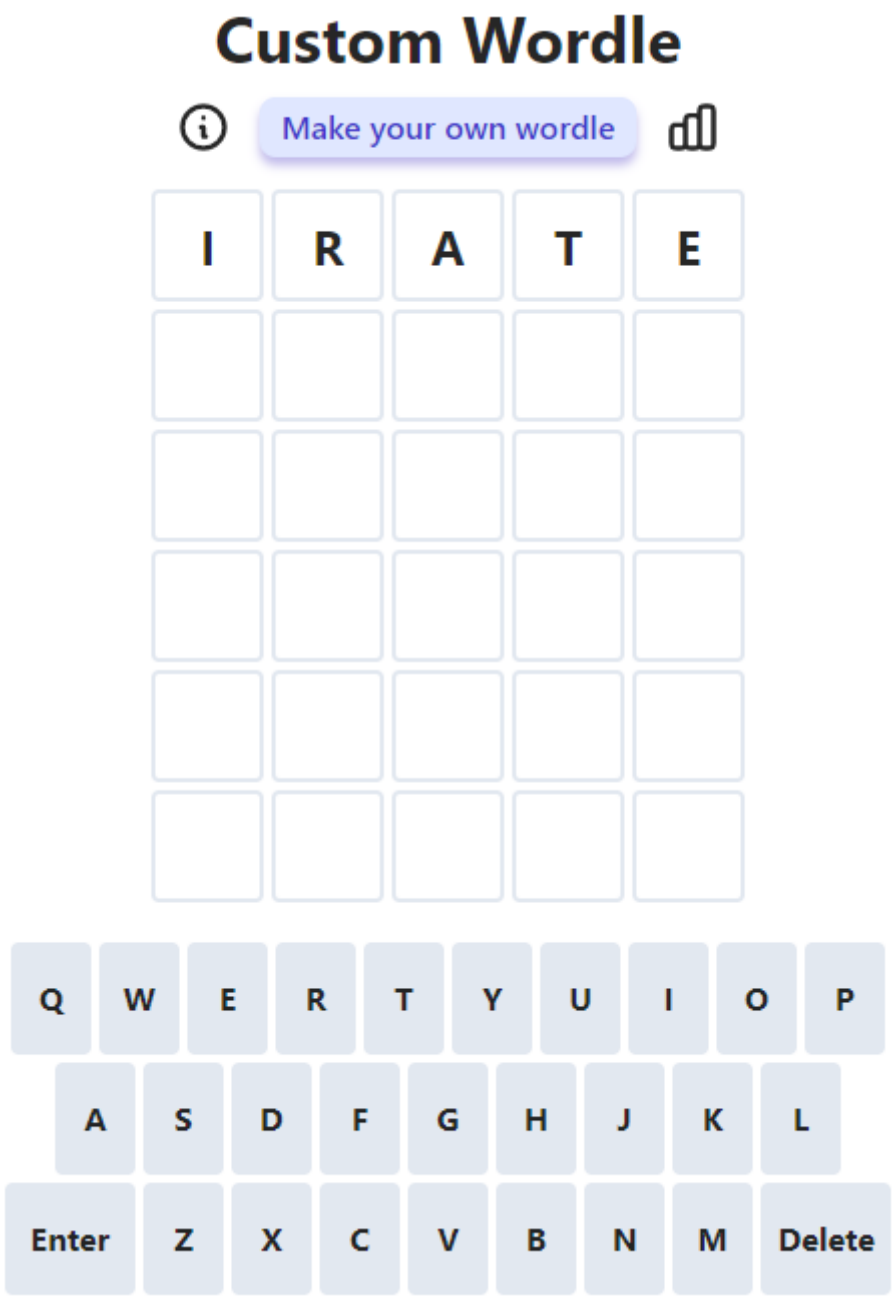
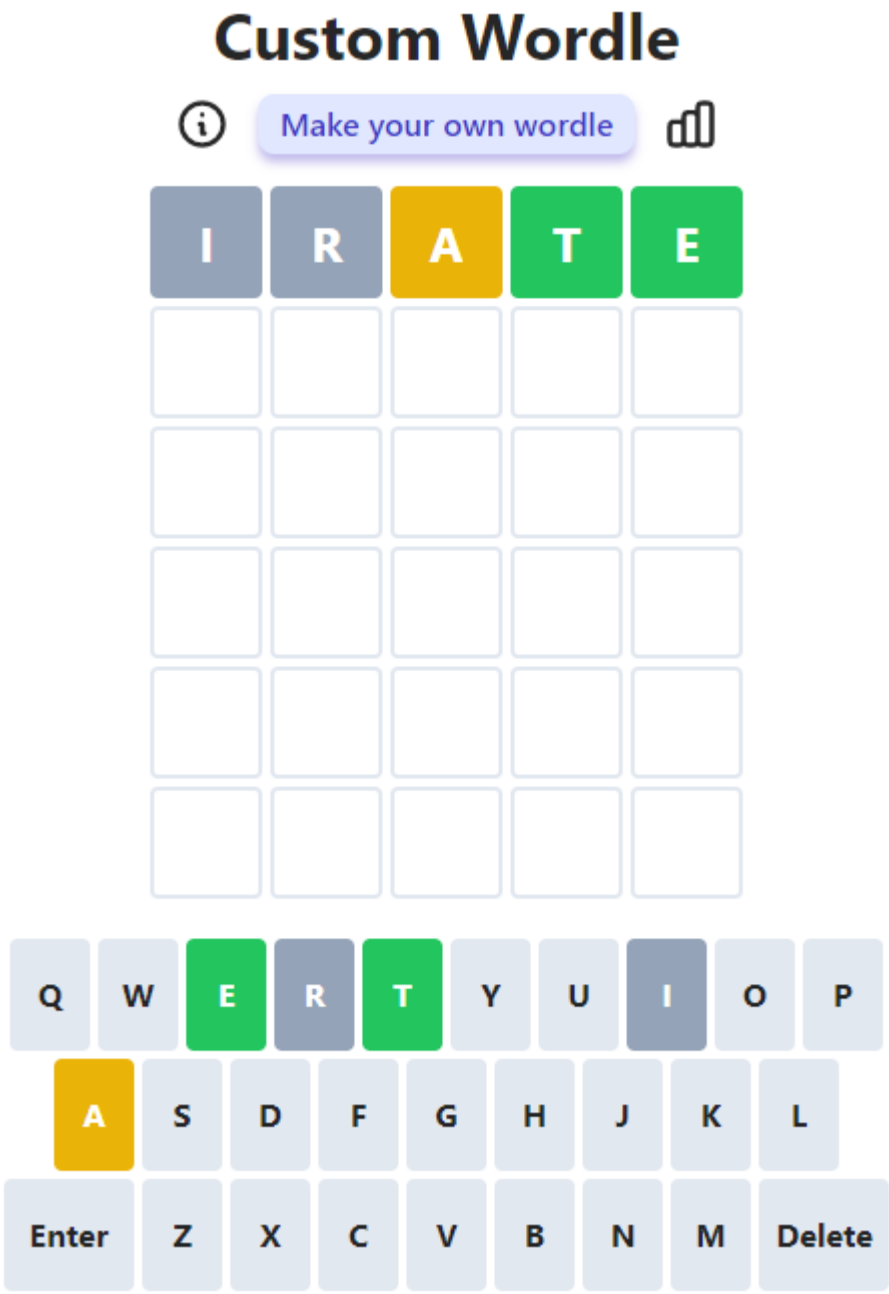

J+S Subsea
UNDER CONTROL
Legacy Locker
The Long and Winding Road



Wordle in 25? years time



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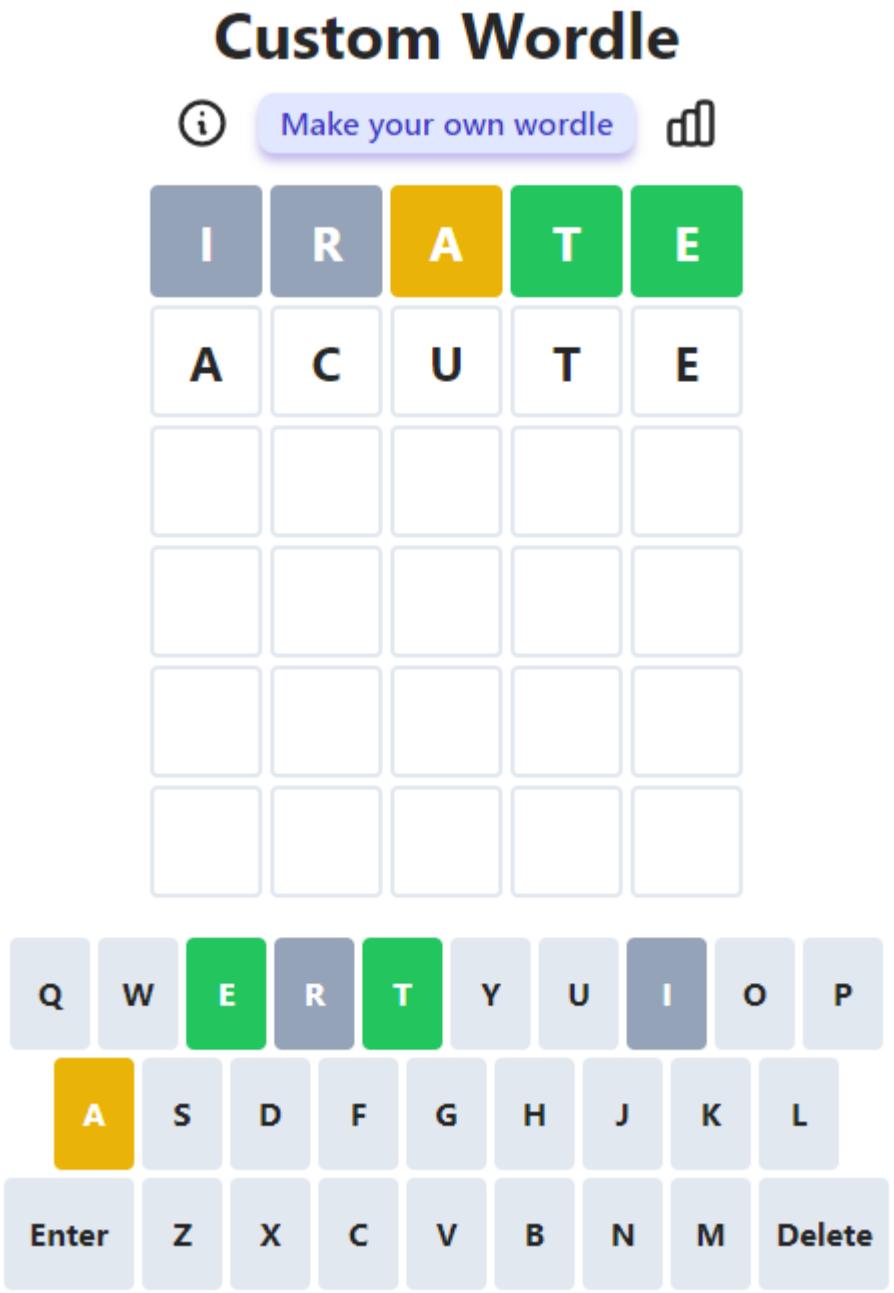

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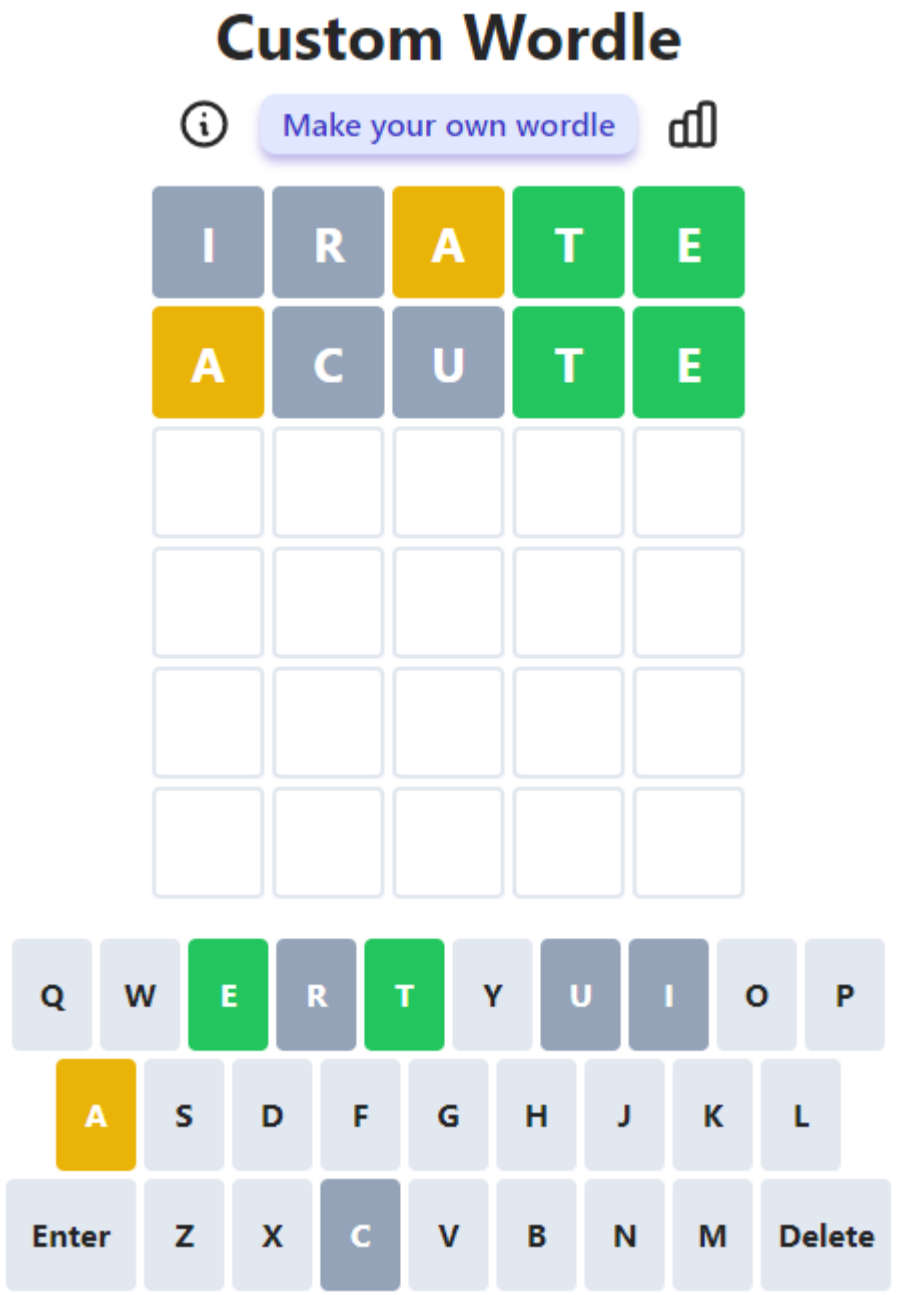

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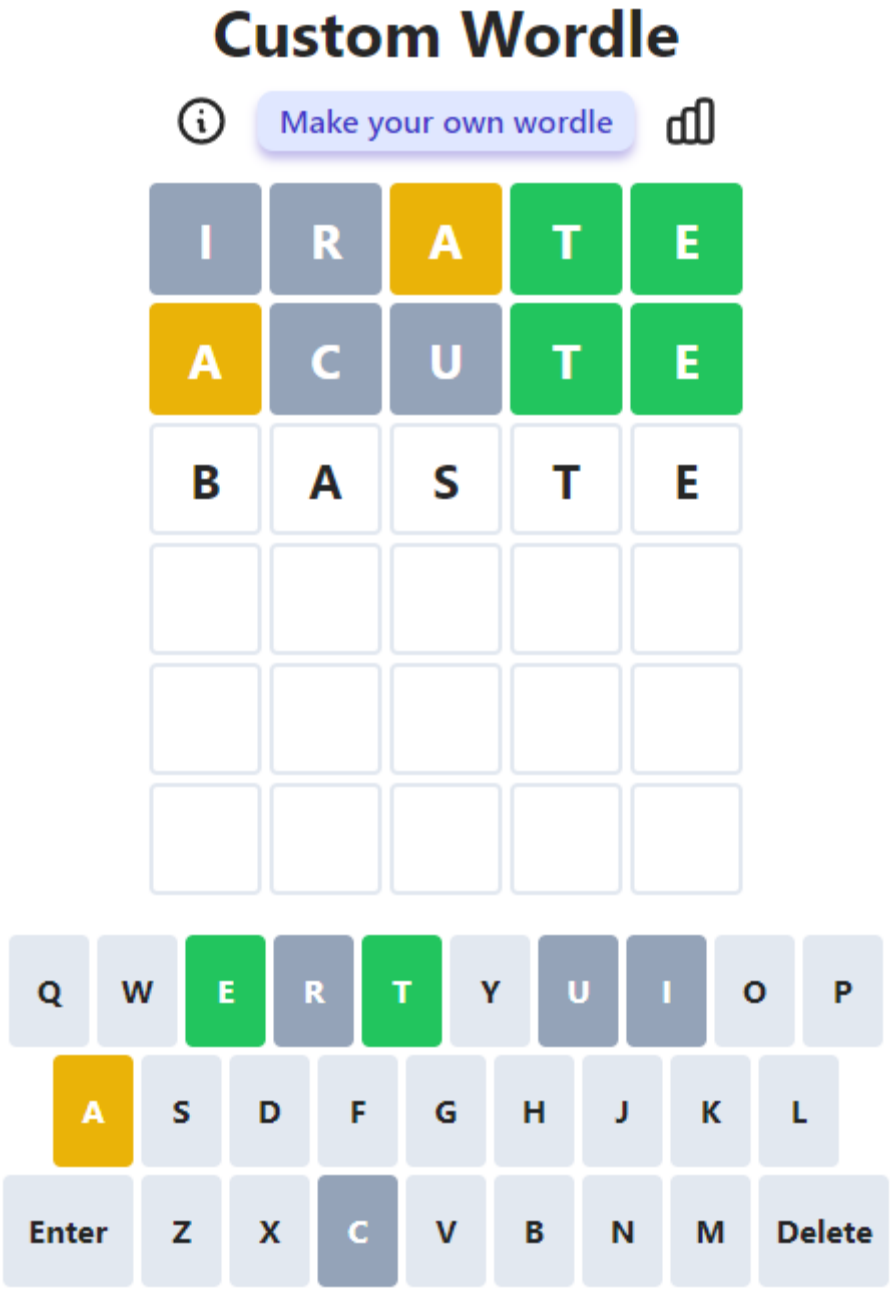

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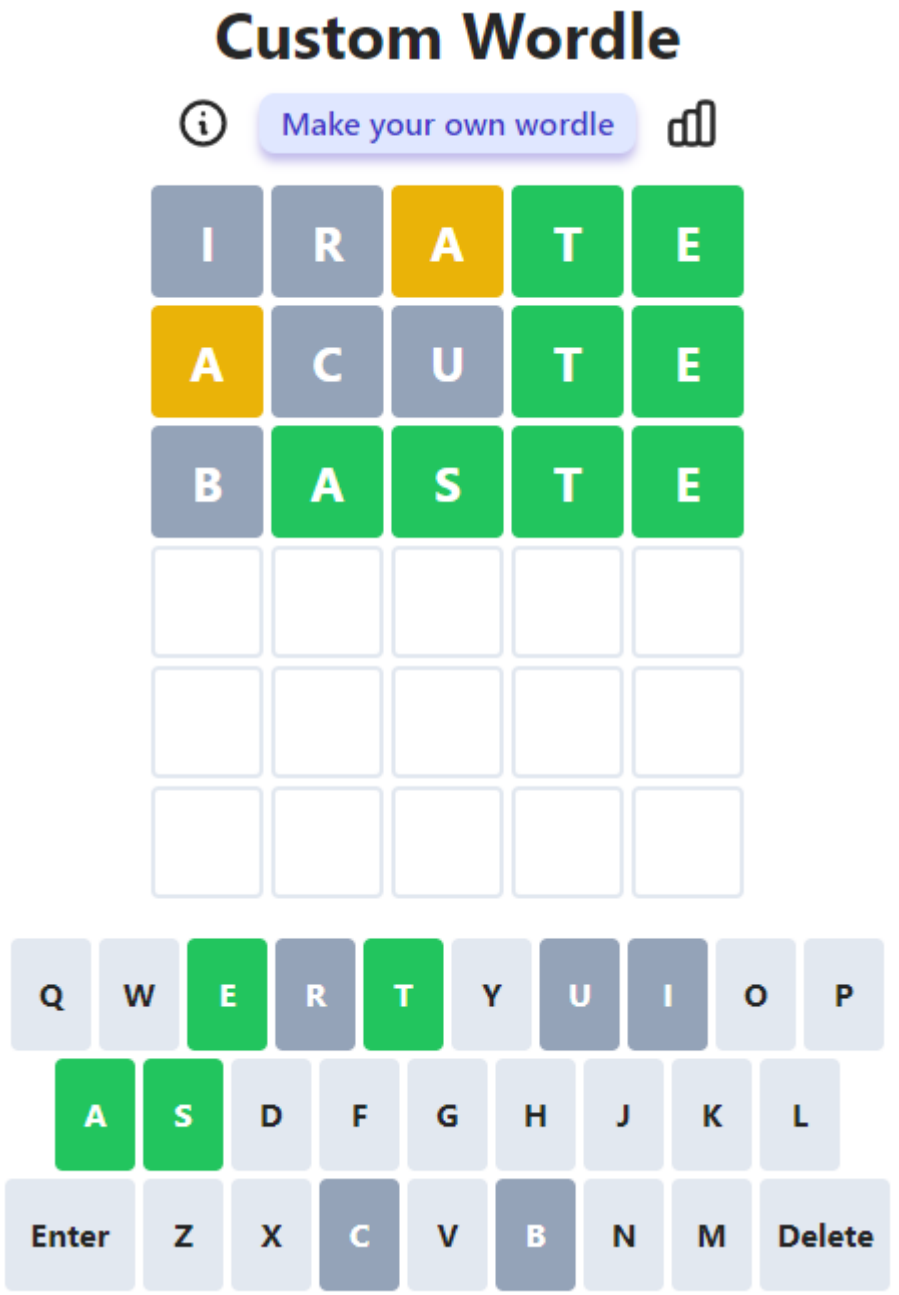

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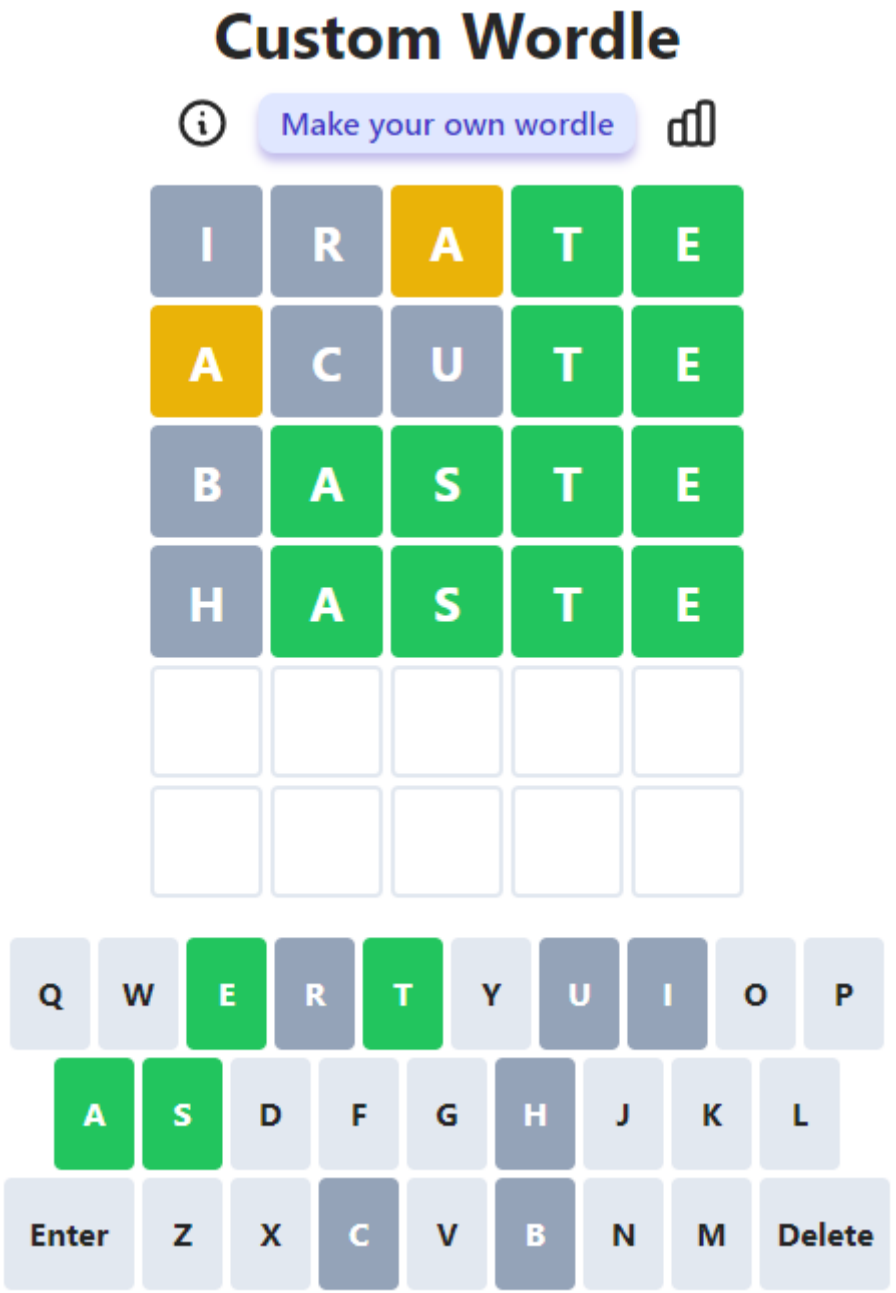

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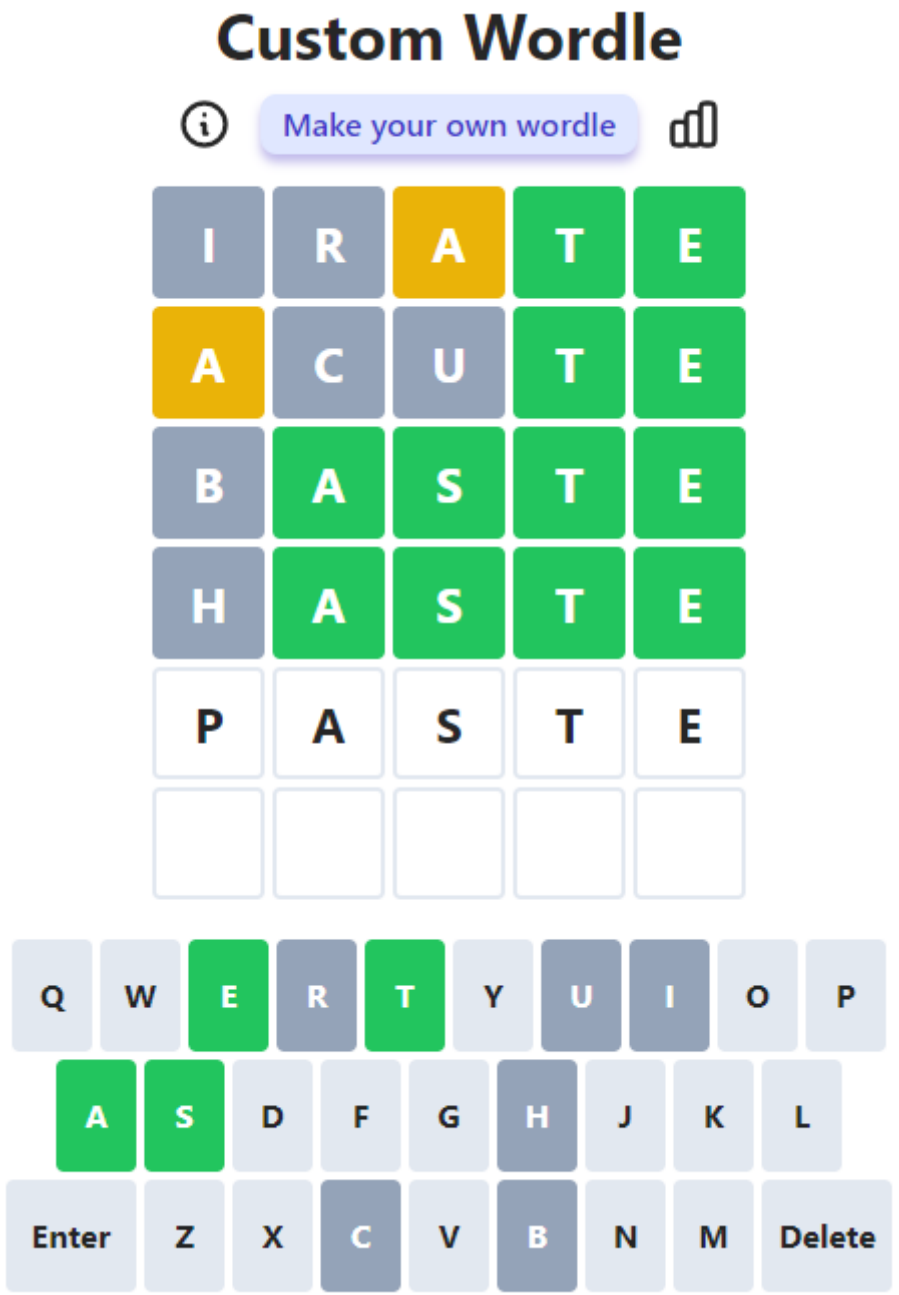

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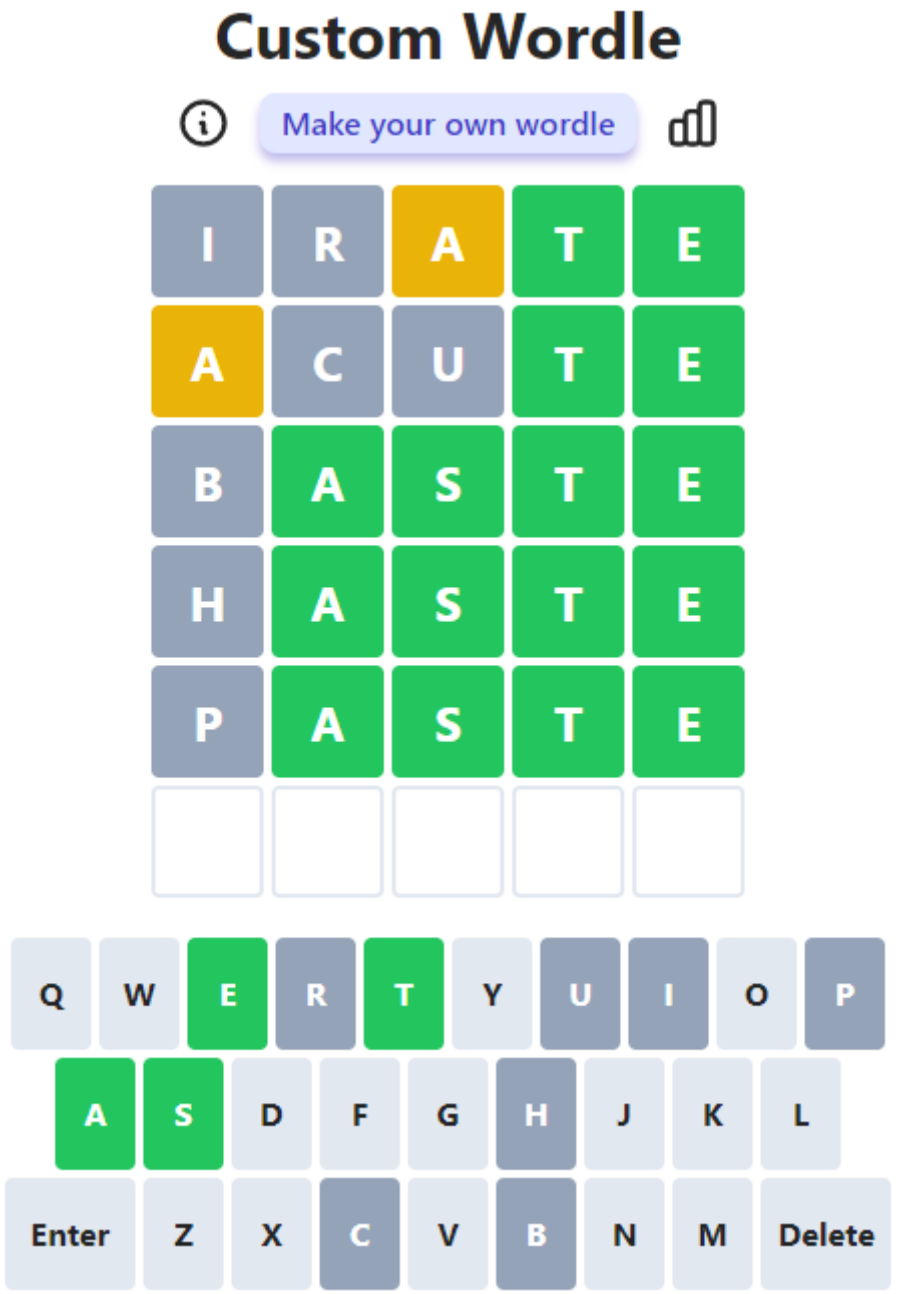

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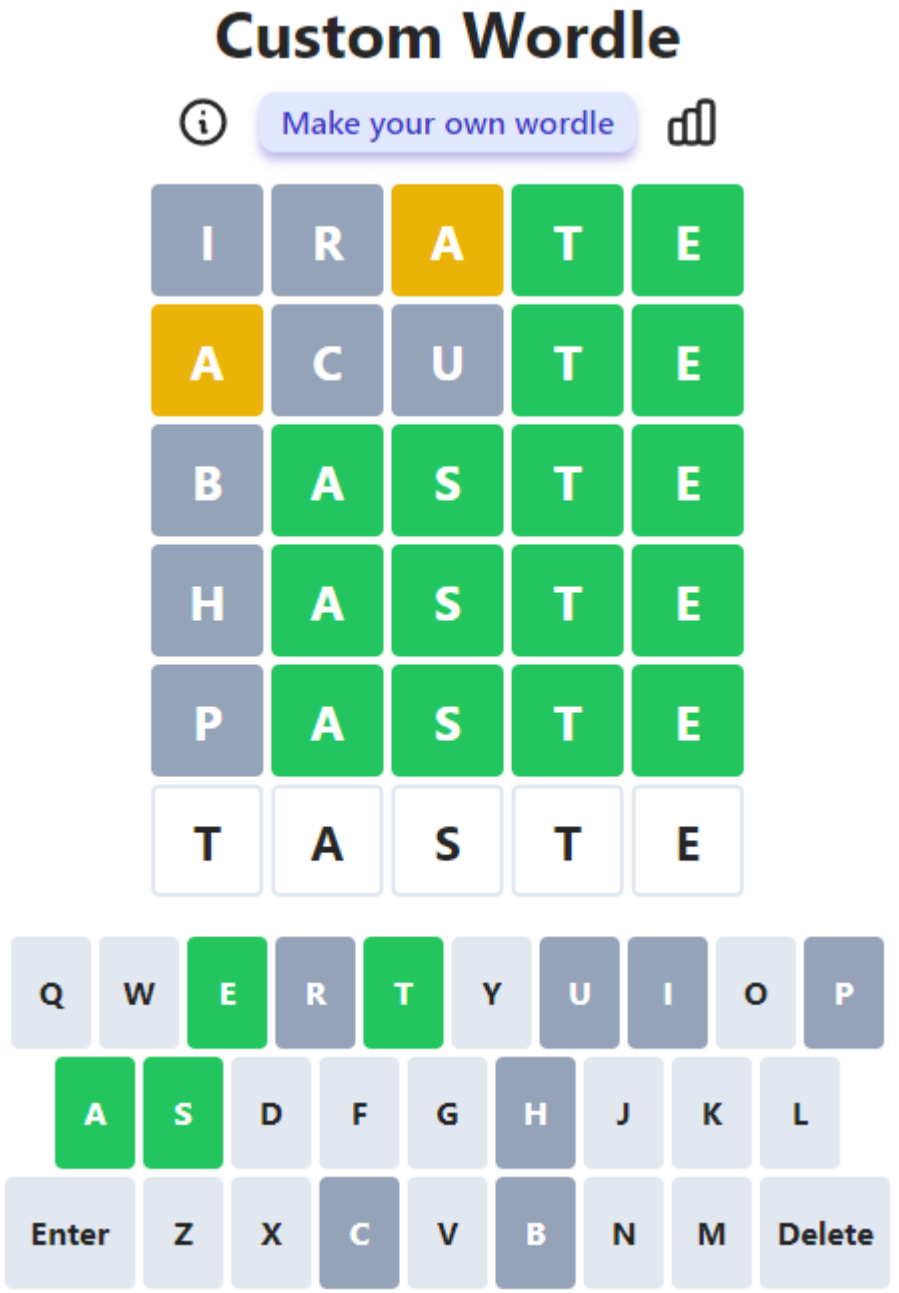

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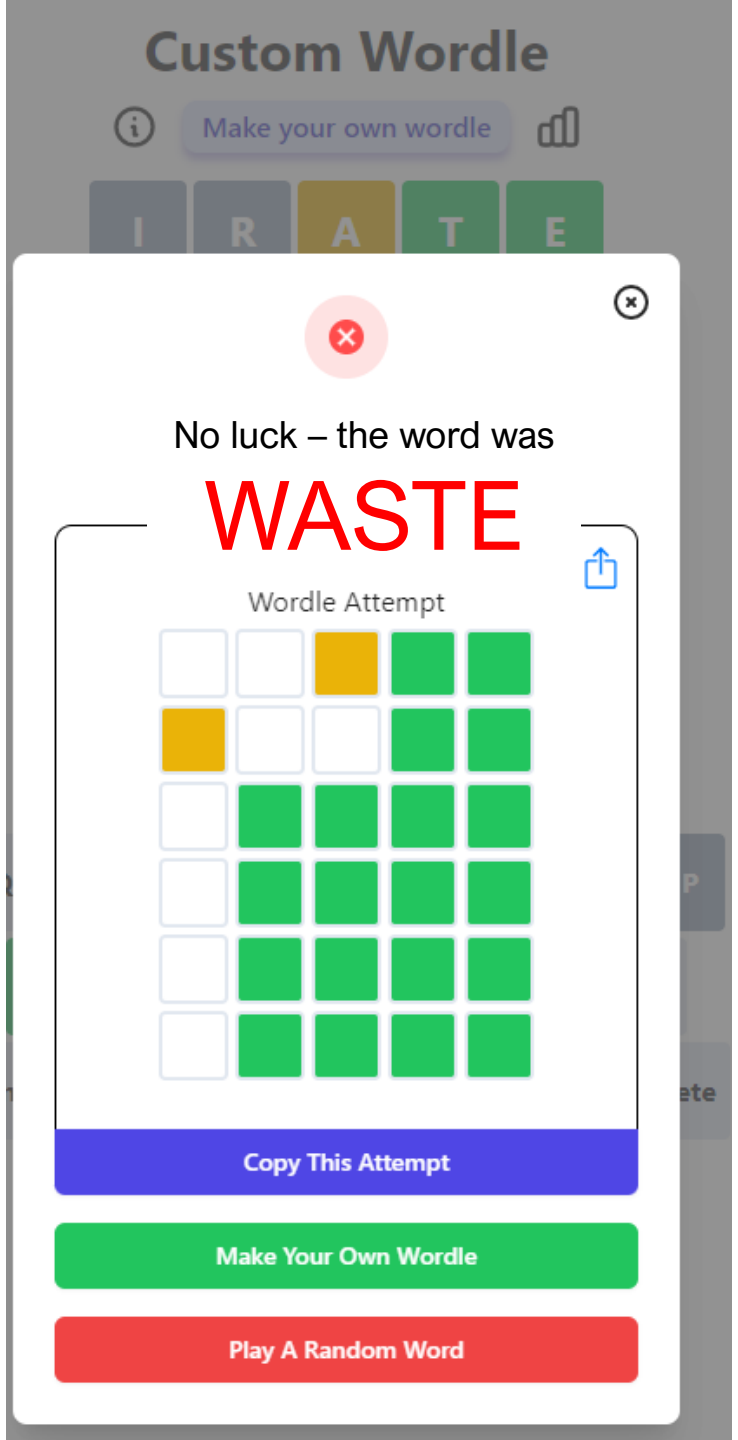
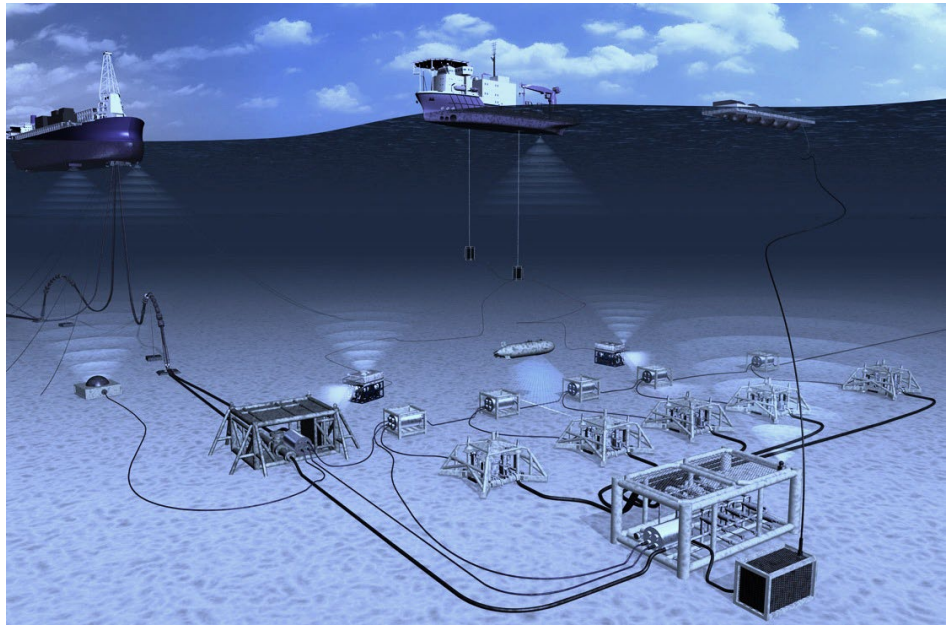


What the heck is waste!!!

Who is J+S Subsea

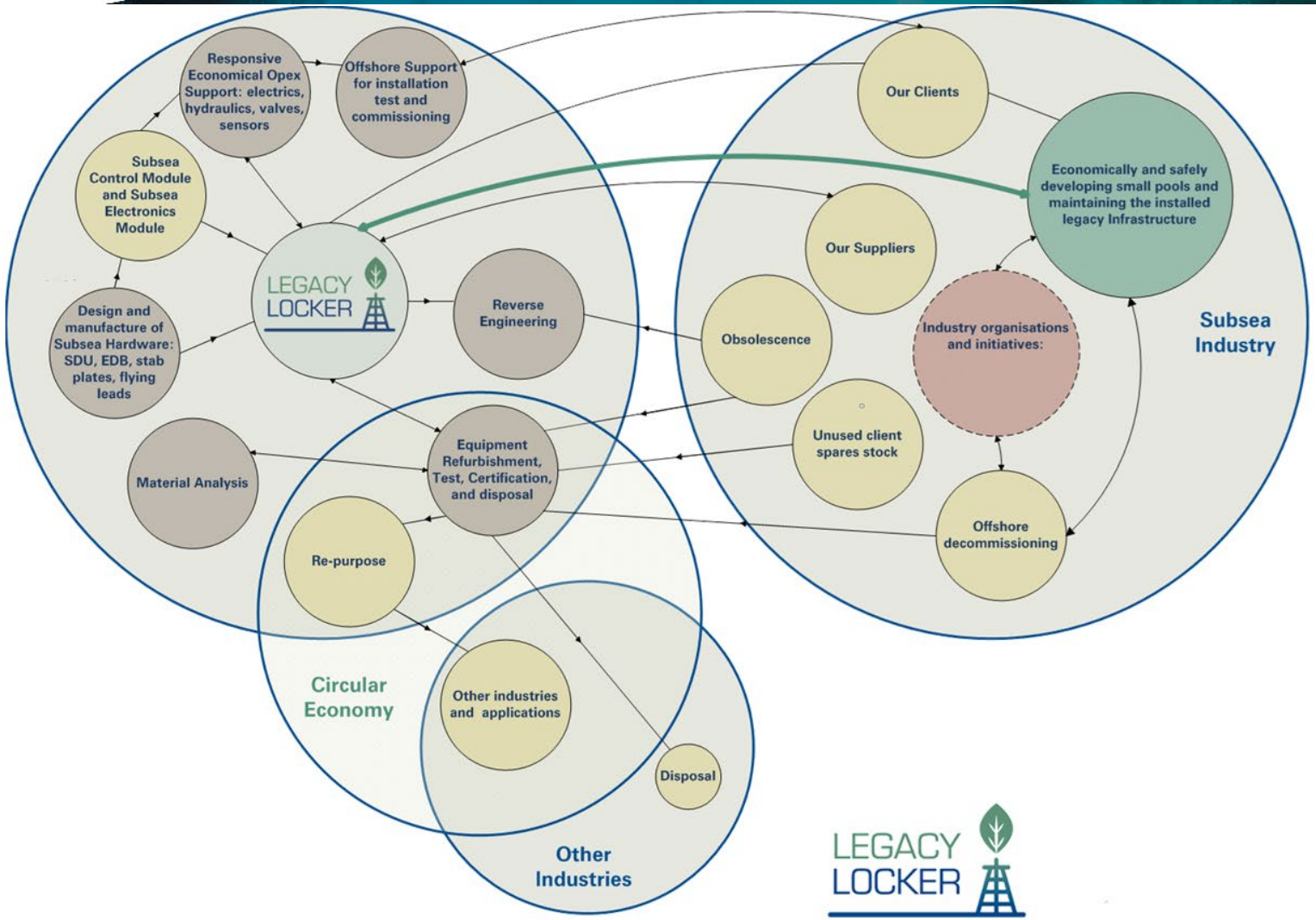
- We are a subsea engineering specialist
- We are client-focused and solution driven
- We have delivered operational support to the Oil & Gas and Renewables Energy sectors for over 20 years.
- Our team of engineers and technicians supports your project from design to delivery
- Our Legacy Locker initiative offers rapid delivery of subsea electrical and hydraulic equipment
- We design, manufacture, refurbish, and recertify subsea equipment



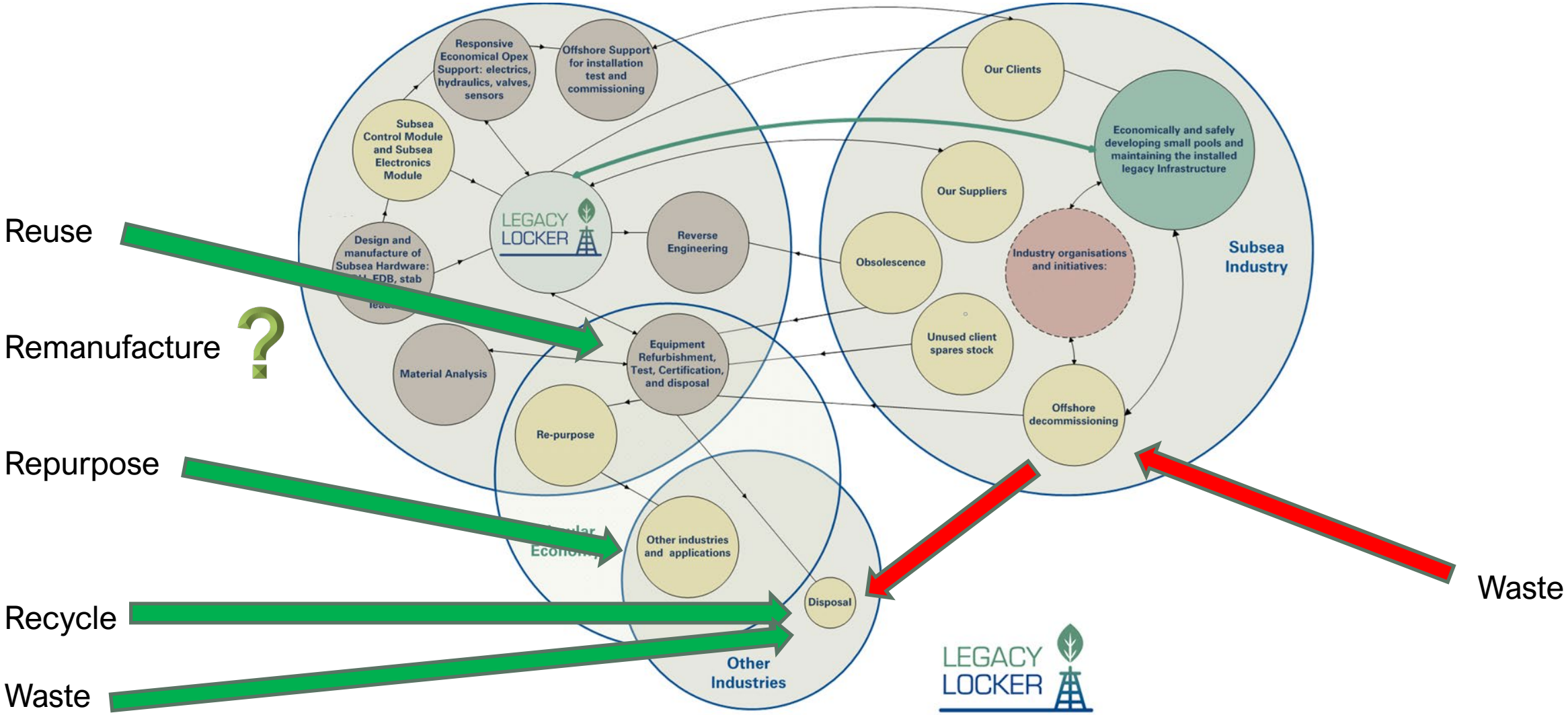
Legacy Locker – brief history

- Since 2002 we have been challenging the established supply chain
- Rapid response solutions to client equipment procurement issues
- We wrapped up our services in the Legacy Locker banner
- Anecdotal awareness of decom kit going direct to recycling
- Joined Decom North Sea
- I was elected to the Decom Leadership Group
- Became Vice Chair of DLG focussing on Reuse
- I have been on quite a learning journey
- Legacy Locker still does what it started doing
- Industry and environmental drivers have brought more focus
- The service and relevance continue to evolve – more on this

Evolving Acronyms and Vocabulary



Meaning of Words



How Legacy Locker works currently

	Use as is	Buy and replace	Adapt / modify	Form fit and function replacement	Refurbish / recertify	Use your own	Use one from someone else
You have a known good spare							
You don't have a spare							
You have a spare but don't know condition							
You have a spare that isn't quite right							
You have recovered your kit from subsea							
It has been subsea with maintenance record							
It has been subsea with no history							
You know what you need but it is obsolete							

Legacy Locker in Action

BEFORE

Remanufacturing by any other name

Remanufacturing is an embedded part of the supply chain in other major industries

AFTER

What next for Legacy Locker

- We are applying for a waste licence
- Not because we want to but because we need to

- Currently most decommissioned equipment comes ashore classified as waste
- This needs to change
- We want to be a link in the chain – not the whole chain

Remember remanufacturing ?

- This is a well established aspect of the supply chain in many industries
    - Check out Scottish Institute for Remanufacturing
    - Why cant we do it
- I was recently asked what is the difference between refurbishment and remanufacture?
- I hadn't previously thought about it so I said
- If its designed to be remanufactured its remanufacture
- If its not designed to be remanufactured its refurbishment

- The considered and accepted answer is
- Remanufacturing returns the equipment to its "original warrantable condition"
- You should have the same expectation of performance and lifetime as you would with new

Case Study – Engine Remanufacturing

A study out of the Rochester Institute of Technology, looking at heavy duty off road engines, showed significant material, energy and emissions savings through remanufacturing.

Process	Assumed service life (years)	Estimated service life cycles	Average material reuse per VRP cycle	New material inputs (kg)	Embodied material energy (MJ)	Embodied material emissions ($kgCO_2e$)
OEM New	3	1	0	10,844.1	253,759.2	19,996.1
Remanufactured	3	3	Cycle 1 = 92.8%, Cycle 2 =74.4%, Cycle 3 = 37.7%	Cycle 1 = 780.8, Cycle 2 = 2,776, Cycle 3 = 6,756	Cycle 1 = 18,271, Cycle 2 = 64,962, Cycle 3 = 158,092	Cycle 1 = 1,440, Cycle 2 = 5,119, Cycle 3 = 12,458

Over 4 lifetimes, the following will be true:

Process	Total material use	New material inputs (kg)	Embodied material energy (MJ)	Embodied material emissions ($kgCO_2e$)
OEM New	400%	43,376.4	1,015,036.8	79,984.4
Remanufactured	195.1%	21,156.9	495,084.2	39,103.1

~50% saving

of material use, embodied energy and emissions.

TARGE Environmental

OAKDENE HOLLINS

We've got numbers by the trillions

- If you're over 50 tell me your weight in kg
- If you're under 30 tell me your height in feet and inches

- Or perhaps my favourite courtesy of Vic Reeves:

"88.2% of statistics are made up on the spot"

Believe it or not I found this quote on Climate Home News under the heading

Don't be selective with energy statistics

There are Standards and Guidelines

New independent group to help tackle 'greenwashing' - GOV.UK (www.gov.uk)

The UK's net zero economy goal was boosted today (9 June 2021) with the appointment of a new expert group whose work will support investors, consumers and businesses to make green financial decisions.

ISO 14040:2006

Environmental management — Life cycle assessment — Principles and framework

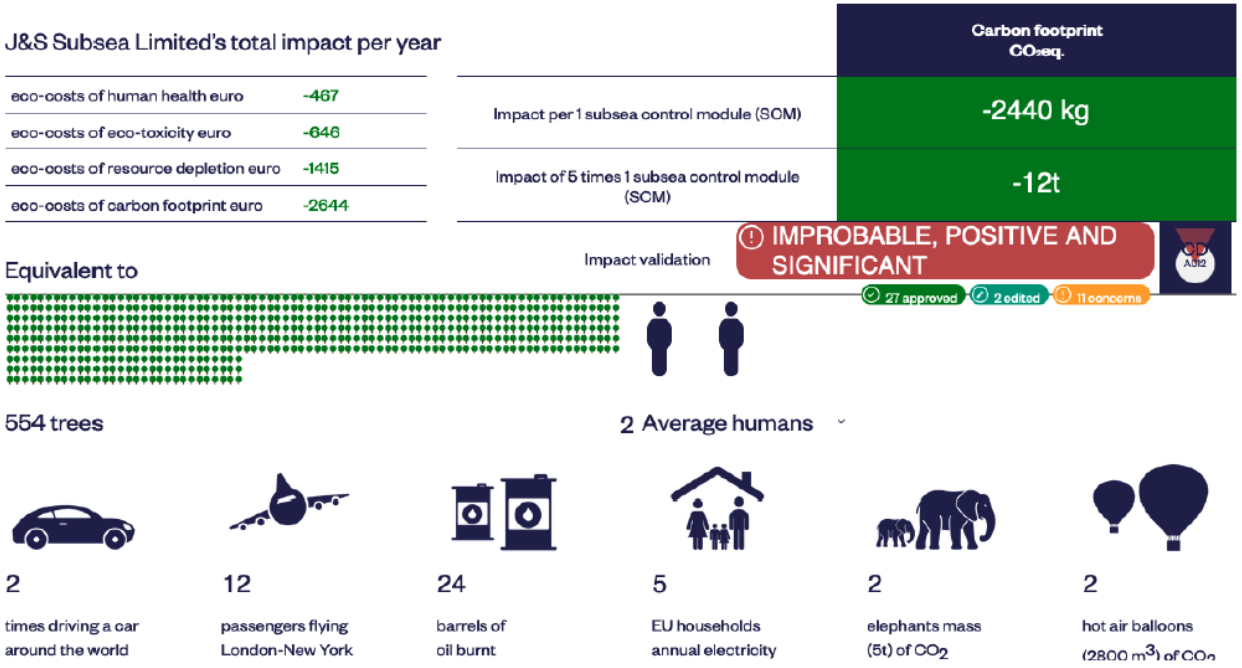
The increased awareness of the importance of environmental protection, and the possible impacts associated with products [1)], both manufactured and consumed, has increased interest in the development of methods to better understand and address these impacts. One of the techniques being developed for this purpose is life cycle assessment (LCA).

Life Cycle Assessment

- Through Scottish Enterprise I participated in a workshop with Impact-Forecast
- Impact Forecast have devised an Impact Platform to perform a climate impact forecast on your product or service
- The online tool lets you define your product or service life cycle
- You pick relevant environmental factors from a database
- The model produces an analysis of your Life Cycle Impact

- It is rigorous and thorough
- It is independently assessed by experts within the Impact Forecast Team
- It stands up to scrutiny
- Its so good I failed
- But I plan to do the resit

Remanufacture of six SCMs



- Improbable
- Huge database
- I selected wrong categories in some cases
- Assessors couldn't confirm my cases

- Positive
- All the number go in the right direction

- Significant
- It is worthwhile

J+S Subsea
UNDER CONTROL

Subsea equipment that doesn't cost the earth

DATABASE OF **OPERATIONAL SPARES**

85% EQUIPMENT REUSE

ISO 9001 & 14001 CERTIFIED

INNOVATIVE DESIGN SOLUTIONS

> "Legacy Locker provided us with a solution that kept our operation running on time. The service meant that we were able to avoid what would have been very costly downtime"
>
> **Project Engineer**
> **Chevron**

HYPERBARIC TESTING

REFURBISHMENT & RECERTIFICATION

24HR RESPONSIVE SERVICE

BUY, SELL, RENT, USE OR REPLACE

110 YEARS COMBINED **ENGINEERING EXPERIENCE**

CHAMPIONS FOR A **CIRCULAR ECONOMY**

QUALIFIED ENGINEERING AND SUPPORT STAFF

SHORTER LEAD TIMES THAN MOST OEMS

FPAL VERIFIED

1 STOP SHOP
DESIGN TO DELIVERY

FORM, FIT AND FUNCTION EQUIPMENT REPLACEMENT

ALTERNATIVE OPTIONS FOR **OBSOLETE EQUIPMENT**

PART OF THE **SOLUTION**

REVERSE ENGINEERING SERVICE

LEGACY LOCKER

We still do what we have always done
We still have the challenges we had 3+ years ago
Energy Transition and Net Zero have brought real focus
We see a lot more engagement and will to succeed

The journey continues

Thank you for listening

J+S Subsea
UNDER CONTROL