

eNEWS-7

CryptX Club

Jayshree Periwal High School



CryptX



This issue covers -

[The Royal iPhones](#)

[India's Gaming Scene](#)

[Superior Silicon?](#)

[Ah yes, aesthetics.](#)

[Quantum Decoherence](#)

[A Brave new Internet](#)

[I'm the rich guy.](#)

[The situation with NVIDIA](#)

[New Chromebooks have arrived!](#)

[Your dose of news](#)

[The War of GPUs](#)



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[cryptx.tech](#)

The Royal iPhones

Mudit Yadav

On October 13th, Apple announced the new iPhone 12 and 12 Pro Series. The new iPhone design is just gorgeous, very reminiscent of the iPhone 4 and 5, the way that the sides taper off onto the front.

All the iPhone 12 models will get OLED displays with a contrast ratio of 2,000,000:1, HDR, 2532 x 1170 resolution, and 5G support. They are 4x better in drop performance. Then comes the apple A14 SOC, which is standard in all iPhone 12 models; it is 50% faster than before and features 50% faster GPU. The IP68 rating is intact, and the Super Retina XDR display peaks at 1200 nits of brightness. The cameras - new sensors, improved quality, Deep Fusion computational photography, and better night mode. Now we have a new format, Apple ProRaw for raw video and photo editing. Apple also introduced MagSafe, and its accessories 'click' on the back of your iPhone. Pretty cool!

A new addition is the iPhone 12 mini, which has all the features of the iPhone 12 just in a smaller package. Apple says it is the smallest 5G phone. It has a 5.4" display, even smaller than the iPhone SE 2020. The stars of the show, iPhone 12 Pro and 12 Pro Max shine in the new 6.1" and 6.7" sizes, a huge improvement as compared to previous generations.

Apple went one step further and removed the charger and earphones from all iPhone products starting this year. They claim that most people already have these accessories and not including those inside the box will reduce global carbon emissions. Users are not very happy about this decision, since the prices are still the same. iPhone 12 series starts at \$699 and the Pro series starts at \$999.

CIY - Code it yourself

- How do you implement radix sort?
- Given two arrays, find the number which exists in second array but not in first array.
- How to find all pairs in an array of integers whose sum is equal to a given number?



India's Gaming Scene

Subham Jalan

After such a long series of promotions and hyping up, PS5 and XBOX' have arrived. However, India has never been a profitable market for these brands; will the situation change this time?

There are some factors to consider. First, gaming has never been a mainstream activity in India. People claim that PUBGM is very famous, and Indian gaming community owes it to that game. The problem is that PUBGM is a "free" game, and playing only 1 game does not benefit the gaming industry in any way. Even today, gaming is considered a "bad" leisure activity, whereas people should promote it as a stress buster. People who love FIFA nights and the CSGO community can relate.

Next, gaming is expensive. When you talk about PC gaming, you need a good setup, costing a minimum of 40,000rs, not to forget that PCs need to be upgraded after every few years. Consoles themselves are expensive; XBOX Series S starts at 35000rs, which is as much as a new TV. Middle-class families would not want to invest such an amount into gaming. Also, games are expensive, some going as high as 4000rs! With digital markets growing, prices might reduce, but that comes at the cost of closing down retail shops.

The problem is two folded - lack of a community, and expensive prices. This makes companies not want to invest in India, and Indian gaming companies are non-existent. Even the gaming accessories and PC parts are all imported. We need a long-term strategy to bring India up to the global levels of gaming revenue.

Superior Silicon?

Milind Sharma

The tech industry was quite skeptical when Apple announced that they would be leaving Intel for the most part to develop their own processors. The M1, Apple's first chip designed specifically for the Mac, is an absolute beast; it can crunch through any task you throw at it easily. It's the first SOC for the Mac, removing the need for different chips for CPU, I/O, Security, etc.

Apple's new Unified Memory Architecture is designed so that all the technologies in the SOC can access the same data without copying it into multiple pools of memory. M1 is built around the 5nm process, having 16 billion transistors, and with the help of the new 16 core Neural Engine, it can execute a massive 11 trillion operations per second. The new silicon chip has 4 high-performance cores, 4 high-efficiency cores, and for the GPU, it has 8 cores that are capable of executing nearly 25000 threads. More technologies inside it include advanced power management, cryptography acceleration, low-power design, machine learning accelerators, the new secure enclave, and many more. Moreover, it can also run iPhone and iPad apps without any emulation. Even on the apps which require emulation, M1 performs better than the chips for which those apps are optimized.

This new chip comes with the MacBook Air, MacBook Pro, and the Mac Mini. In practical usage, it is 2-3x faster than the old Intel devices. Video editing and writing code is a breeze. MacBook Air, the cheapest in the lineup, does not have a very powerful GPU, so it is not very good for graphic designing and such, but the MacBook Pro does that swiftly. This chip is mind-blowingly efficient, with a video playback time of 20 hours! Apple also removed fans from MacBook Air, given to the thermal efficiency of M1. Even still, the laptop does not throttle. In the coming years, the silicon architecture will only get more powerful, and it would not be a surprise if the M2 destroys M1 in a similar fashion. Apple delivered what they promised, and the future is bright for them.



Ah yes, aesthetics.

Milind Sharma

This is the first time that Apple designed macOS for its own silicon. macOS 'Big Sur' has made the new environment 'behave' more like the iPad and the iPhone; now, your Macs can wake up instantly from sleep, and the app loading time is almost negligible. Streamlined app design and the Refreshed Dock makes getting to your favorite apps even easier. And a new uniform shape for app icons adds consistency while letting the personality of Mac shine through. The new Control and Notification center makes doing simple tasks like turning on Wi-Fi or Increasing the screen brightness while at the same time letting you do things like play new podcast episodes or learn more about Calendar invitations so much more user-friendly. Safari also improved this time with new features like a customizable home page and new password management technologies; web apps also run 1.5 times faster. Messages and Maps were also introduced to the Mac. New security features include Hardware-verified secure boot, Automatic high-performance encryption, and macOS runtime protection. Apps were also optimized and split into two categories, universal apps that can run on both M1 and Intel-based processors and a new technology known as Rosetta 2, which can emulate apps to run them, which are not yet optimized for the M1. Now your Mac can also run any iPhone or iPad app seamlessly. Apple absolutely crushed the software part too for their new silicon-based processors. GGs once again, Apple!

Quantum Decoherence

Jeev Jatin Singh

Decoherence acts as a sort of bridge between the classical and quantum world. It converts quantum probabilities into classical ones. If a quantum object, like a particle, is measured by an observer or disturbed by the environment, its “wavefunction collapses”. This means that it can no longer exist in multiple states at a time (superposition) and has to collapse to a single state. Decoherence is what happens when a quantum superposition interacts with the environment. A system is coherent as long as it is undisturbed. If it gets disturbed by external factors like the environment, it becomes decoherent.

We know that more qubits translate to more computing power. Then why is the process of adding more qubits so arduous? Decoherence. A quantum system is extremely delicate, and any interaction with the environment will lead to a collapse in the wavefunction and loss of superposition. So, while adding more qubits is beneficial, it is not without an increased risk of nullifying the procedure itself. In fact, the record for a qubit maintaining superposition is 39 minutes.

While Decoherence is a fundamental hurdle to overcome to achieve large scale quantum computation, we are edging closer to the solution with Quantum Error Correction. One of the earliest models, proposed by Shor, employed 12 qubits to correct the general errors of one qubit. We have since moved on to requiring only 5 qubits for the same. While there have been several models, a clear winner is yet to be established.

Einstein once questioned the Copenhagen Interpretation of Quantum Physics and the fact that a quantum object can exist in multiple states at once when not being observed by saying, “The moon doesn’t simply disappear when I’m not looking”.

Philip Ball said, “Here is the answer to Einstein’s question about the moon. Yes, it is there when no one observes it – because the environment is already, and without cease, ‘measuring’ it. All of the photons of sunlight that bounce off the moon are agents of decoherence and more than adequate to fix its position in space and give it a sharp outline. The universe is always looking.”

A Brave new Internet

Keshav Dwivedy

With the coming of the internet during the 1990s and the 2000s, the definition of privacy changed. Protection from trackers who use your private data for advertising propagative content related to products is violating your space.

Earlier, privacy existed in the form of just mere secrets; having a space for yourself; but nowadays, it is also about the public information you have and can also be used to track you, without you knowing. Creepy, isn’t it? And think of how hundreds of companies are using our data just for “commercial purposes”! As advertising became cheaper, there was heavy competition to attract any potential clients, and for that purpose, agencies had to find new and innovative ways to target the right audience. So, they set up algorithms that track your website activity, see what types of websites you habitually visit, and then display personalized promotional bulletins. There is a very high probability that websites also have inbuilt trackers that keep track of every single piece of information about you. This use of our data is very unethical, and private companies better stop this.

Using the right software matters a lot in terms of speed and privacy. All web browsers cannot guarantee this, except one - Brave Browser. It comes with an inbuilt AdBlocker that also blocks trackers and ensures that you get the best of the internet. It does not even send crash information without your permission. People recommend using DuckDuckGo as an alternative to Google because of no tracking.

There’s more. Just press Alt + Shift + N, and a private window with Tor will open up. Tor is a browser process that connects to multiple random nodes instead of reaching the website server straight through a single lane. It routes your web traffic through many different servers to get the Destination, so it becomes impossible for anyone to know your original IP address.

Brave not only excels in terms of safety, but it also keeps in mind the internet speed. Contrary to the reality that the corporate world has told you, you are NOT a product!

I'm the rich guy.

Milind Sharma

"I can buy a country" or "I can build a private army" are some of the sentences that only a few can ever say; because all of the things mentioned in them require a great amount of money; however, that's not a problem for the founder of the biggest e-commerce company, Amazon. Jeffrey Preston Bezos, born January 12, 1964, in Albuquerque, New Mexico, U.S., is an American internet entrepreneur, industrialist, media proprietor, and investor. He is best known as the founder, CEO, and president of the multinational technology company Amazon.

Bezos attended Miami Palmetto High School and won many of the top academic awards during his school-life. He went to Princeton University with a 4.2 GPA and a Bachelor of Science in Engineering (BSE) in electrical engineering and computer science. Bezos first worked at Fitel and D. E. Shaw & Co before starting with Amazon. In late 1993, Bezos decided to establish an online bookstore named Cadabra but later changed To Amazon, after the Amazon River in South America. He got the idea for the business plan while on a cross-country trip from New York to Seattle.

During 1998 and 2002, Amazon was on the verge of bankruptcy, but in mere 11 years, Amazon was recognized as the largest online shopping retailer in the world. Bezos has been the world's richest person since 2017 and was named the "richest man in modern history" after his net worth increased to \$150 billion in July 2018. It is predicted that he will be the world's first trillionaire by 2026. That is more money than some of world's biggest companies! He is the founder of the aerospace company Blue Origin. He also purchased the major American newspaper The Washington Post in 2013 for \$250 million, and manages many other investments through his Bezos Expeditions venture capital firm. He is one of the most powerful people on the planet and holds great potential to change humankind for good.

WOP



BLUE
ORIGIN

amazon

"A brand for a company is like a reputation for a person. You earn reputation by trying to do hard things well."

"One of the only ways to get out of a tight box is to invent your way out."

"You can have the best technology, you can have the best business model, but if the storytelling isn't amazing, it won't matter. Nobody will watch. "

The situation with NVIDIA

Milind Sharma

The launch of the 3000 series cards; was the worst one for Nvidia, logistically speaking. The Founder's Edition cards, mostly the 3080 and 3090, instantly went out of stock when released on September 24th. Ampere was a lot different than Turing; the RTX 3070 (low-end) outperformed the top of the line RTX 2080Ti by 8% in almost every test. For the first time in almost 15 years, the lowest-end current-gen offering outperformed the highest-end last-gen card. Bots and Hoarders were one of the major issues for Nvidia. Many cards bought by such means were sold on eBay and other e-commerce platforms for astronomical prices ranging from 3000\$ to even 27000\$! The official Nvidia store was never optimized for a situation where the products' demand was way, WAY more than they ever imagined. Nvidia recently announced that they would not be selling the 3090's and 3080's from the official store. The only way to get them is Best Buy in the US, no news who the international retailers will be. The 3070's are also not in a good situation, and they will also soon go out of stock. Due to all this, the RTX 2000 series prices have also dropped considerably, making them a good option for buyers.

Your dose of news

- Google patents a smart ring with a selfie camera module.
- Microsoft introduces Pluton security processors to boost security in upcoming windows computers.
- Vivo to open 100 new stores in India.
- Apple cuts App Store commission rate to 15% for small developers.
- Google Meet finally allows users to virtually raise hands and change backgrounds.
- Logitech G PRO X superlight wireless gaming mouse (weighs 63g) launched.
- Poco M3 launching on November 24.
- PUBGM is masking a return in India.
- Apple and Google join 6G industry group.
- Google Photos will end its unlimited storage on June 1st, 2021. They will also delete google accounts inactive for 2 years.
- OTT platforms and online news portals will now be regulated by the I&B ministry in India.

New Chromebooks have arrived!

Arnav Kantawala

Acer has launched its first Chromebooks powered by the Qualcomm Snapdragon 7C compute platform - the Acer Chrome book Spin 513 and an enterprise version of the same. The Spin features a 13.3-inch full-HD IPS touchscreen display with a 78% screen-to-body ratio. It comes with an 8nm octa-core Qualcomm Kryo 468 CPU and integrated Qualcomm Adreno 618 GPU. It can have up to 8 GB of RAM and up to 128 GB of storage. Acer claims that the device can go on for up to 14 hours on battery. Both have optional 4G LTE cellular connectivity. The Chromebook also has an optional backlit keyboard. A pair of 360-degree hinges allows up to four usage modes: clamshell, tablet, display, and tent. The enterprise version has features specifically designed for businesses. These will be available in the first quarter of 2021 starting at \$399 for the standard version and \$699 for the enterprise version.



WIKIPEDIA

The Free Encyclopedia

Crossword Puzzle

Down

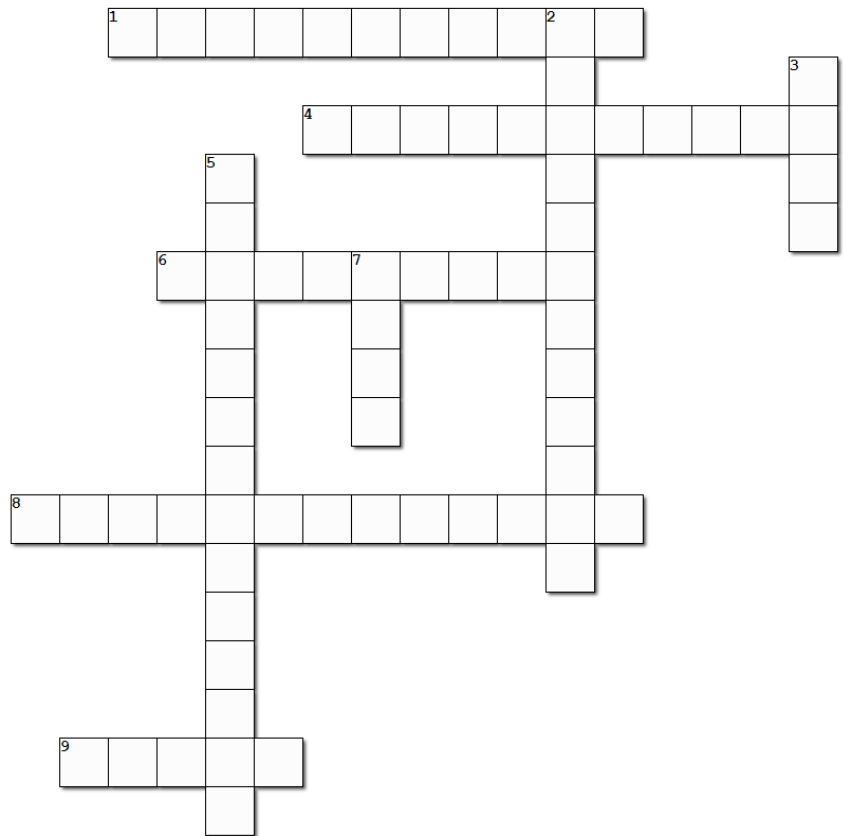
2. Who is the CEO of Nvidia?
3. In a hierarchical "tree" directory structure, a file is considered what?
5. What is the directory that contains all other directories called?
7. Which Apple device is a tablet?

Across

1. Who is known as the Czar of the Indian IT Industry?
4. What follows the "at" symbol in an email address?
6. 403 error code means what?
8. Making fun of someone online is a type of what?
9. The letter Q in SQL stands for what word?

The more you know

- In 2006 someone tried to sell New Zealand on eBay. The price got up to \$3,000 before eBay shut it down.
- Google was originally named Googol, meaning 10 to the 100th power.
- Facebook, Instagram, Twitter, Pinterest, and Tumblr are all banned in China.
- Bluetooth was named after a King named King Harald Bluetooth.
- Wikipedia allows you to download their entire database!
- TIME Magazine named the computer the "Man of the Year" in 1982.



Check this out!

<https://www.patatap.com/>

Press random keys on your keyboard and you get beautiful tunes with soothing animations. Here is your opportunity of becoming an artist!

The War of GPUs

Jasraj Johal

It would be pretty disappointing for those excited about the power of AMD's graphics cards following the Big Navi reveal, as hopes are certainly up that these GPUs will be a great alternative for those who can't find an Nvidia RTX 3000 model (pretty much everyone).

RDNA2 is a 7nm GPU design built on the same process node as RDNA, AMD's first-generation Navi architecture. Like those next-gen machines, the RX 6000 series supports hardware-accelerated ray tracing, finally ending Nvidia's RT monopoly, plus a raft of other DirectX 12 Ultimate features like DirectStorage, variable rate shading and mesh shaders that can boost performance in myriad ways. And speaking of performance boosting, AMD's engineers have also added features like 'Smart Memory Access', 'Rage Mode' overclocking and an 'Infinity Cache' that should all conspire to push these cards to their limits.

The 6800 XT is cheaper than an RTX 3080 with cooler performance but moderate ray tracing performance and slower than an RTX 3080 at 4K. Across some of the latest games, while testing, the RX 6800 XT manages 60+ fps at 4K with ultra (or highest) graphics settings enabled. While these GPUs are set to retail at the base RRP of each card - \$580 for the RX 6800 and \$650 for the RX 6800 XT - they feel like anything but entry-level designs, with an impressive three-fan axial cooler, plenty of metal fins to dissipate heat and a more complex aluminum shroud than the boxy Radeon 7.

The Team

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Game of the month

Milind Sharma

Call of Duty: Black Ops Cold War was released on November 13, and Activision nailed it. This is a next-gen game, which looks stunningly beautiful. The campaign is relatively short, but it has a Zombies mode to compensate (and, of course, a multiplayer mode). This game marks the return of two favorite COD characters, Frank Woods and Alex Mason. People wanted this game after BO3 and BO4 were set in the future (and fighting robots was not fun.)

