

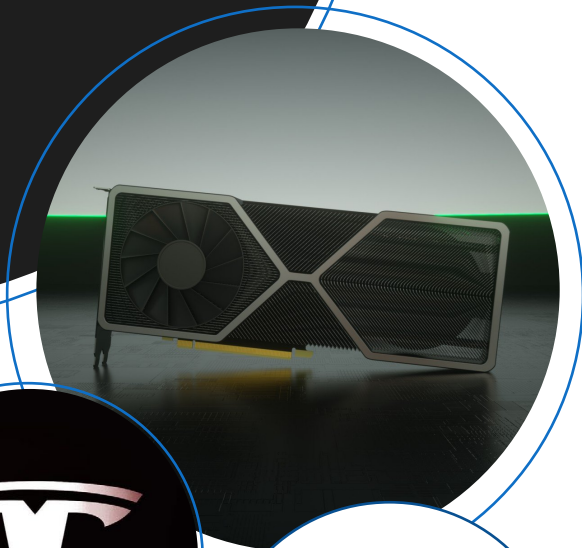
eNEWS-6

CryptX Club

Jayshree Periwal High School



CryptX



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The best smartwatch on Earth

Milind Sharma

On September 15, Apple released the Watch Series 6 and a Watch SE alongside. Let's talk about the big boy first. The 6th generation of the Apple Watch, named the most colorful lineup ever, packs a lot of new features, the main ones being a new Health Sensor and Family Setup. They mainly focused on the sensor's ability to measure your Blood Oxygen (SpO2) level in less than 15 seconds just using your watch. The watch reflects red and infrared light on your wrist and measures the amount of light reflected back to calculate the saturation levels. It also comes with S6 SiP with the dual-core A-13 Bionic chip which is 20% faster than the previous gen. It has a better always-on Retina display which is 2.5x brighter (compared to Series 5) when your wrist is down, paired with an always-on Altimeter using which you can track your altitude at any time when going camping. They brought in new watch faces and colorful straps. Their straps are now called "Solo Loop" which go around the watch perfectly for better grip.

Family Setup allows one to pair many Apple watches using a single iPhone, mainly intended for the kids and elders of a family who may not have a phone of their own. Some more new features are 5GHz Wi-Fi support and better sleeping tracking. The watch starts at \$399 and comes with a Wi-Fi or a cellular version. This generation has some pretty good features making it a tempting upgrade for Series 5 users. Continuing the same tradition as with the iPhone, Apple released its Watch SE alongside the Series 6. It has all the same features like it, but with some small cut-downs. SE comes with the S5 dual-core processor which is 2 times faster than the Series 3. A first-gen optical heart sensor, a not always on Retina display, no U1 Ultra-Wideband support, and also not coming with the Blood Oxygen app. It starts at \$279 making it the cheapest Apple Watch ever (at the time of launch). It is a great accessory for students and a great first smartwatch for anyone. Both of their bodies are made from 100% recycled aluminum.

At the same time, Apple released their new service, Fitness+, which will allow you to use your Apple Watch and an iPhone, iPad, or Apple TV to do workouts right at your home and learn from the experts. Apple Watch's features have been deeply integrated into it to make the experience seamless. Obviously, Apple wants people to buy Apple Watch (for which you need to have an iPhone as well) to introduce them into the Apple Ecosystem, which is getting better day by day.



Football without feet.

Naman Keswani

Rocket League is a vehicular soccer video game developed and published by Psyonix. The game was first released for Microsoft Windows and PS4 in July 2015, with ports for Xbox One and Nintendo Switch being released later on. It has up to eight players assigned to each of the two teams, using rocket-powered vehicles to hit a ball into their opponent's goal and score points over the course of a match. It includes single-player and multiplayer modes which can be played both locally and online, including cross-platform play between all versions.

The game earned a number of industry awards, and saw over 10 million sales and 40 million players by the beginning of 2018. It has also been adopted as an e-sport, with professional players participating through ESL and Major Gaming League, along with Psyonix's own Rocket League Championship Series. The game has colourful graphics, new and stylish car skins, different game modes and is overall a very fun game to play. The fun gets doubled when you play it with friends in custom rooms.

It follows basic rules of soccer but the only difference is that instead of players, we have rocket like cars that can fly anywhere on the map. The fast paced gameplay gives you an adrenaline rush and you can also compete in the ranked modes to earn higher rewards.

Rocket League became free on September 24th and is available to download on Epic Games.

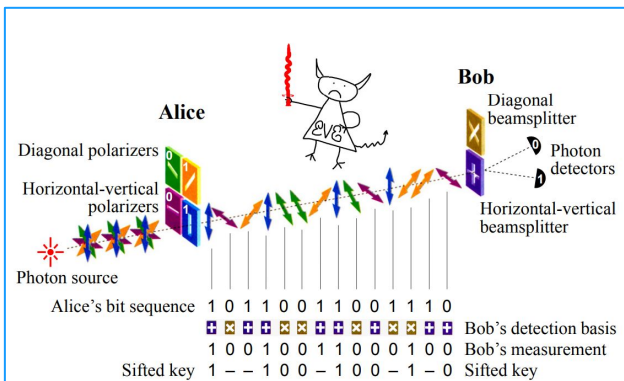
Quantum Cryptography

Jeev Jatin Singh

Quantum Computers have become infamous for being able to destroy internet security, theoretically. Today's encryption standards are based on factoring large numbers to get the encrypted information. While this takes years for current computers, quantum computers could solve these problems with ease. This begs the question, when will quantum computers be powerful enough to do this? All data using the current encryption standards will become insecure after this date. While that date is still a few decades away, looking for solutions now is quintessential to maintaining privacy. Quantum cryptography to the rescue. Quantum cryptography takes advantage of two fundamental properties: A quantum object can have multiple states, and that measurement disturbs the result. Here's an example:

Let's assume the sender, Alice, sends parts of a key, one by one to the recipient, Bob. Suppose these parts are quantum objects. These parts can be of 4 types, up, down, diagonal left, or diagonal right. The parts will have to go through a filter on either side. There are two types of filters: one measures the up and down parts (vertical), and the other measures diagonal left and right parts. However, if an up-part passes through a horizontal filter, it will be changed to one of the diagonal parts with a 50% probability. When Alice sends a part to Bob, he has to use the right filter, but since he doesn't yet know which filter Alice used, he will randomly use one of the filters. Therefore, he will choose the correct filter half of the time. Now to check, Alice and Bob will communicate over a classical, insecure channel. They will discard the parts of the key where Bob used the wrong filter and will be left with half of the original parts, which forms the key. Now suppose someone called Eve tries to eavesdrop on the transmission. Like Bob, Eve will use the right filters half of the time. There will then be a change in the parts (since measurement disturbs the result), and so when Alice and Bob compare their parts, they will end up finding a discrepancy, and they'll know that the key isn't safe! The parts here are photons, and the direction is their polarization, and the filter they use is called a polarizing filter.

While this is an improvement from internet security being destroyed, it's not without its challenges. Environmental factors may cause a disturbance in the results, and the hardware itself is expensive. However, things are looking hopeful. The implementation of this technology has already started, with an optical fiber-based quantum cryptography scheme working over a record distance of 421 km. Quantum Cryptography will make sure that information will be truly unhackable, at least in theory. But for the time being, your credentials on steam are safe enough.



Nvidia is raising the bars

Jasraj Johal

Just when people thought that the new consoles with powerful specs would be better than current-gen PC, Nvidia changed the game. Their new RTX 3000 GPU series, which also happens to be a lot better than the previous one at a better price, destroys every other GPU out there, even Nvidia's own ones. The RTX 3080 is part of Nvidia's 3000 series of graphics cards, all powered by the company's new Ampere architecture. There's the RTX 3070 (starting at \$499), the RTX 3080 (starting at \$699), and the RTX 3090 (starting at \$1,499). You can't preorder any of these latest cards, and the RTX 3080 will arrive in stores on September 17th, with the RTX 3090 following on September 24th.

While the RTX 3080 is quiet and cool it requires a 750W power supply with a new clunky 12-pin power adapter. It can draw up to 320 watts by itself. That's a 42 percent jump from the 225-watt draw with the RTX 2080, which is understandable for the performance improvement but also disappointing for its impact on the environment and electricity bills. It's great for high-resolution gaming (4k or 1440p).

Nvidia has apologized for the RTX 3080 GPU preorder fiasco, which saw the highly desirable graphics card sold out pretty much everywhere. "We were not prepared for this level, nor were our partners," Nvidia writes in a new FAQ. "We apologize for this." In addition, the graphics card manufacturer notes that it had to manually cancel "hundreds" of orders that were made by bots on its official website, which it says it managed to do before the GPU was shipped out.

Nvidia promises it'll continue to manufacture and ship new GPUs to its partners and is "increasing the supply weekly." The bottom line is that the RTX 3080 is the new high-end gaming champion, delivering truly next-gen performance without a massive increase in price.

The Twitter Guy

Subham Jalan

Jack Patrick Dorsey is an American technology entrepreneur and philanthropist best known for co-founding Twitter. He was born on November 19, 1976, in St. Louis, Missouri, and raised there. He is of English, Irish, and Italian descent. He attended the Catholic Bishop DuBourg High School. In his younger days, he worked as a fashion model. By 14, he had become interested in dispatch routing. Some of the software he made in the area of logistics is still used by taxi-cab companies. He attended the University of Missouri - Rolla before transferring to NYU, but he dropped out in 1999, one semester before graduating. He came up with the idea of Twitter then. While working as a programmer, he shifted to California. In 2000, he started his logistics company in Oakland. In July 2000, inspired by LiveJournal and by AOL Instant Messenger, he had the idea for a Web-based real-time status/short message communication service.

He wondered whether the software's user status output could be shared among friends, which was when he approached Odeo, a text messaging company. Dorsey and Biz Stone decided that SMS text suited the status-message idea, and built a prototype of Twitter in only 2 weeks. The idea attracted investment from Evan Williams, another co-founder of Twitter. Later on, he got into a lot of political trouble which he got away from in February 2020. He is now the CEO of Twitter. He, along with Jim McKelvey developed a small business platform to accept payments on a mobile device called Square. The small device attaches to any device via the headphone jack, allows a person to swipe their card, choose an amount to transfer to the recipient, and then sign their name for confirmation. Square announced plans to launch Square Financial Services, a bank, in 2021.

He has been conferred with many awards, including some by MIT, The Wall Street Journal, Forbes, and even Fox Business. He does a lot of philanthropy, including 600 Missouri Public School projects, TeamTrees by MrBeast, COVID-19, and Boston University's Center of Antiracist Research. He is great at everything that he does and continues to inspire people to make their idea come true.



 Square

"A founder is not a job, it's a role, an attitude. And it's something that can happen again and again and again, and in fact it has to happen again and again and again, otherwise we would not move forward."

"Expect the unexpected. And whenever possible, be the unexpected."

"You can worry about the competition...or you can focus on what's ahead of you and drive fast."

Huge Screen. Huge Leaps.

Milind Sharma

Apple is really going ALL IN to completely annihilate the low to mid-end laptop market, and with the new iPad Air and the iPad 8th gen, the competition just went to another level. The new iPad Air comes with the new A14 chip, which is a monster. It can render videos, play games, edit photos, and do many other heavy tasks without any problems. It is made from the revolutionary 5nm process which allows Apple to fit in 11.8 billion transistors, which is a lot. It has a 6 core CPU which is 40% faster and a 4 core GPU which is 30% faster than the last-gen and allows it to cycle through 11 trillion operations per second. The machine learning accelerators and new machine learning controllers allow it to conduct heavy matrix calculations easily. It also has a 10.9" Retina display with a resolution of 2360x1640, and the true tone display allows it to display a very wide variety of colors. Combined with the new iPad OS 14, Apple pencil support, Magic Keyboard, and many other features, it becomes one of the best tools for graphic designers, vector artists, and creative professionals.

Now for the iPad 8th gen, it just got a huge upgrade. It comes with the A12 Bionic chip with a 6 core CPU (40% faster than last gen) and a 4 core GPU (2 times faster than last gen). A12 is also 2 times faster than an average windows laptop, 2 times faster than an average Android tablet, and a whopping 6 times faster than the average Chromebook. Apple is going with USB-C for this device for fast charging capabilities. The new Neural Engine allows apps with their framework based on Machine Learning to run way faster. It has a 10.2" Retina display. The 8MP front camera with FaceTime HD cam and Gigabit-Class LTE makes it a great tool for online classes and meetings, in this COVID-19 era. Just like the iPad Air with many features and support, it becomes one of the best tools for a student or anyone to have for taking notes, watching movies, playing games, or even producing music. It starts at \$329 and \$299 with student/education benefits. This is the best "cheap" tablet. Both of their bodies are made up of 100% recycled aluminum. With these, Apple has again snatched the tablet market away from Android.

CIY - Code it yourself

- How do you implement bogo sort?
- How do you find the second highest number in an integer array?



Tesla's Battery Day

THE VERGE

At Tesla's Battery Day event, CEO Elon Musk made some big announcements. The socially-distanced outdoor event had Musk and other presenters addressing Tesla shareholders in parked cars, who honked their horns to indicate their approval of the speakers' remarks. Here are the main takeaways from Tesla's 2020 battery day:

New batteries - Tesla plans to manufacture its own "tabless" batteries, which will improve its vehicles' range and power. The new batteries will be produced in-house, which Musk says will reduce costs and bring the sale price of Tesla electric cars closer to gasoline-powered cars.

A new car - Musk has been teasing the Plaid powertrain for a while, which will be a step above its Ludicrous model. It will have a range between charges of 520 miles, get from 0-60 mph in under two seconds, and a top speed of 200 mph. The price is listed on Tesla's website at \$139,990.

A new cathode plant - Musk said Tesla will build a new cathode plant for its batteries in North America, part of its quest to reduce supply chain costs and simplify cathode production. He also plans to eliminate the use of cobalt in its cathodes.

An affordable car - Tesla plans to reduce the cost of its battery cells and packs, with an end goal of building a \$25,000 electric car. Tesla will hit this goal using its new "tabless" battery cells, and changing the materials inside the cell.



Is this the next form-factor?

Subham Jalan

LG is making a return in the smartphone industry with its new phone, LG Wing. It uses a swivel with 2 screens and is easily an innovative piece. It comes with a curved 6.8-inch P-OLED main display with FHD+ resolution with an aspect ratio of 20.5:9. The selfie camera is a 32MP pop-up solution. The secondary screen is a 3.9-inch G-OLED with FHD+ resolution and a 1.15:1 aspect ratio. It does not have an official IP rating; however, the screens have water repellent coatings. The big deal with the Wing is that you can use it as a regular phone but once you pop the main screen horizontally, you get a whole new form factor with its unique use-cases. LG is betting big on content consumption and is targeting the Wing at users who love watching videos on the go. The swivel design comes with a dual lock mechanism and a hydraulic damper which absorbs shock and should last 200,000 swivels. The rest of the specs include a 64MP primary camera, 12MP ultrawide shooter specifically for swivel mode, and another 13MP ultrawide. There's a gimbal mode with a virtual joystick on the secondary screen. The Wing is powered by the Snapdragon 765G paired with 8GB RAM and 128/256GB storage. The battery comes in at 4,000mAh. The pricing has not been revealed yet. This is too an experimental device and real-world usage will determine where it stands.

Weekly dose of news

- GoPro launches HERO 9 in India at 49,500rs.
- Paytm was removed from Google Play Store for its "gambling" features but was restored soon after.
- US bans TikTok and WeChat over security concerns.
- Apple's online store is now open in India.
- Huawei phone prices rise in China on fears of chip shortage.
- PS5 games could be the most expensive we have ever seen.
- Oracle and TikTok are now business partners, and Trump is unhappy.
- Apple to make smart cases which get stronger when phone is dropped.
- Google aims to run on carbon-free energy by 2030.
- Amazon Alexa will get its first celebrity voice from Amitabh Bachchan.
- Reliance might bring PUBG Mobile back in India.

SAMSUNG

Crossword Puzzle

Down

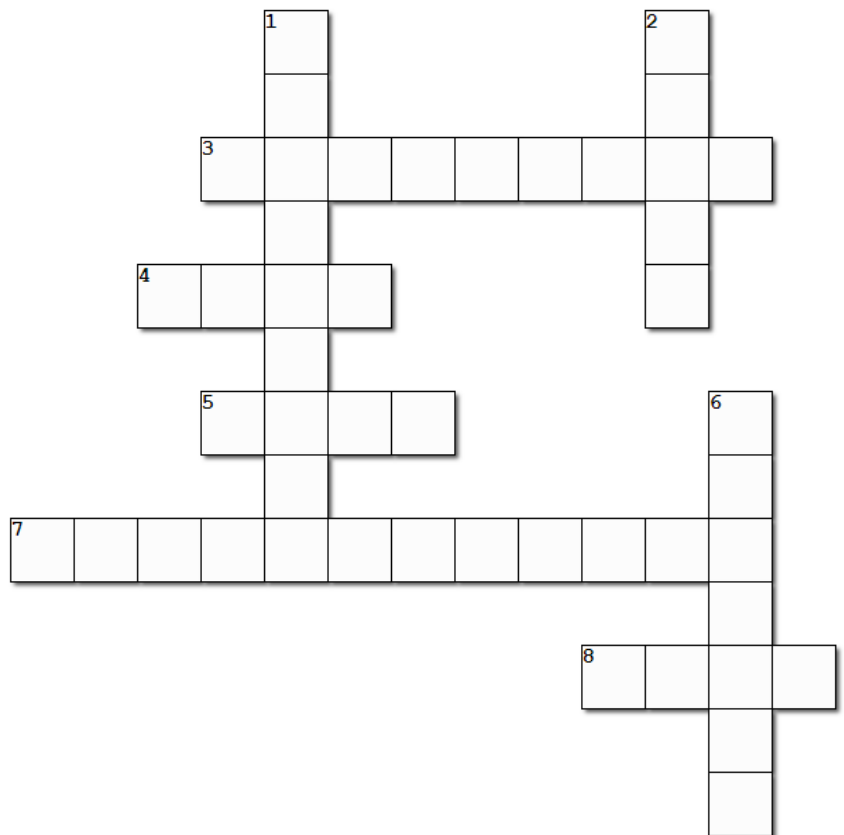
1. Each run through a 'loop' is also called what?
2. The letter Q in SQL stands for what word?
6. Which university did Bill Gates attend?

Across

3. What type of program records a user's keystrokes?
4. Unwanted e-mail is also known as what?
5. What was the name of Elon Musk's first company that he founded?
7. Who is the founding father of Virtual Reality?
8. Dynamically allocated memory comes from where?

The more you know

- Nintendo, which makes gaming consoles, started as a playing cards company.
- When the first VCR (Video Camera Recorder) was made in 1956, it was the size of a piano.
- Samsung is 38 years and 1 month older than Apple.
- On average, people read 10% slower from a screen than from paper.
- The first computer mouse was made out of wood.
- The original XBOX had sound snippets of real space missions.



Check this out!

<https://world.time.com/timelapse/>

Made by Google, you can watch the world change over the course of nearly three decades using satellite photography.

Fold. Unfold.

Subham Jalan

The previous year, Samsung (and Huawei) shocked the world when they came up with the first-gen of folding smartphones. However, the problems associated with them just outweighed the benefits and they weren't a big success – considering the price you paid for them. Fast forward to this year, and we have the Samsung Galaxy Z Fold 2 5G (which is a really long name), and it is easily the best folding phone out there.

The most significant improvement is the hardware. Comparing to the Galaxy Fold, it is sturdier, has a better screen – which Samsung claims to be made out of both glass and plastic, and the hinge now allows you to keep the screen folded at any angle. The bigger display is 120Hz. Both the screens – the inner and the outer ones – are now larger since Samsung got rid of the thick bezels. It now uses a hole-punch camera instead of the ugly notch like last year. The crease, however, is still there – and is kind of inevitable for now – thanks to Physics. The rear cameras are borrowed from the Note 20 Ultra and the back is now polished metal, which looks aesthetically very pleasing.

Talking about software, since this is more of an experimental device, the aspect ratio is different and developers have to optimize and rework their applications and websites to make sure that the experience is seamless. Since it has multiple modes (closed, open, peek) – the amount of effort needed to put in development increases.

All in all, this is more of an upgrade to the first-gen Galaxy Fold rather than a standalone device. The price starts at \$1999, which is still quite expensive. However, most people will not be buying this device and it is cool to see companies refine these devices until most people could afford these.

The Team

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Jeev Jatin Singh (Writer)

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Game of the week

Subham Jalan

Who's the imposter? This is the question everybody has been asking for the last two weeks. Among Us, a game available on Steam and on mobile devices, has exploded in popularity and is one great game. In every match, you have imposters among your crew and your task is to find the imposter! Or if you are the imposter, try to be sneaky and kill everyone. Time to show your detective skills!