What the Heck is a Hackathon?
How Hackathons promote creativity and community in bioinformatics.

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A hackathon is...

- A timed event where groups of people come together to solve problems that fit a common theme.
- An opportunity to pull an all-nighter, code around the clock, and crash spectacularly at the end.
- A chance to win fantastic prizes that may include cash, internships or in-kind resources.
- A place to learn new skills, make friends, and thrive under pressure.
Let’s play a game…

By the way, this is just a warm up!
UQ Winter School True or False

The Rules

1. Everyone (please) stand up.
2. Jess will pose a question.
3. If the answer is **TRUE**, hands on **heads**.
   If the answer is **FALSE**, cross your **arms**.
4. If you got the answer **RIGHT**, remain standing.
   If you got the answer **WRONG**, please take a seat.
5. There are 5 questions.

Are you ready?
Question 1

Expert bioinformaticians never make any dumb mistakes.

TRUE or FALSE?

FALSE

Correct answer: We all make mistakes. It’s a powerful way to learn!

Panel Discussion – Day 3
Question 2

By 2055, it is estimated that 50% of the world population will have been sequenced.

TRUE or FALSE?

FALSE

Correct answer: We think we’ll hit the 50% mark in 2025.

Dr Denis Bauer, Day 2
Question 3

CNN is a type of Machine Learning algorithm.

TRUE or FALSE?

TRUE

Dr Maren Westermann - Day 4
Question 4

The largest number of scRNAseq tools are currently in Visualization.

True or False?

TRUE

A/Prof Nicole Cloonan – Day 2
Question 5

Dr Nick works at the
Australian Institute for Bioengineering & Nanotechnology (AIBN), UQ.

TRUE or FALSE?

FALSE

Correct answer: Dr Nick works here at IMB.

Dr Nick Hamilton – Day 1
Let’s play another game...

This game simulates what a hackathon is.

Do you have...?

A Mobile Phone
The Twitter App
An Awesome Prop
UQ Winter School Selfie

The Rules

1. Find your team based on your sticker’s color.
2. Take a selfie with any combo of your team members.
3. **Post to Twitter with @UQWinterSchool include #<color> #uqws_selfie.**
4. Any unique combo of team members qualifies for a separate post.
5. The team with the most number of unique posts, wins.
6. You have **10 minutes**!
What did we learn...?
On 13 Nov 2015...

125 student participants

Ami Stuart
@custuart

One winning team brainstormed a rideshare service for people with disabilities that could help ease transportation issues, especially for rural residents.

https://randomhacksofkindness2015.splashthat.com/

Another team focused on addressing food insecurity on campus.
Why are hackathons useful for bioinformaticians? Out-of-the-box thinking is key to a winning team! Bioinformaticians bring a diverse skill set.

@mitchoharawild
Why are hackathons useful for bioinformaticians?

Out-of-the-box thinking is key to a winning team!  
*Bioinformaticians bring a diverse skill set.*

Coding all night and under pressure helps you win!  
*Simulation of the real world,  
especially as PhD students.*

Working on a diverse team to solve a common problem.  
*Reflection of inter-disciplinary collaborations  
that are at the heart of our type of science.*
The landscape of career progression is changing

Career paths following a PhD.
[The Royal Society, ‘The Scientific Century: securing our future prosperity’].
How do I shape my career around this changing landscape?

• As bioinformaticians, we focus so much of our attention on developing technical skills. (And that’s great!)
• **Employability** is made up of a much broader skill set.

Some job interviews now contain a hackathon-type component…

https://worktree.org/about/why-we-exist/employability-skills/
A Vehicle for Exploring Scientific Reproducibility & Rigor

• A systemic concern exists surrounding how to ensure research meets standards of reproducibility and rigor. 
  *(Ioannidis, 2005; Begley, 2003)*

• Bioinformatics and computational biology are not exempt!

• Hackathons promote transparent coding practices and the pursuit of solving a single problem in multiple ways.

• The skills learned in a hackathon can help researchers adopt more robust R&R practices.
Inaugural Hackathon @
Albert Einstein College of Medicine
New York, USA

"Can we hack the fountain of youth?"
Funding from the National Institutes of Health.
45 participants, 9 teams, 36 hours.
Run Up Workshops

To make the hackathon less scary, more accessible, and inclusive...

- **Workshop #1**: Everything You Needed to Know about the Biology of Aging
- **Workshop #2**: Intro to R Programming
- **Workshop #3**: Basic Statistical Analysis

Prof Nir Barzilai,
Director of the Institute for Aging Research
Albert Einstein College of Medicine
New York, USA
Einstein Hackathon was a Global Event

Expert coaches were available to help out

Check out #EinsteinHackathon2017
Hackathons in Australia

Activating Australian Innovation

https://www.hackathonsaustralia.com/
healthhack.com.au

- A weekend hacking event for health problems
- Running since 2015
- September 20-22 2019
UQ Stem Cell Hackathon

http://www.stemcellhackathon.com/

Did you know?

• Stem cells have the potential to regenerate any cell type in the body.
• Stem cells work to repair any injury to muscle, tendon, ligament, tissue or bone.
• Induced pluripotent stem cells are being used to combat species extinction (San Diego Zoo!).
• Stem cell tourism creates false hope and worryingly, is on the rise.

Can we use **big data** + **bioinformatics** to provide insights or creative applications for **stem cells**?
Beginners welcome and encouraged!
• An opportunity to be inter-disciplinary and creative.
• Awesome swag.
• 4 Run-Up workshops open to everyone @ AIBN.
• Food, friends, and fun times provided.
• International & interstate coaches!
• This is a **FREE** event for all UQ students, EMCRs, & staff.
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http://www.stemcellhackathon.com/

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