



## CODECHEF-VIT NEWSLETTER

## COMPETITIVE EDGE

## INTERVIEW Q &amp; A

**Q) Given an array such that there is a pair of each number except one, assuming that the length of the array is very large find the odd element**

**Example :  $a = [1, 1, 5, 4, 7, 6, 4, 5, 9, 8, 7, 8, 6, 2, 2]$**

**Here the odd element is 9 as it only occurs once and all the other numbers occurs in a pair.**

In this question to achieve a time complexity of  $O(n)$  we use the concept of XOR

Since we know

$$A \oplus A = 0$$

$$A \oplus 0 = A$$

XOR of two similar numbers gives us 0, whereas XOR of a number with 0 results in the number itself

So in this case  $(1 \oplus 1), (5 \oplus 5), (7 \oplus 7), (8 \oplus 8)$  etc gives result as 0

Only in the case of 9 the result is 9 only as  $(0 \oplus 9) = 9$

PSEUDOCODE:

1) Start

2) Initialize array a

3) Use loop

for  $i$  in range(len(a)-1):

$b \oplus= a[i] \oplus a[i+1]$

4) Return result b

**Q) What are some of the built in lambda functions ?**

$elist = [1, 2, 3, 4, 5, 6]$

1) Filter function

Allows you to select/filter elements based on your specified conditions

$evenlst = \text{list}(\text{filter}(\text{lambda } x: (x \% 2 == 0), elist))$

$Evenlst = [2, 4, 6]$

2) Map function

Returns a new list with modified items

$sqrlist = \text{list}(\text{map}(\text{lambda } x: x ** 2, elist))$

$sqrlist = [1, 4, 9, 16, 25, 36]$

3) Reduce function

Performs recursive operation on list items

$pro = \text{reduce}(\text{lambda } x, y: x * y, elist)$

$pro = 720$

## #What's Trending

**Top 10 Websites for online learning:**

1. Coursera
2. EDX
3. Udacity
4. Futurelearn
5. Khan Academy
6. Saylor Academy
7. Iversity
8. Open2Study
9. Udemy
10. Cognitive class

**Resources to help you out**

## Node.js:

1. NodeJS Questions - Vskills Practice Tests
2. Node.js Online Certification Training
3. Node.js Introduction
4. nodejs/node
5. <https://www.guru99.com/nodejs-tutorial>
6. Node.js Tutorial | All You Need To Know About Node.js | Edureka

## BLOG RECAP: Article from our members

**Apple Pushing to Put Its Own 5G Modem in 2022 iPhone Models**

Bhavesh Goyal

Core Committee member

After buying Intel's 5G modem business earlier this year, Apple is wasting no time building its own 5G modem for the iPhone. The company is pushing to have its modem in iPhones by 2022, a very aggressive timeline given all the development, testing, and certification work involved, a source with knowledge of the company's plans said.

Right now, the iPhone (all models) include a System on Chip designed by Apple while the modem continues to be a separate chip on the logicboard. Ideally, having the modem be a part of the SoC would be the best case scenario when it comes to power-efficiency. Initially, Apple had plans on working with Intel to incorporate the modem right into the A-series processors, but then, things changed drastically in April 2019.

Back in 2017, Apple and Qualcomm went head-to-head in legal battles across the world due to conflict over the way Qualcomm was charging royalties. However, in an interesting turn of events, on the second day of hearings in the Federal Court of San Diego, the two companies declared that they will be dropping all lawsuits, everywhere in the world. The two companies settled and within hours, Intel issued a press release saying the company was exiting the modem business.

But given their past disputes, Apple and Qualcomm have an uneasy relationship, and Apple is happiest when it's designing its own chips. That may be part of the reason Apple management is leaning on its modem group in San Diego to finish the new Apple 5G modem sooner rather than later.

Apple's ambitious timelines could be attributed to the fact that they will not be starting from scratch. After buying Intel's modem business for \$1bn, Cupertino has a significant head-start towards its goal. However, it is still going to be an uphill battle to integrate the modem in the SoC, followed by fabrication, testing and certification.

Apple will have to put the modem through network optimization testing to make sure it plays nice with the carriers' wireless networks. The modem must be tested to ensure compliance with global standards, and undergo another battery of tests to satisfy FCC requirements.

### Did you Know ?

Facebook has a blue color scheme because the creator, Mark Zuckerberg cannot see the colors red and green.

## Children creating the face of the future, 'Jasper'

Why pay a Dollar  
for a bookmark ?  
Why not use the Dollar  
for a bookmark ?

Rajat Sablok  
Core Committee member

When we think about how the IT industry is changing, improvements in artificial intelligence and robotics are our first thoughts. It is often the big tech companies that come to our mind while thinking of those changes, like how Google is working on its self-driving cars and Amazon is working on its own delivery bot. Amidst all these big names, we often tend to ignore the changes in the industry brought about by young people, people of our own age.

Such a change was recently brought about eleven teenagers from Hyderabad, all between the ages of twelve and sixteen. They developed a delivery robot, named Jasper, which, at the moment, can be used to deliver 50 water bottles to people in a busy location. Jasper is a delivery robot, weight 30 kilogram, stands 4.5 feet tall, and is controlled via an application connected via Bluetooth.

Jasper was a part of students' projects who were undertaking an advanced level course in robotics at SP Robotics Maker Lab. Initially the students brainstormed about project ideas, with their ideas ranging from a robot that can swim to one that can race. Some wanted to incorporate these ideas into Jasper itself. But with a limited budget and time, they finalised on building a robot that can help quench the thirst of masses. The students plan to get Jasper into the development phase again and make Jasper autonomous. Currently, the bot can speak a few sentences, but the plan is to make it even more human. With autonomous, driverless functions and a better speech output, Jasper will be the first intelligent robot developed by children of such small ages.

## Facebook's Instagram launches Snapchat-like "Threads" app

Shashank  
Core Committee member

The way people share has changed a lot in a past few years . Earlier , people shared updates about their lives but nowadays they share memories , their status updates , experiences and much more on their Social Media Handles . Social Media platforms helps us to connect , share and give information to many people at a time .Thus , it has led to innovations in this field . The major chunk of Social media is handled by Facebook and its applications like Instagram and WhatsApp which nowadays is getting a tough competition from Snapchat which allows to communicate through photos and videos. Apart from this users have become repulsive to Facebook ads , sponsored posts , etc and thus many people have shifted towards Snapchat to communicate to their friends .Thus this led Facebook to introduction of new App called "Threads " which comprises to similar features of Snapchat .

"Over the last few years, we've introduced several new ways to share visually on Instagram and connect with people you care about – from sharing everyday moments on Stories to visual messages on Direct. But for your smaller circle of friends, we saw the need to stay more connected throughout the day , so you can communicate what you're doing and how you're feeling through photos and videos. That's why we built Threads, a new way to message with close friends in a dedicated, private space. " - Robby Stein, director of product, Instagram .

Threads contains features like sharing of photos and videos with your close friends on Instagram instantly .It also helps to know about friends' current status without having conversation or sending photos/videos, especially if you are running busy by updating your status which can be suggested by the App or by made by your own or by turning Auto Status . This are the features which will be only available to close friends of the user for whom the user has opted .

In this way , Facebook is hoping to gain its popularity of Threads App .Thus , success of Threads app will give a tough competition to Snapchat .





## Microsoft Keyboards To Come With New Office, Emoji Keys

Mehul Agarwal

Core Committee member

Computers have become inseparable parts of our everyday lives. But with rising addiction, comes physical discomfort, aches, pains, and tingling fingers that can be caused by the repetitive motion of typing for long hours. This becomes a much greater threat to your health. Addressing the same, a small investment in ergonomic products can help prevent them to a large extent.

Ergonomic keyboards are one of the building blocks to a healthy digital existence.

In light of the increasing need for ergonomic keyboards, the tech giant Microsoft is launching a new ergonomic keyboards alongside Office keys. Both the new designs will exhibit the dedicated Office and emoji keys, the Office key will replace the right-hand windows key and will launch the Office for Windows 10 app which is a central hub for the Microsoft productivity suite. The Office key can also be used as a shortcut key to open Office apps such as Word (office key + W) or Excel (office key + X).

Alongside the Office key is the new emoji dedicated key. When pressed it will launch the emoji picker inside Windows 10. However, you won't be able to assign the emoji key to a specific emoji or create shortcuts for it.

As reports claim, the all new ergonomic Keyboard will offer all-day typing comfort with a refined split layout design. The main features of the Microsoft Ergonomic Keyboard are an improved cushion palm rest covered in premium fabric, dedicated shortcut keys for Office 365, emojis, search and media controls with a built-in number pad on the right.

As of now, the Microsoft Ergonomic Keyboard is priced at \$59.99 and the Microsoft Bluetooth Keyboard is \$49.99 and is available only in the United States.