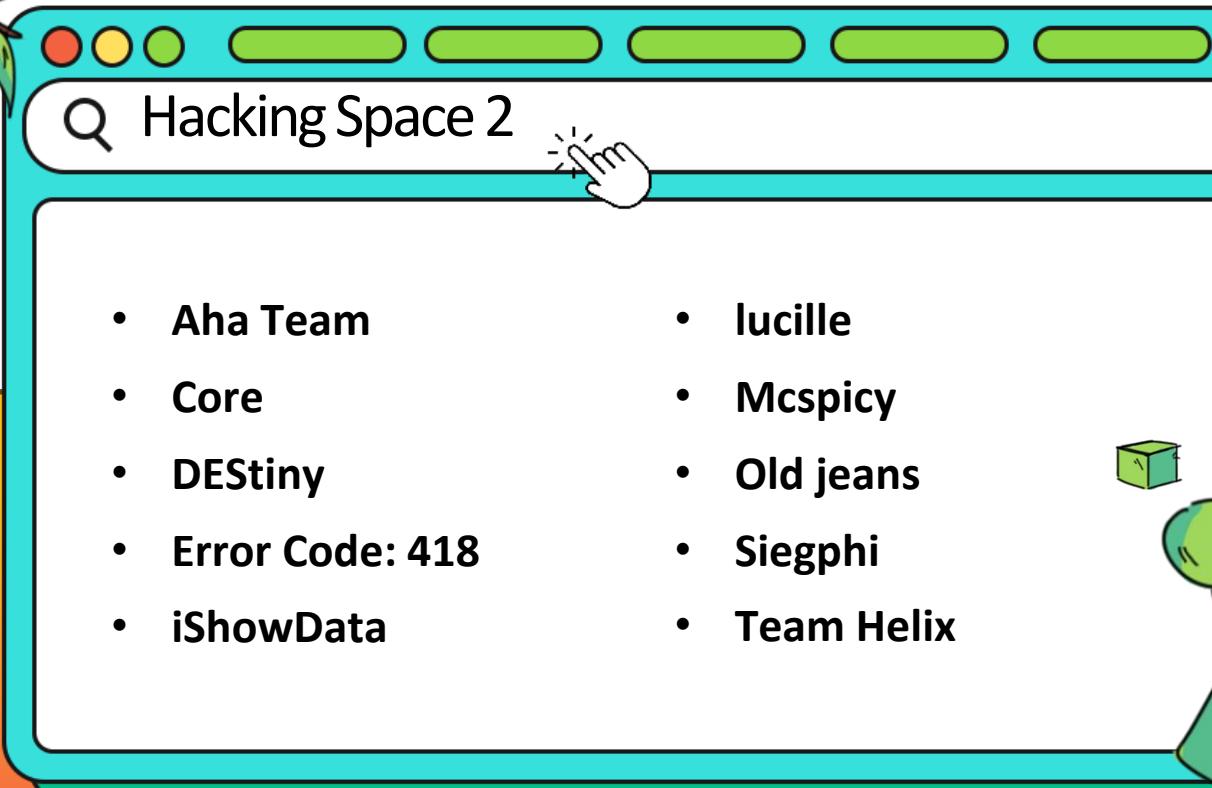


Wei Rui

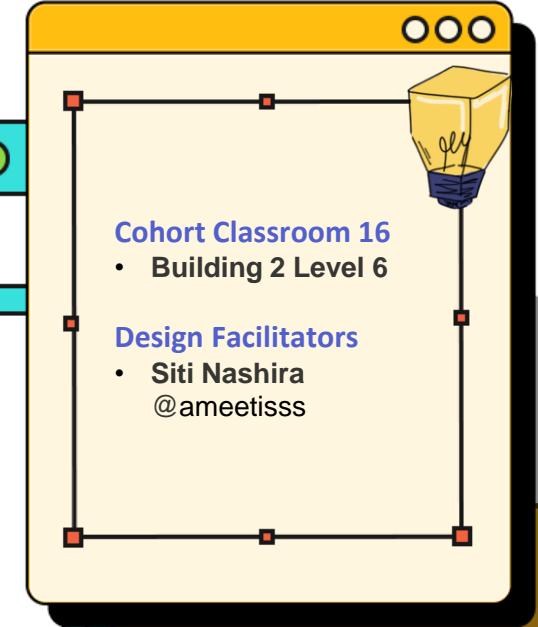
Telegram @Forger888

- Engineering Product Development, Year 3
- Basic Python
- Moderate C++
- Electronics design
- Soldering-3D printing
- Fablab tools
- Arduino



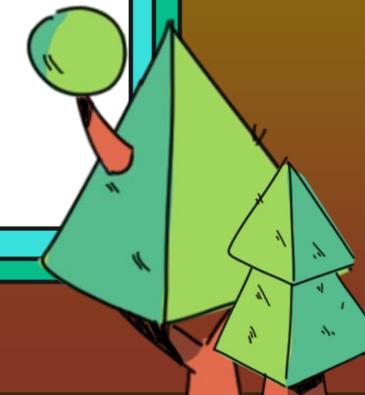
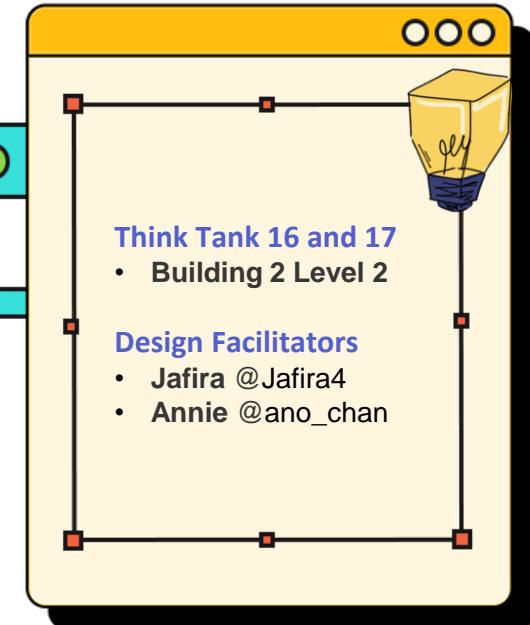


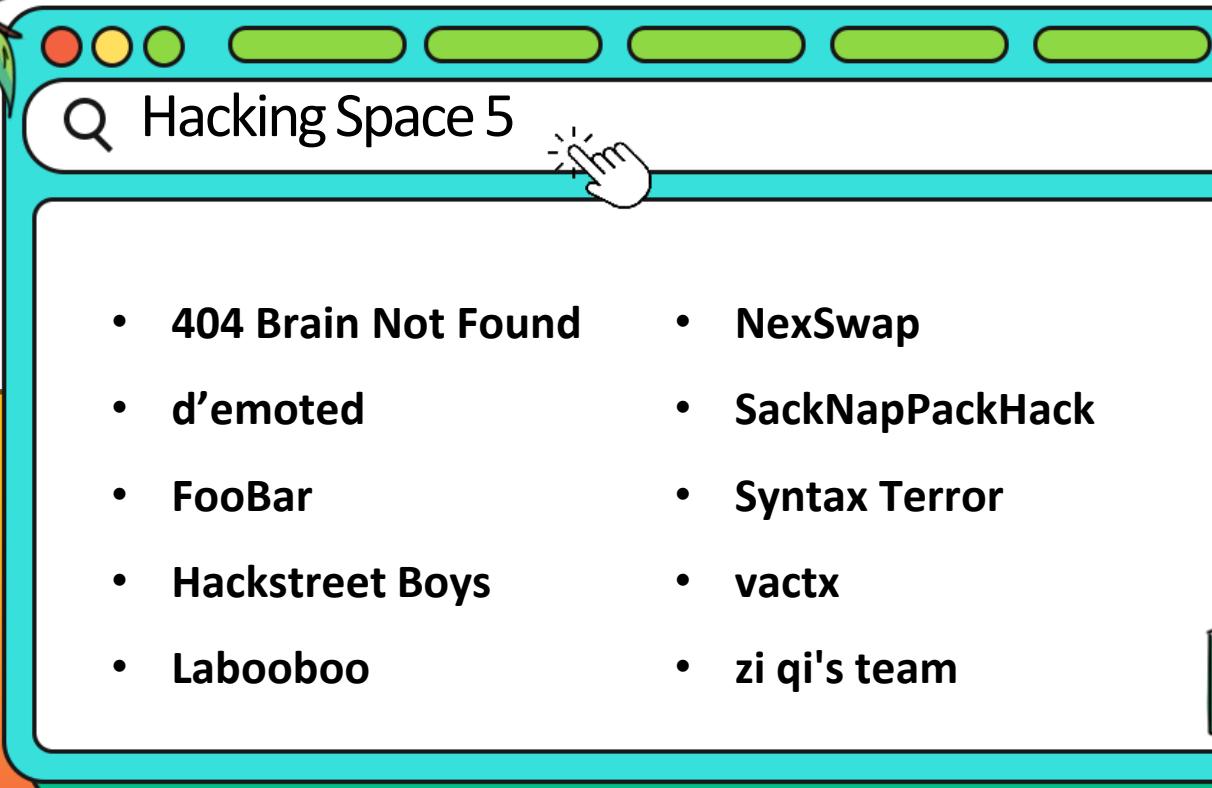
- Bombsquad
- ctrl alt elite
- DJ & Co
- Gyattmorningteam
- James Macdonald's  
Eaters
- MarkSparkle
- NextGen4
- ONETWOHACK
- Spectrum Soldiers
- Techsupport



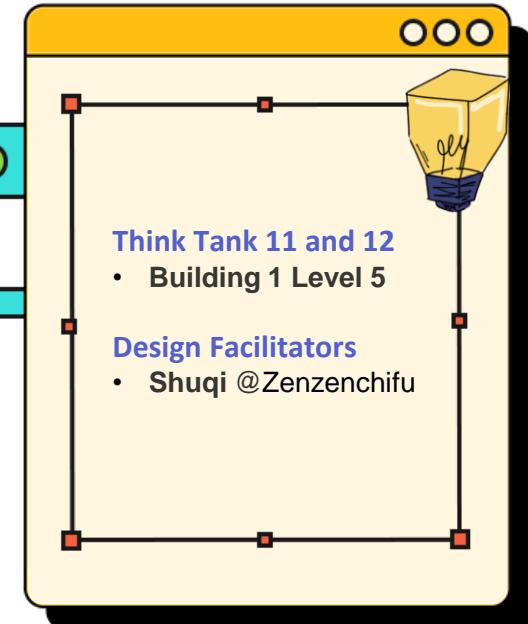
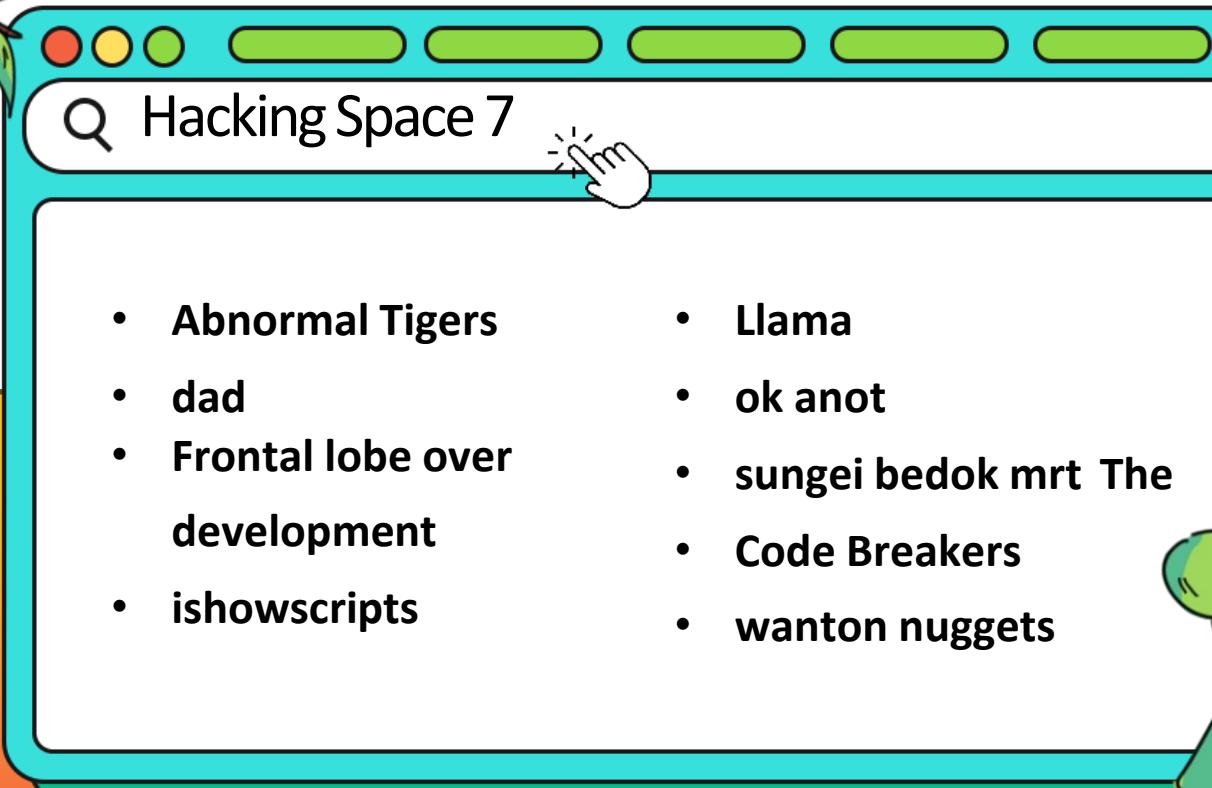
**Hacking Space 4**

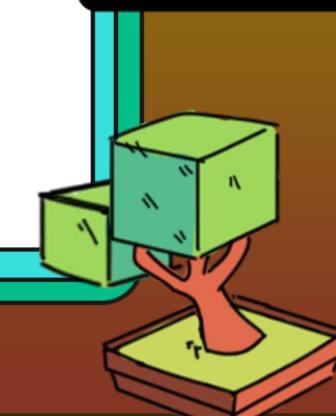
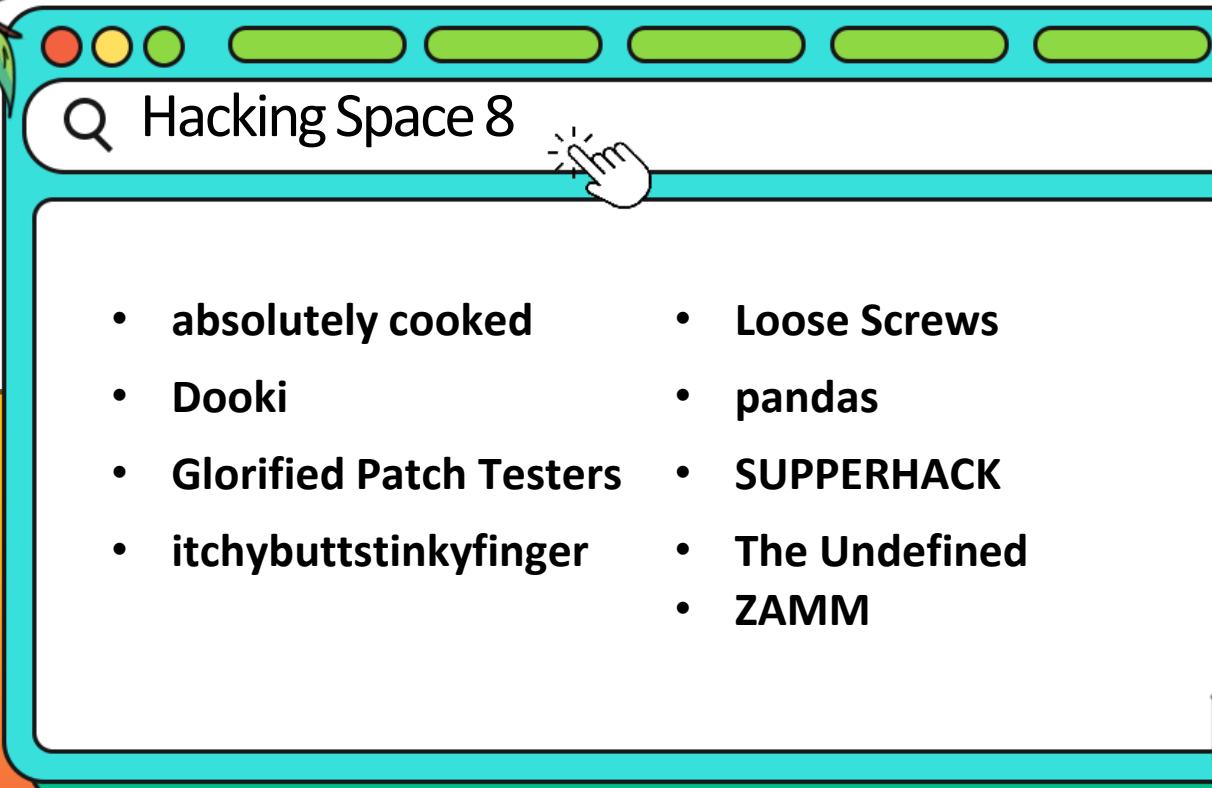
- 4 Amigos
- Artemis
- HackPackNapSack
- KenjitheCHAD
- masochieves
- Reeses in Pieces
- Sycamore
- Trident
- WannaCry

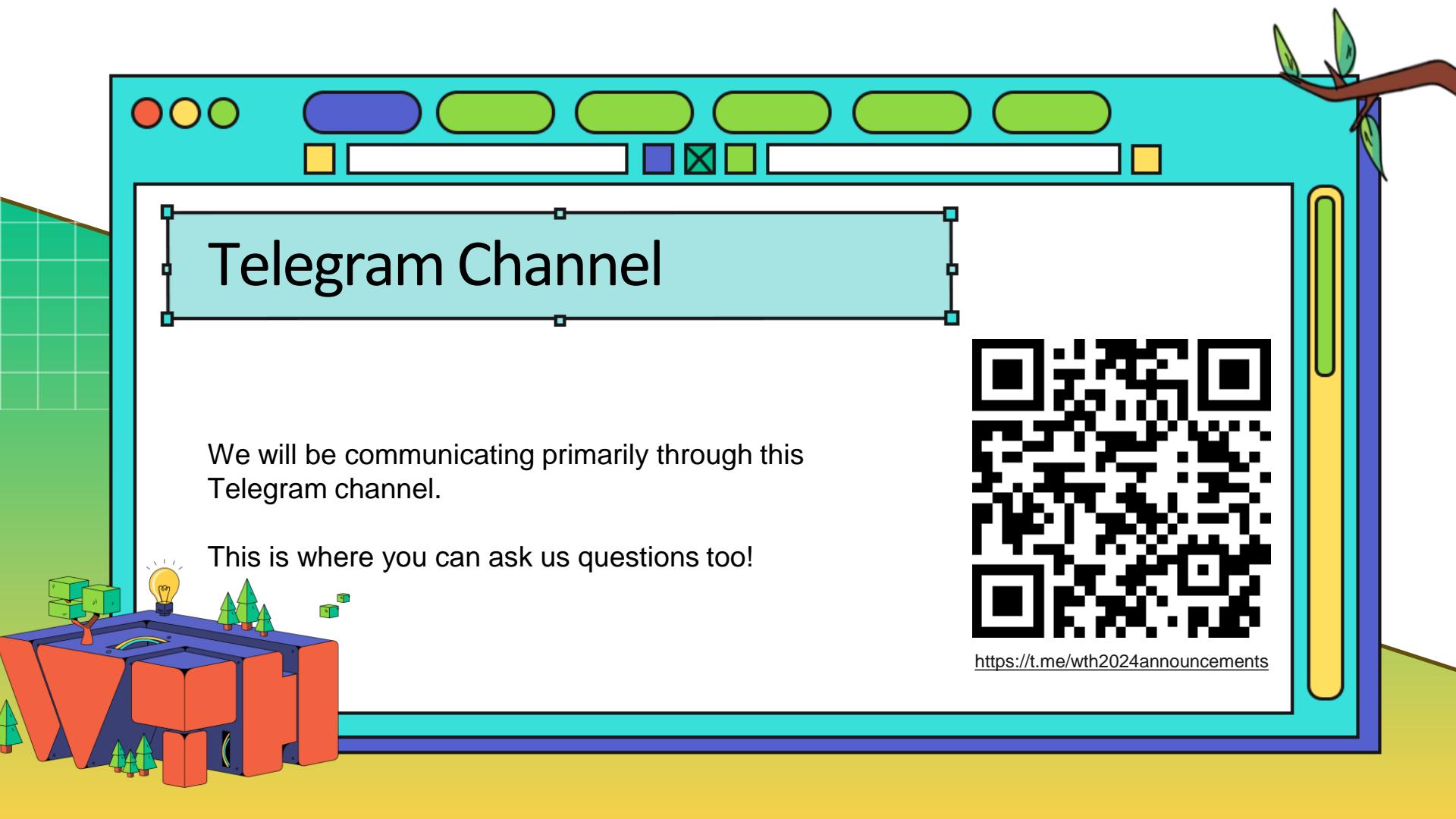












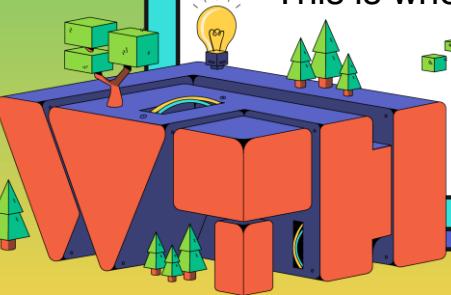
# Telegram Channel

We will be communicating primarily through this Telegram channel.

This is where you can ask us questions too!



<https://t.me/wth2024announcements>



# Deliverables



**Submit MS Form indicating your Judging Theme and Open Category Theme**

- By 6pm today

**Submit your project onto Devpost and set up booth in Library**

- By 2pm tomorrow

All must be done to be eligible for judging!



# Judging Theme Declaration



By 6pm Today!

One submission per team only

<https://forms.office.com/r/KDPYW966q8>

Select your:

- Main Judging Theme (One only)
- Open Category Theme (All that apply)

Reminder: If Open Category Judges believe that your submission is not relevant, there will be a penalty



# Submission to DevPost



By 2pm Tomorrow!  
All team members to create an account

## You should include:

- Photos
- Problem statement
- Target audience
- Solution
- Why you stand out
- Video (optional)



<https://what-the-hack-2024.devpost.com/>



## Set Up @Library



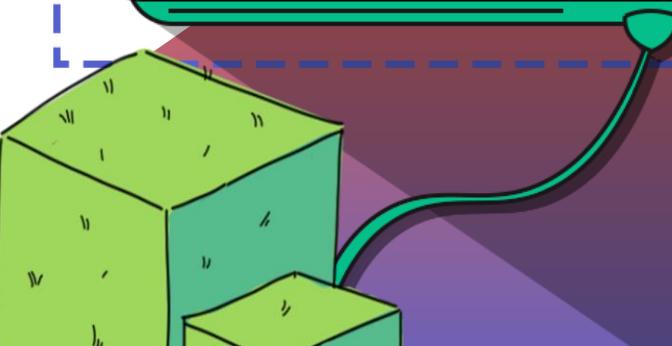
Set up your booth at the library by 2pm sharp!

We will inform you of your table number tomorrow

Attire: WTH Shirt and lanyard

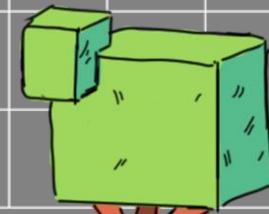


# Main Problem Themes



# 2024 THEME

**Hack It Up A Notch!**



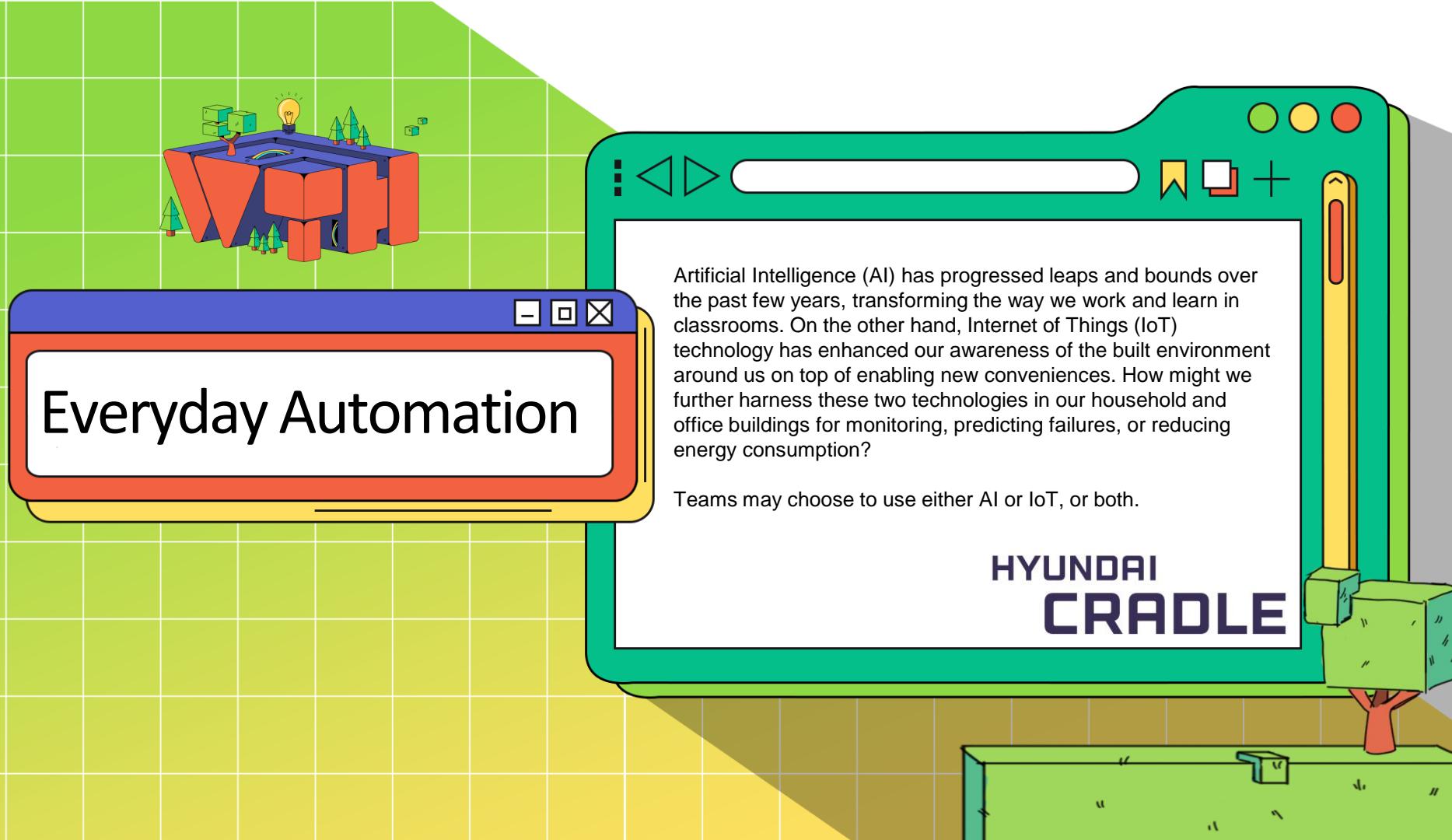
Circular Economy & Sustainable Living

Healthcare & Accessibility Tech

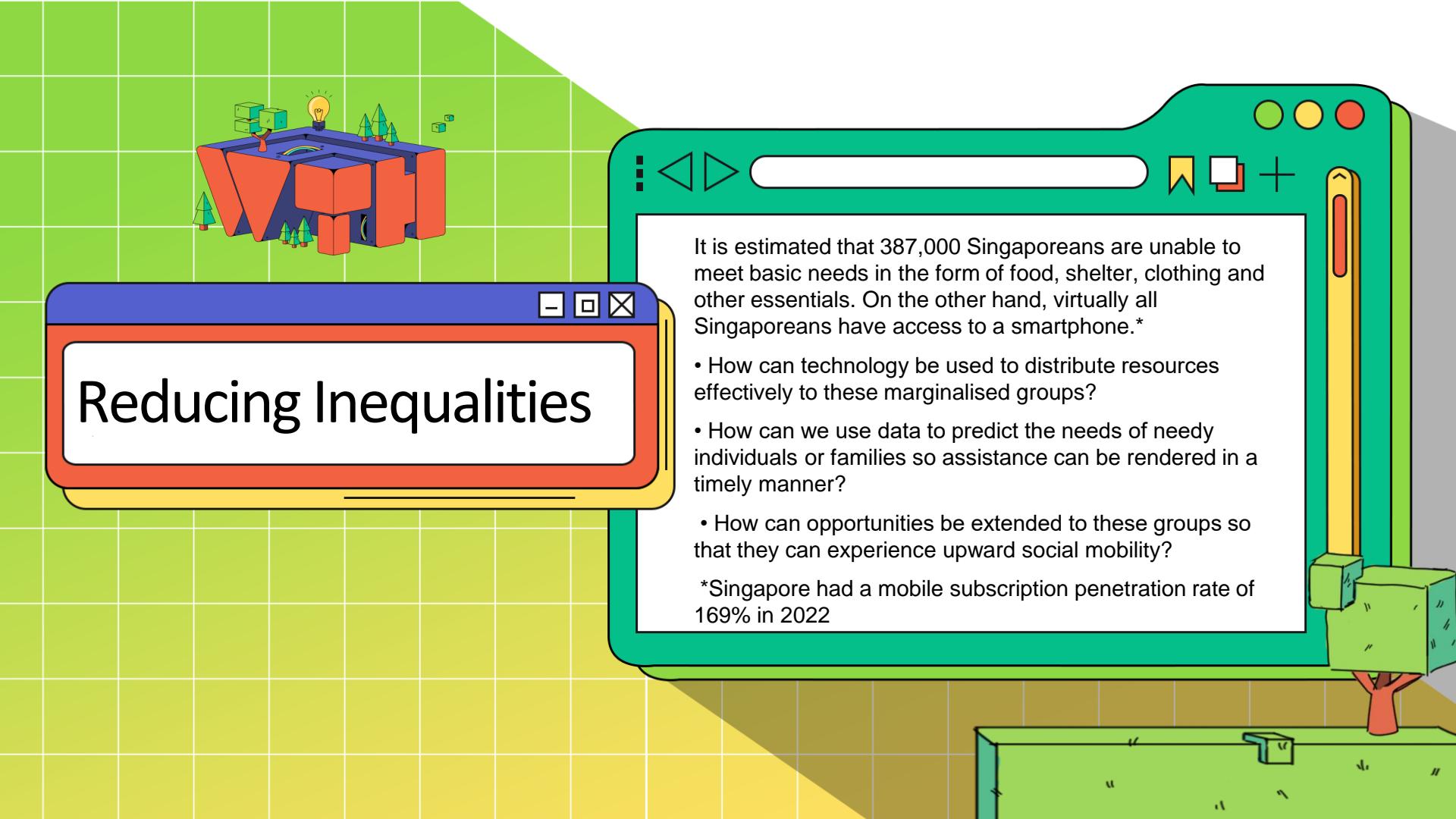
Judging Themes

Everyday Automation

Reducing Inequalities



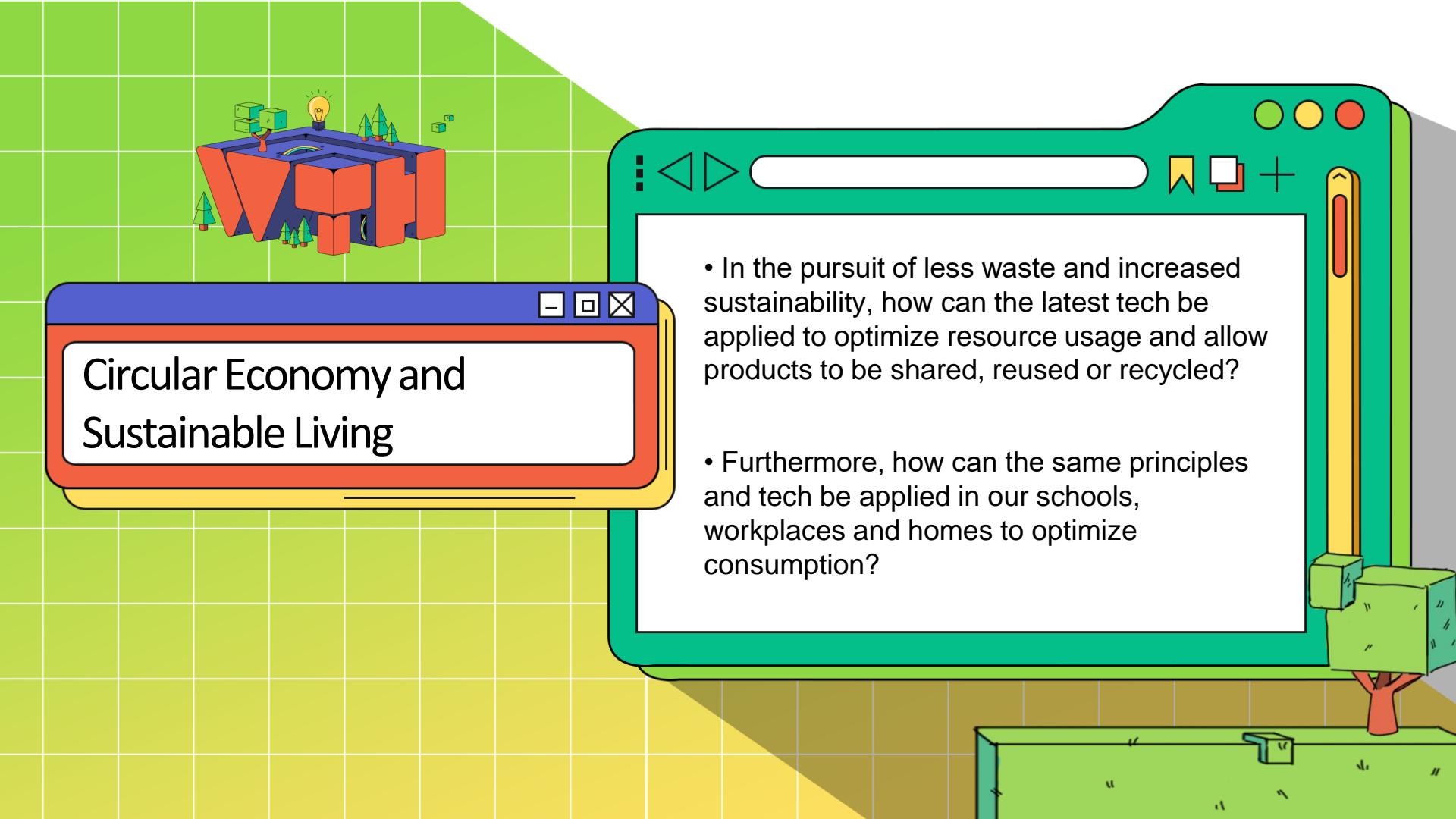
# Reducing Inequalities



It is estimated that 387,000 Singaporeans are unable to meet basic needs in the form of food, shelter, clothing and other essentials. On the other hand, virtually all Singaporeans have access to a smartphone.\*

- How can technology be used to distribute resources effectively to these marginalised groups?
- How can we use data to predict the needs of needy individuals or families so assistance can be rendered in a timely manner?
- How can opportunities be extended to these groups so that they can experience upward social mobility?

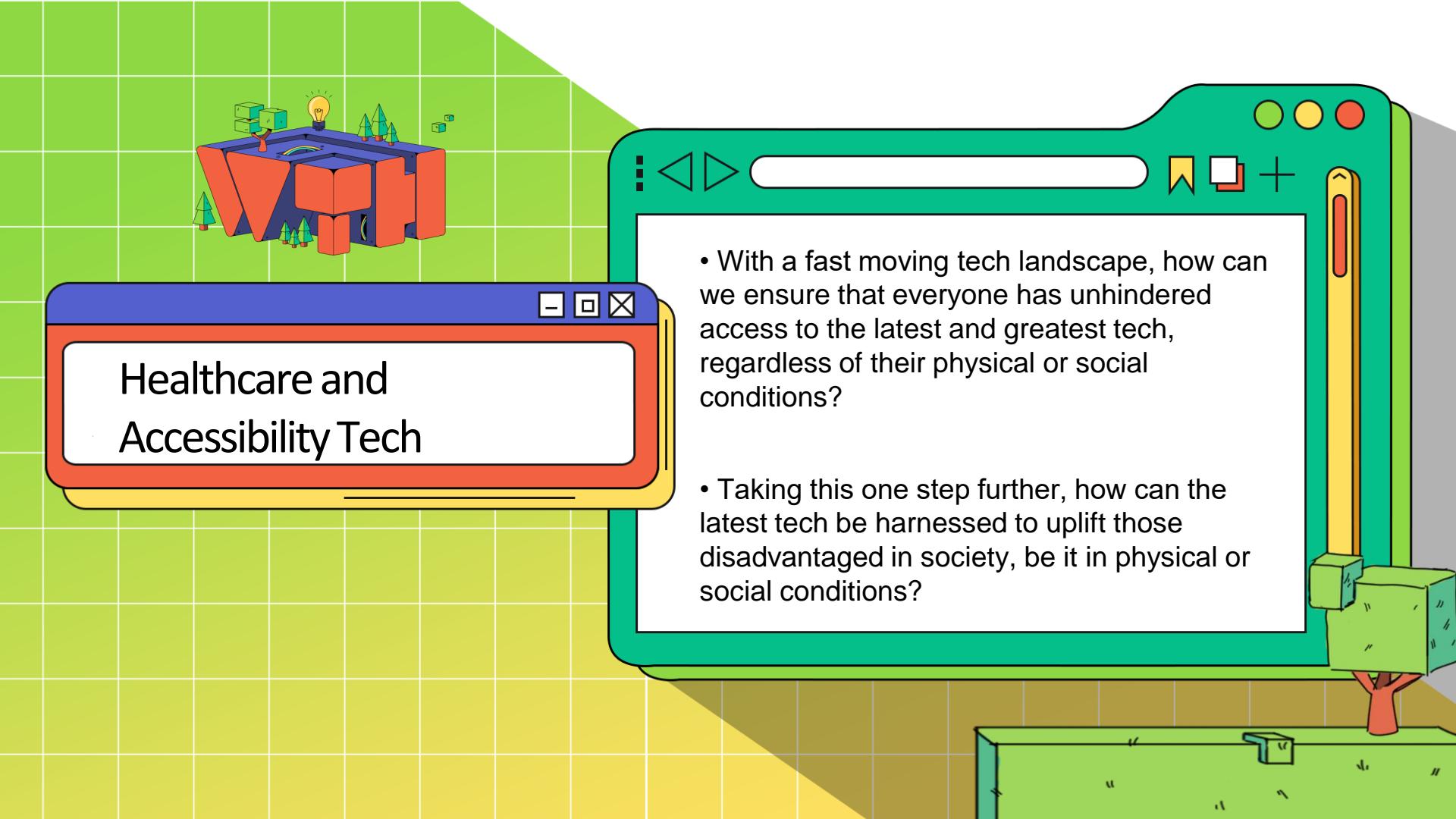
\*Singapore had a mobile subscription penetration rate of 169% in 2022



## Circular Economy and Sustainable Living

The diagram features a central blue recycling symbol with arrows forming a circle, surrounded by red 3D blocks representing various products or materials. Small green trees and a lightbulb are positioned above and around the blocks.

- In the pursuit of less waste and increased sustainability, how can the latest tech be applied to optimize resource usage and allow products to be shared, reused or recycled?
- Furthermore, how can the same principles and tech be applied in our schools, workplaces and homes to optimize consumption?



## Healthcare and Accessibility Tech

- With a fast moving tech landscape, how can we ensure that everyone has unhindered access to the latest and greatest tech, regardless of their physical or social conditions?
- Taking this one step further, how can the latest tech be harnessed to uplift those disadvantaged in society, be it in physical or social conditions?

# Judging Criteria

For the Main Judging Themes:

- Problem Significance (10 points)
- Solution (10 points)
- Implementation (10 points)

Penalties:

- No-code prototype or mockup (-5 points)
- Used an existing project (-5 points)

# Judging Criteria

## Problem Significance

What demographic group does the problem impact the most?

Does this problem and its consequences cost society heavily?

Does solving this problem add to societal or individual good?

## Solution

Is this a previously unimagined way of solving this problem?

Did the team use a tool or technique previously unused to solve the problem?

## Implementation

Are the right tools and techniques applied?

Is the user interface (software or hardware) well thought out?

Is the solution scalable in this implementation?



# Open Category Prizes



## Most Fablab-ulous Hardware Hack

For the most sophisticated physical prototype



## Most Beautiful Hack

For the most aesthetically pleasing digital/physical prototype



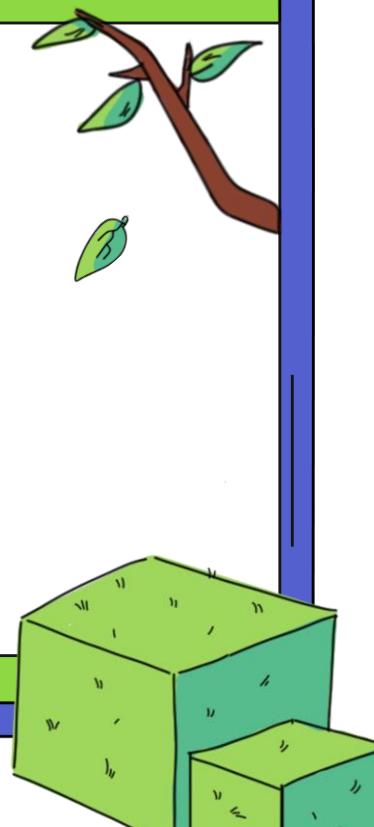
## Wittiest Hack

For the funniest ideas and presentations



## Most Wholesome Hack

For the most heartwarming projects and storytelling

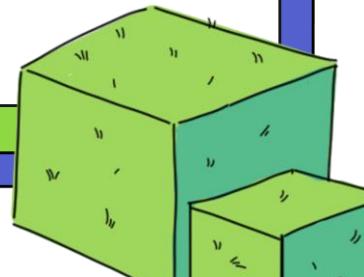


# Open Category Prizes



<> A magnifying glass icon inside a search bar, with a blue double-headed arrow icon to its left.

- All teams can nominate themselves for these prizes
- Judging criteria are all unique and different from the main Judging Categories
- However, the judge may give a small penalty if they deem your submission to be irrelevant to the Category



# Presentation Format



## Round 1

- 3.5 minutes to deliver your presentation to the judge and address their questions



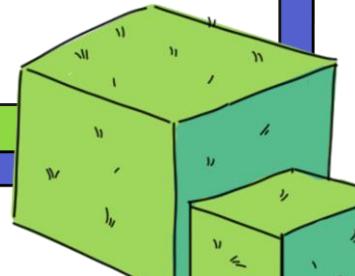
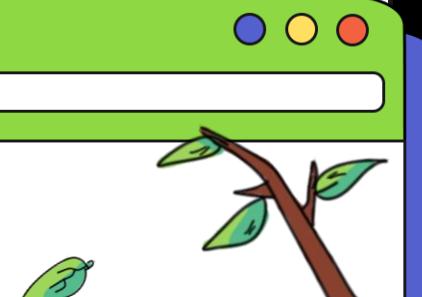
## Round 2

- 4 minutes to deliver your presentation and 1 minute of QnA
- Finalists will be announced as the presentations go



### Note:

- Timings will be strictly enforced to give everyone a fair chance
- Your presentation has to deliver all the pertinent information within that time span!



# Question and Answer



Ask now or forever hold thy peace

Can I submit a software-only solution?

- While hardware is highly encouraged, there will be no disadvantage if your project has no hardware element

Can I leave the hackathon halfway to purchase components?

- Yes

Must I stay until 10pm tonight?

- It's optional

What if a team member cannot make it for the judging rounds?

- At least 3 members must be present for the judging rounds. Exceptions will be made on a case by case basis with valid reasons

What if I have more questions after this briefing?

- You should ask the Design Facilitator in your hacking space