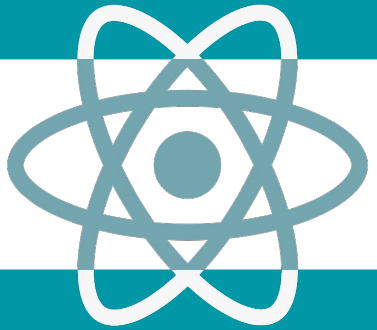
COESIONE ITALIA 21-27 PIEMONTE
Cofinanziato dall'Unione europea
REGIONE PIEMONTE



Programmazione Web

React

Davide Mantovani

synesthesia
the digital experience company

Intervento realizzato da
ITS TECNOLOGIE DELL'INFORMAZIONE E DELLA COMUNICAZIONE

Problem solving

problem-solving

NOUN

The process of finding solutions to difficult or complex issues.

'An expert at creative problem-solving'

From Oxford Lexico

The human brain

1. Analytical thought
2. Rationality
3. Logic
4. Detail perception
5. Planning
6. Math and Science
7. Right vision
8. Right movement

1. Intuitive thought
2. Emotion
3. Imagination
4. Holistic perception
5. Impulse
6. Art and Writing
7. Left vision
8. Left movement

Warning: this scheme is not exhaustive, but deliberately schematized broadly to represent the concept.

How to solve (almost) any problem

1. Understand the problem
2. Making a plan of solution
3. Carrying out the plan
4. Look back to verify
5. Refine the plan only if needed

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A PROBLEM HAS "INFINITE" SOLUTIONS

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THE PLAN CAN CHANGE (BUT THIS HAS A COST!)

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A problem has "infinite" solutions

The plan can change (but this has a cost!)

Never get too attached

Brain Stretching

A pencil and **an eraser** costs **€2.20**.

The pencil costs **€2 more** than the eraser.

How much the pencil costs?

pencil = x

eraser = 2 + x

x + (2 + x) = 2.20

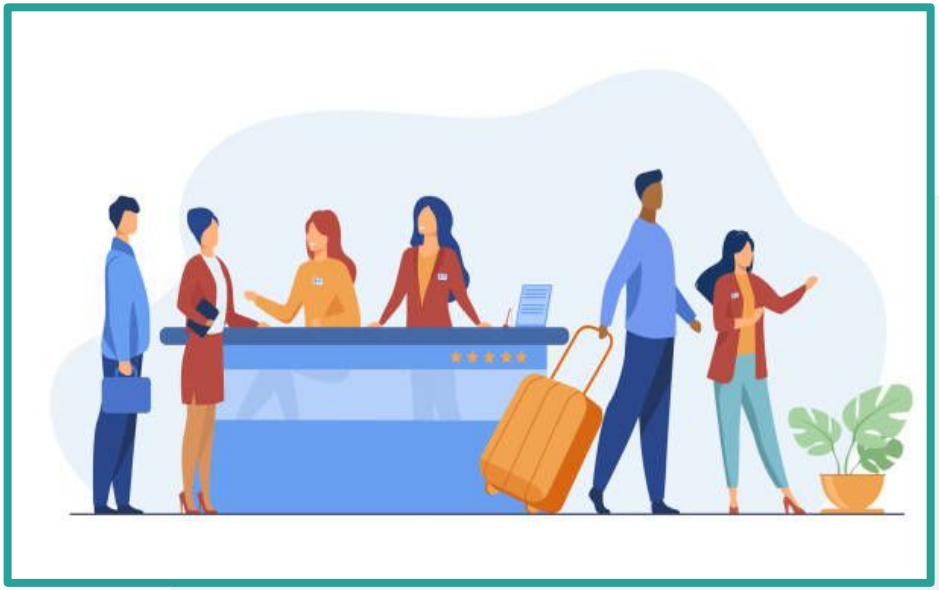
2x = 2.20 – 2 = 0.20

x = 0.20 ÷ 2 = 0.10

cost of eraser = €0.10

cost of pencil = 2.10

The "I'm not a math guy" hotel



Three people check into a **hotel** for a **single room**.

They pay **$30** to the **manager** and go to their room.

The **manager** suddenly remembers that **the room rate is $25**.

He **gives $5 to the bellboy** to **return to the people**.

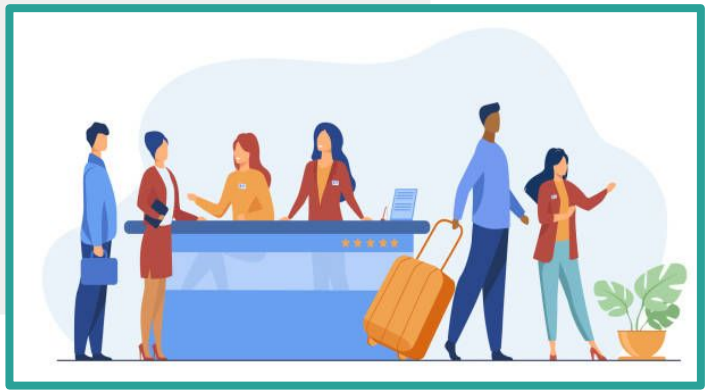
On the way to the room the bellboy reasons that **$5 would be difficult to share** among **three people**.

He **pockets $2** and gives **$1 to each person**.

Now **each person paid $10** and **got back $1**.

So **they paid $9 each**, **totalling $27**.

The **bellboy has $2**, **totalling $29**.



($10 - $1) x 3 + $2 = $29 → $30 ?

WHERE'S THE MISSING $1?

Beware!

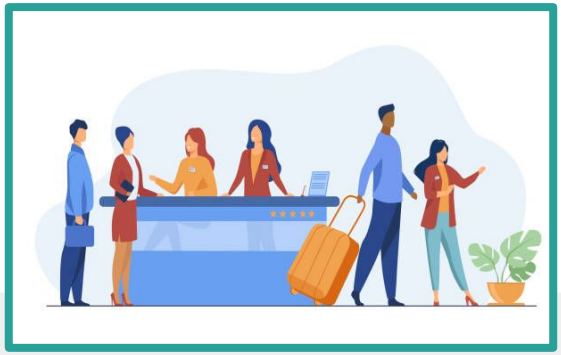
The next page contains the solution

Three people pay $30, $10 each for a room

$5 have to be returned

($10 - $1) x 3 + $2 = $29

The bellboy pockets $2 and returns $1 each



There's no paradox: each customer payed $9 and that's all.

$25 for the room and the bellboy kept **$2**, this means that the paid amount is **$27 in total**. The customers got back **$3** in total and this leads to our **$30**.

$25 + $2 = $27 = $9 x 3

The prisoners' hats

or

Being logical under

PRESSURE

or

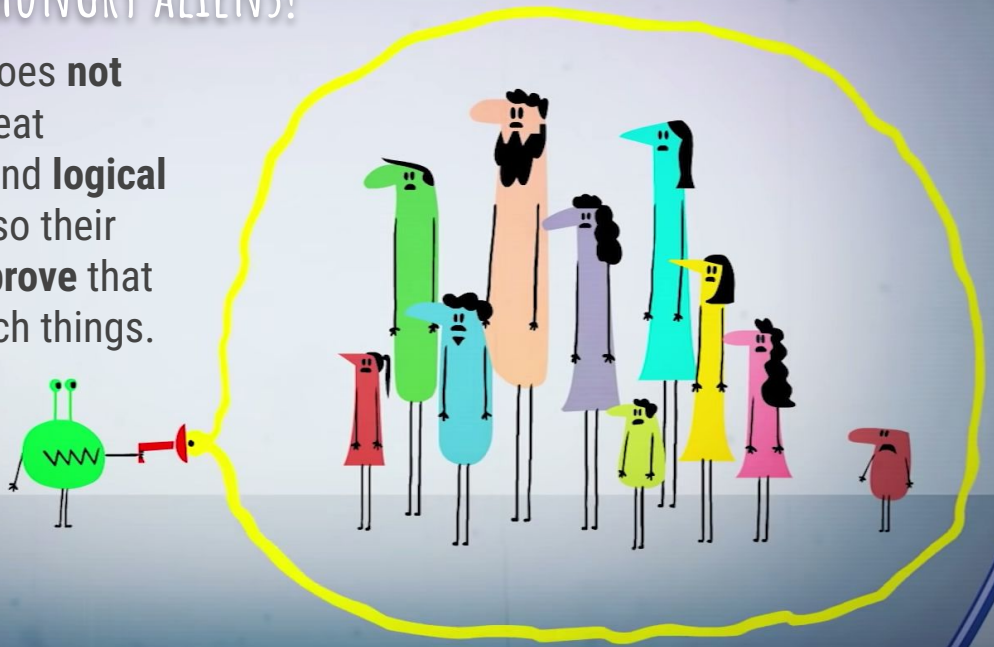
How to trick an alien

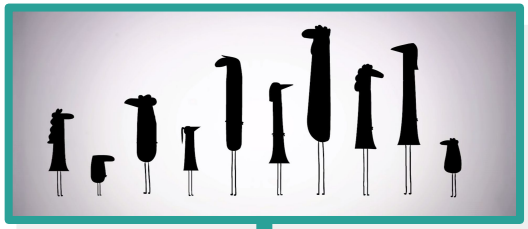
Warning: this solution has not been tested with all available alien species

TED-Ed
LESSONS WORTH SHARING

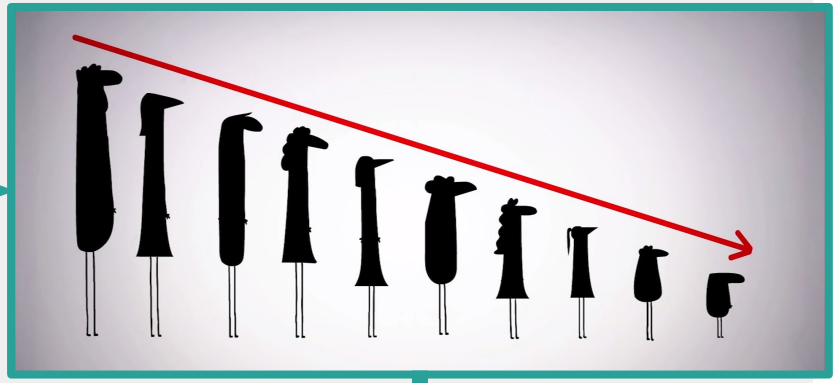
Ten of you have been captured by very bad and highly hungry aliens!

Their culture does **not allow** them to eat collaborative and **logical living beings**, so their purpose is **to prove** that you are not such things.



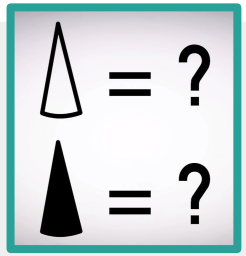


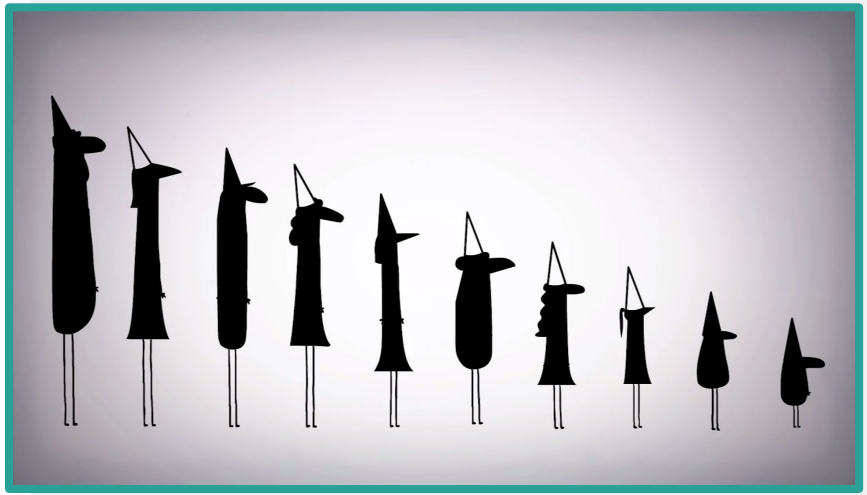
You will be **lined up** according to your **height** and you will **not be allowed** to look behind you.



They will **randomly** assign to each of you a **white** or **black hat**.

You can only see **the hats in front of you**, **without knowing** the exact **amount** of each color.





Each of you will have to guess **his hat color**, without any help or cheating, and **only one mistake** out of ten is allowed.

You are permitted to say only two words: "**white**" or "**black**".

If you break the **rules**, you will all . . . DIE!


HOW TO SOLVE THIS
LIFE-THREATENING
PROBLEM?!

"Rome was not built in a day"

Main problem solving principles:

1. Break it into chunks
2. Think about probabilities
3. Less cost, best results
4. Some mistakes are there to be made
5. Repetition, replication and reuse

Beware!

The next page contains **spoilers**

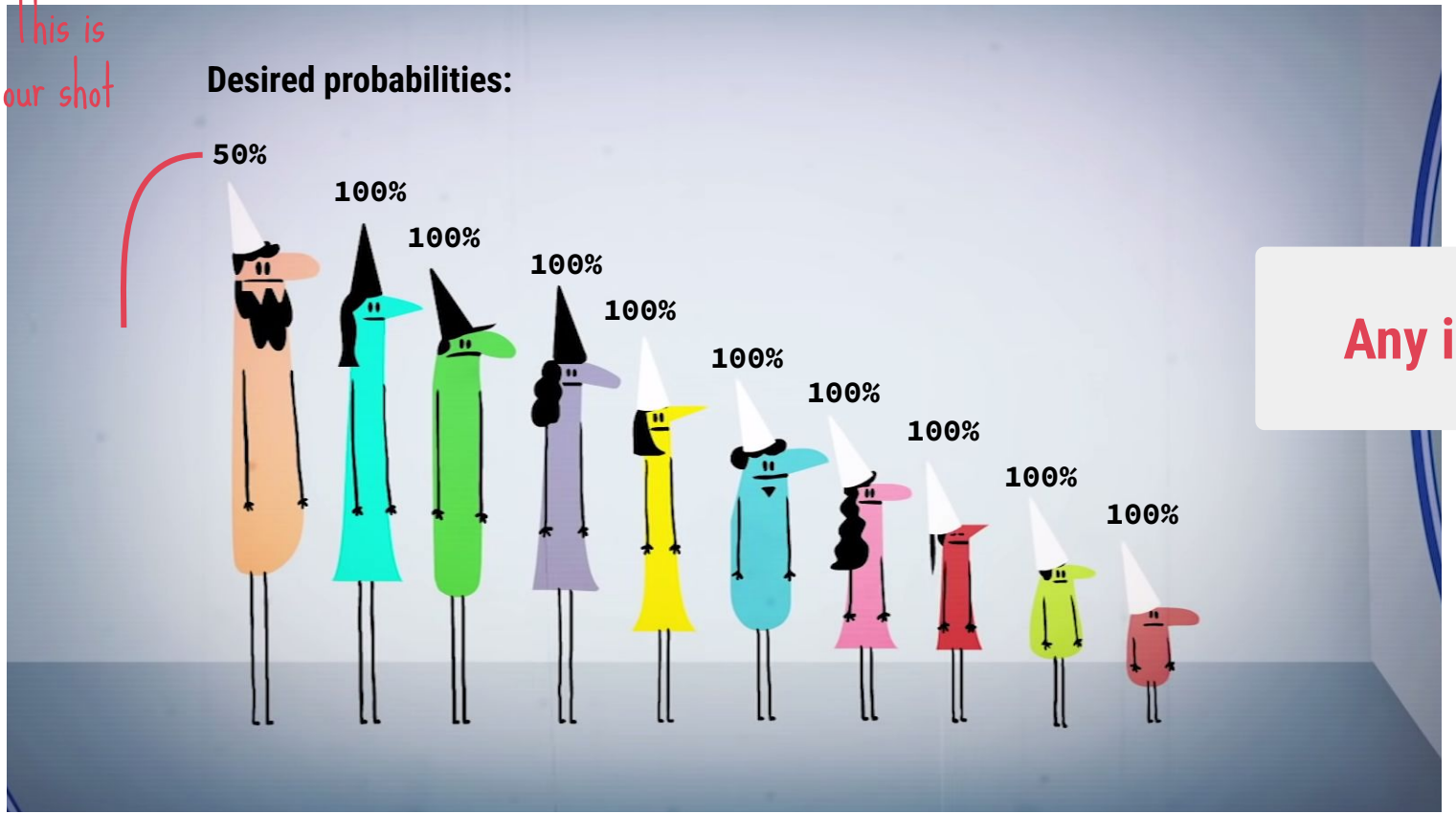
Beware!
The next page contains spoilers

We need to find a way to “use” the only error allowed.

Let’s start by calculating the probability of guessing right.

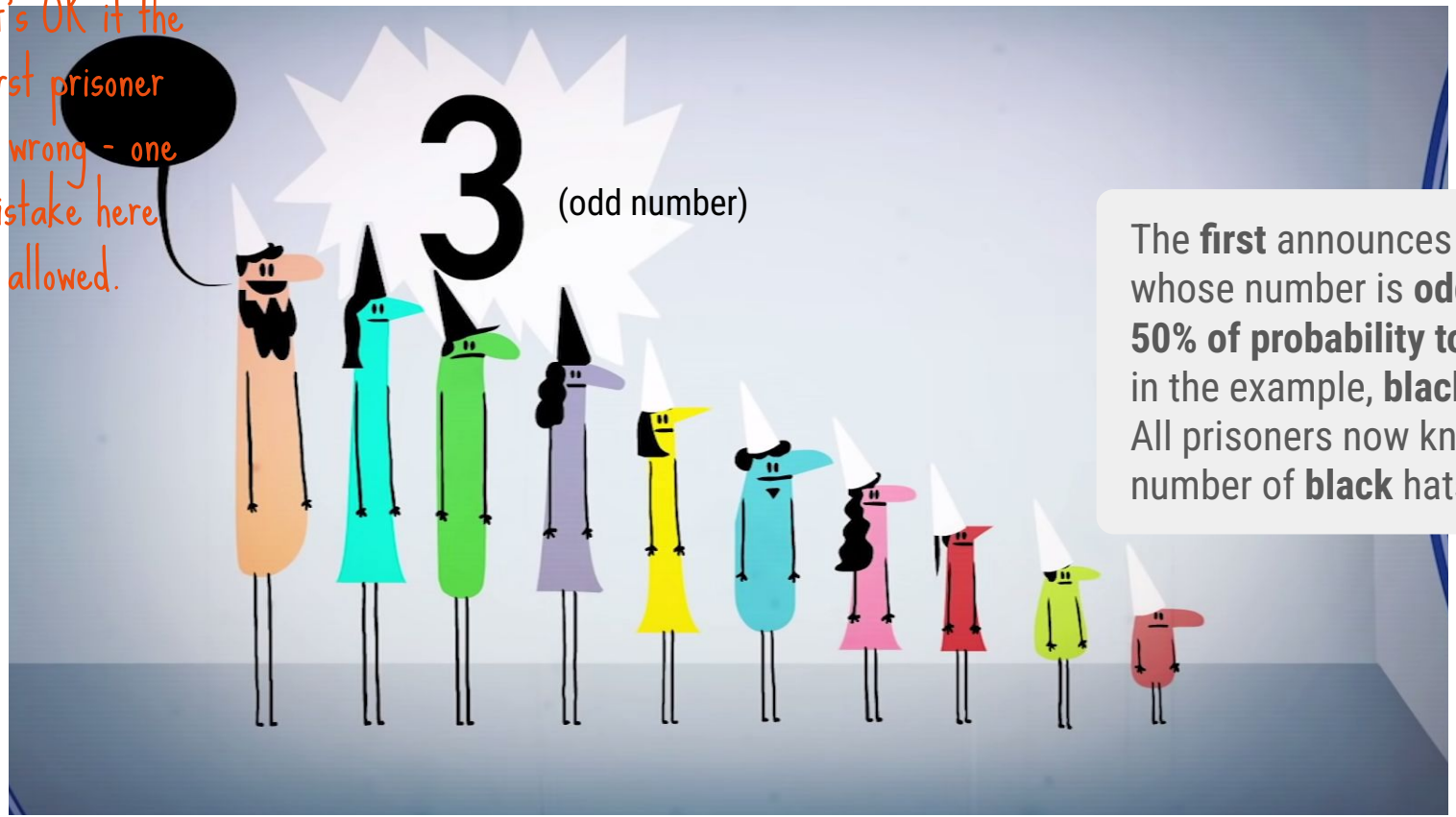
Each hat can be white or black, so probability is 50%.

This is our shot

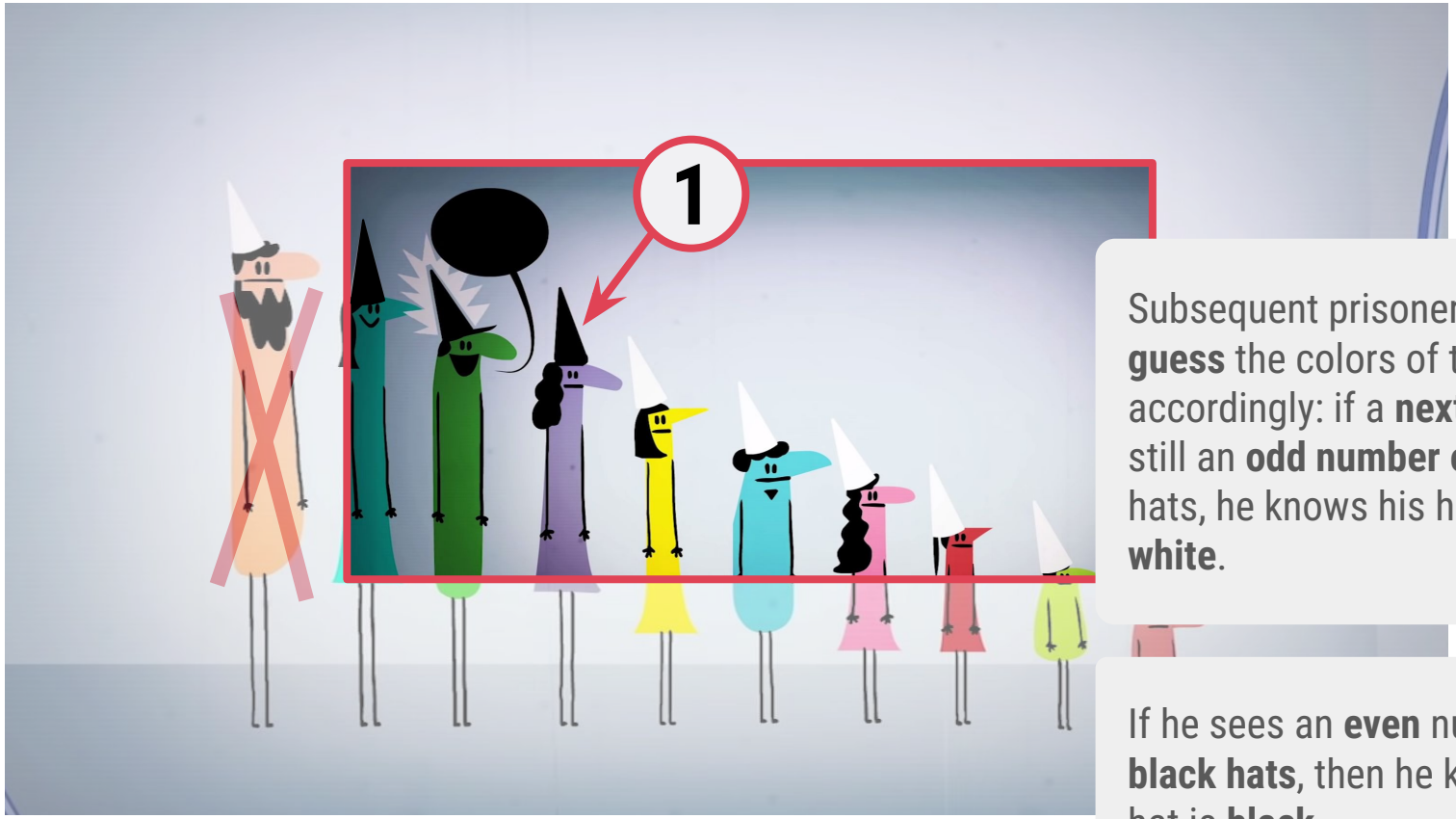


Any ideas?

Beware! The next page contains the solution

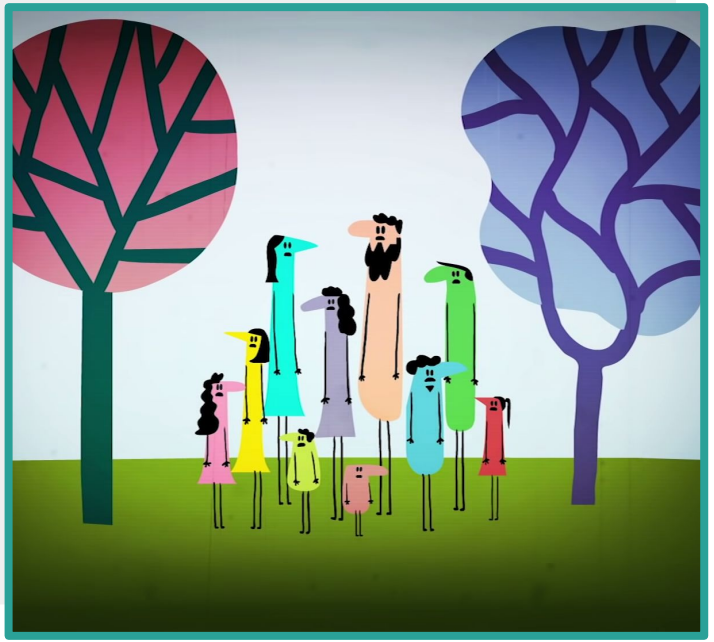


The **first** announces the color whose number is **odd** and has **50% of probability to be wrong**: in the example, **black**.
All prisoners now know the number of **black** hats is odd.



Subsequent prisoners can **guess** the colors of their hats accordingly: if a **next one** sees still an **odd number of black** hats, he knows his hat is **white**.

If he sees an **even** number of **black hats**, then he knows his hat is **black**.



If you solved it, you're free to go on (or you just died, bye)

Our job is to find the **best solution at the lower cost**, perhaps not suitable to cover every eventuality, but whose **effectiveness is greater than possible drawbacks.**

This solution works with any combination!

i cookie sono il posto + sicuro per salvare i propri dati come il refresh token

PERCHE USARE UN FRAMEWORK DOMANDA IMPORTANTE!!

How to become a Superhero (for real)

Main problem-solving principles:

1. Break it into chunks
2. Think about probabilities
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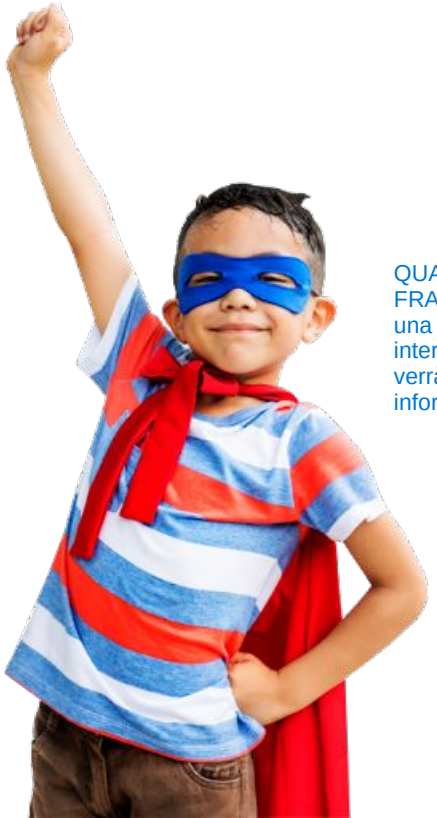

QUANDO SI UTILIZZA UN FRAMEWORK SPA, ho una sola pagina interattiva, la pagina HTML verrà riempita di informazioni