- alright, this is what I've been training for.

- I'm not gonna let Senpai down.

- What do we have here?

- “Find Duplicate Number”

- Given an array “nums” containing n + 1 integers where each integer is between 1 and n (inclusive).

- Prove that at least one duplicate number must exist.

- Of course, because of Pigeonhole Principle, child’s play.

- Assume that there is only one duplicate number but it could be repeated more than once.

- Find the duplicate number.

- I got it!.

- If the numbers are sorted, the any duplicate numbers will be adjecent in the sorted array.

- A simple sort and a linear scan will do.

Alert: TIME EXCEEDED. Too slow bitch.

Song : [chuckles in cofidence]

- As expected, I knew it couldn’t be that easy.

- but if ypu think that would stop me.

- then you inderestimated me.

- I have no choise but to use my secret weapon.

- [Hashmap] – uh

- the famous hashmap, one of the most powerful data structures for reducing your time complexity.

- The famous hashmap, one of the most powerhful data structures reducing for reducing your time complexity.

- taking advantage of its constant lookup times.

- However…

- Using a hashmap requires me to increase my power level.

- so I need to wear these to suppress and control my power in case it gets out of control.

- Also my doctor told me to wear them to treat my carpal tunnel.

Alert : MEMORY EXCEEDED

- Nani?

- Wait.

- [Gasp]

Video : *You must use only constant, 0(1) extra space.*

Video : *You must not modify the array (assume the arary is read only).*

- [more gasp]

Video : *Your runtime complexity should be less than 0(n2).*

- This question is too strong.

- I’m too weak.

- I’m running out of ideas.

- I can’t solve this medium problem.

- How can I even be a real engineer?

- How am I gonna get into Google?

- KUSO!!!

- [sempai] Seems like you need some help.

- [coolnes intensifies]

- Ugh, Senpai!

- [senpai] This question is…

- [senpai] Trivial…

- Oh my God. He’s so cool!

- And his jacket is so big!

- [senpai] Solving this is linear time and constant space requires Floyd’s Tortoise and Hare.

- [senpai] A simple cycle detection algorithm where one pointer traverses twice as fast as another.

- [senpai] and once they meet you can trace back to the point where the cycle began.

- [senpai] in our case the values of the array is like a pointer.

- [senpai] pointing to indices of the array which is like nodes in our case.

- [senpai] because each number is from 1 to n then each value will have to point to a valid index and sisce there’s a duplicate number there will be a cycle, find that cycle and you will have your answer.

- Woah…

- [senpai] What are you waiting for? Code it yourself.

- Hi!

- [senpai] Senior engineers don’t code anymore. Also my doctor said not to.

- [senpai] because of my carpal tunnel.

- That works.

- Senpai, Why are you so smart?

- bacause of my ¿…?