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To adapt New trends, Market Demands and Expectation

Current trend Technology

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Java till now being among the most popular development languages and platforms for so long, which is itself amazing as a point of technological consistency.

The latest Java technologies follow global trends in software design and development. This includes reactive development, server less architecture, Micro service architecture and data science. The platform manages to balance between stability and innovation and does it beautifully.

In the last couple of years, there have been some important releases for Spring, Spring Boot, and Spring Security. Today, it seems that everyone is obsessed with leveraging the Cloud for development. When it comes to the Cloud, Micro-service, architecture has a special place in the Java programming equation.

The expectation of the market is full stack developer where a person can convert client requirements to a product, test it successfully and then deploy it via CDaas pipeline to various environments also in demand of cloud technology are in peak. As an engineer it is a well-known fact that Java switched to releasing new versions every six months instead of three years. Fast releases mean more innovation and performance improvements to fulfill the current trend demands.

Micro service architecture - The two most important topics when it comes to micro services for scalability and performance. The micro service architecture enables rapid, frequent and reliable delivery of large, complex applications. It also enables an organization to evolve its technology stack. There are many patterns related to the micro services pattern. The Monolithic architecture is an alternative to the micro-service architecture. The other patterns address issues that you will encounter when applying the micro-service architecture.

Reactive Java - This is an option that helps an effective data management and building Java apps concurrently. It is the reactive extension (API for implementing reactive programming) for the JVM. When you connect the consumer to the source of data, RxJava pushes the data to the consumer. The library can help developers build asynchronous, concurrent and resilient Java applications. It also makes the code look less bulky and more elegant.

Server less - This approach gives you granular control over the architecture of a solution and simple horizontal scalability. Unit testing becomes a must-have requirement to follow by developers when we opt for server-less architecture.

Data Science - Java is successfully being used in Data Science thanks to its ubiquity, performance and seamless integration of the data science code into an existing solution.

Kotlin Development - Kotlin is a programming language based on Java getting huge attention in the Android community. The simple syntax of the programming language and its interoperability feature have made Kotlin more popular in the development industry

Python Programming Language - When Java innovates, it impacts other languages too, and they also have to enhance their existing features to make it more compatible with Java.

Git and GitHub - Git and GitHub are in trend and they are frequently used with the Eclipse development platform.

Spring 5 - For web services development, Spring is definitely the best choice and leading the programming space.

Java & the IoT - IoT or Internet of Things is the latest development trend in Java Keeping Up with DevOps (Docker, Kubernetes, Jenkins pipeline and CICD etc) - To have faster and more efficient deployments.

For Freshers

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From my view point, students should have a basic knowledge of Java with good practice in writing codes.In addition with, they should be a keen learner, because as a software developer, quick learner and flexible as per the technology is the key characteristics. Students need to know some popular and in-trend frameworks like Spring, Hibernate (ORM) and know how the Web Applications are talked to each layer in MVC architecture and gain knowledge on TOMCAT, Oracle DB. you can also add some Opps(Docker, kubernetes, Jenkins or some cloud knowledge) knowledge to show the interviewer as you are familiar with new technology and can show yourself full stack developer in future. And at last, make every possible progress to reach your destination. Talk to experts or IT professionals on how to approach and deal with a particular issue with alternative solutions. Know the various types of Java development frameworks that have entered and also understand what can be done to develop your skills. If students want to learn something new and different, share it via blog or post it in your professional account like linkedIn. Stay connected with relevant technology in-trend and try to spread among others, discuss with others and keep yourself networked.
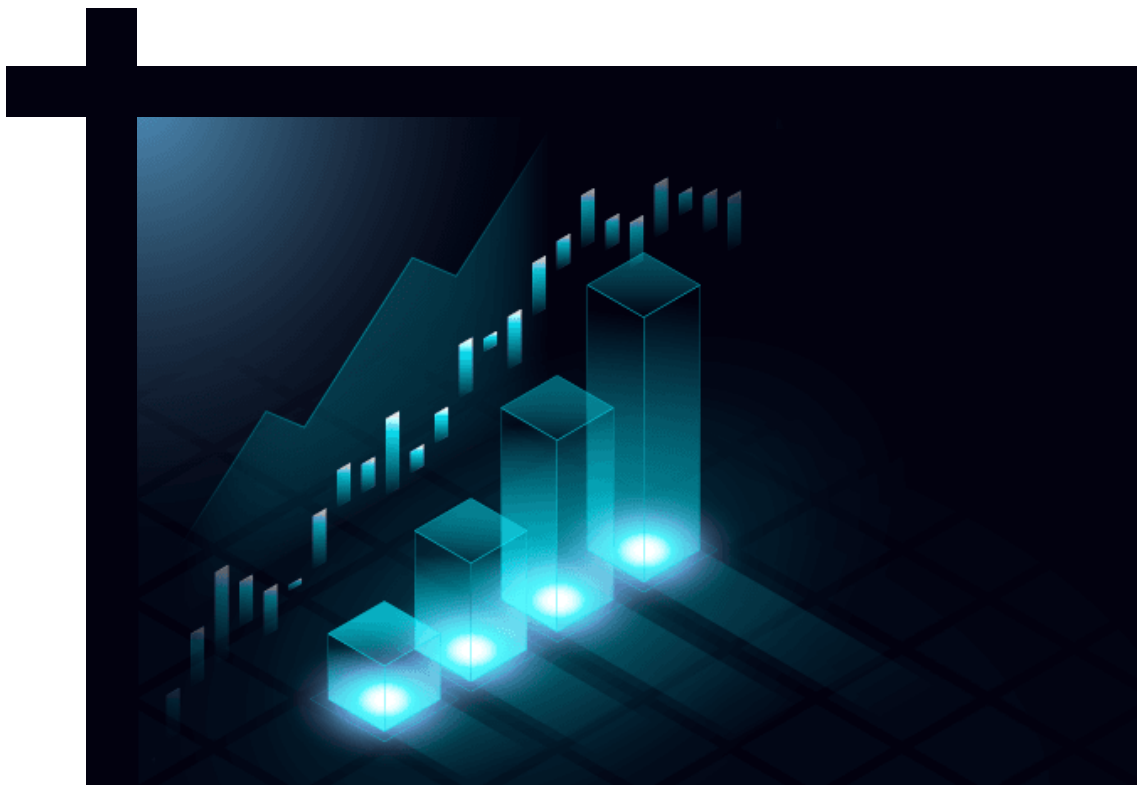
Indian army gets indigenously developed world's Most agile and lightest drone

The DRDO made 'Bharat' is a light surveillance quadcopter Unmanned aerial vehicle developed for the Indian Army. The drone has been created specifically by a Chandigarh-based laboratory of the DRDO for carrying out accurate surveillance in high altitude areas as due to low density of air traditional aircraft wont able to fly and operate.

It is equipped with night vision capabilities and its stealthy design ensures that its signature remains undetected from enemy radars. It is integrated with Artificial Intelligence to detect friends and foes and act accordingly. It is the world's most agile and lightest surveillance drone and is capable of surviving in extreme weather conditions.

It can detect humans hidden under deep forest covers. Some technical sources also claim that this drone is also capable to perform a task in group with full of precision and accuracy. The unibody biometric design with advance technology is a lethal combination for surveillance missions.

NASA to fly a football stadium-sized telescope mounted balloon to study stars

NASA's latest mission won't actually reach space, but it will come very close, with a massive observation craft made up of a football stadium-sized high-altitude balloon, along with a special stratospheric telescope instrument that can observe wavelengths of light from newly formed stars.

The mission's name is ASTHROS. It is currently set to take off from Antarctica in December 2023, and the main payload is an 8.4-foot telescope that will point itself at four primary targets, including two regions in the Milky Way where scientists have observed star formation activity.

That telescope, the largest ever to be flown in this way, will be held aloft by a balloon that will measure roughly 400 feet wide, when fully inflated, with scientists on the ground able to precisely direct the orientation of the business end of the observation instrument.

The team expects the balloon will complete two or three loops around the South Pole in about 21 to 28 days. Once the mission is complete, operators will send flight termination commands that separate the gondola, which is connected to a parachute, from the balloon. The parachute returns the gondola to the ground so that the telescope can be recovered and refurbished to fly further.

US Unveils Blueprint for "Unhackable" national quantum Internet

US officials and scientists have begun laying the groundwork for a more secure virtually unhackable internet based on quantum computing technology. The agency is working with universities and industry researchers on the engineering for the initiative with the aim of creating a prototype within a decade.

In February, scientists from DOE's Argonne National Laboratory and the University of Chicago created a 83-kilometer "quantum loop" in the Chicago suburbs, establishing one of the longest land-based quantum networks. The aim is to create a parallel, more secure network based on quantum "entanglement," or the transmission of sub-atomic particles.

"One of the hallmarks of quantum transmissions is that they are exceedingly difficult to eavesdrop on as information passes between locations.

The department said early adopters could include the banking and health services sectors, adding that there would be applications for national security and aircraft communications.

Eventually, the use of quantum networking technology in mobile phones could have broad impacts on the lives of individuals around the world.

The agency's 17 national laboratories will serve as the backbone of the coming quantum internet, which has initial government funding.

Smart Helmets to Screen Coronavirus in Mumbai

As coronavirus infections climbing in Mumbai, authorities in India's worst-hit city are turning to high-tech "smart helmets" to speed up screenings and identify suspected cases in the densely-populated slum areas of Mumbai.

The portable thermo-scanners also deployed in Dubai, Italy, and China. Enabling health workers to record the temperatures of dozens of residents per minute and could emerge as a key weapon in Mumbai to eradicate the virus from the city.

According to a medical volunteer "Traditional screening methods take a lot of time. You go to a slum with 20,000 people and it takes you three hours to screen 300 people, But when you use these helmets, all you have to do is ask people to come out of their homes, face them and you can screen 6,000 people in two-and-a-half hours".

The imported helmets cost around Rs. 6,00,000 are also in high demand in many other countries.
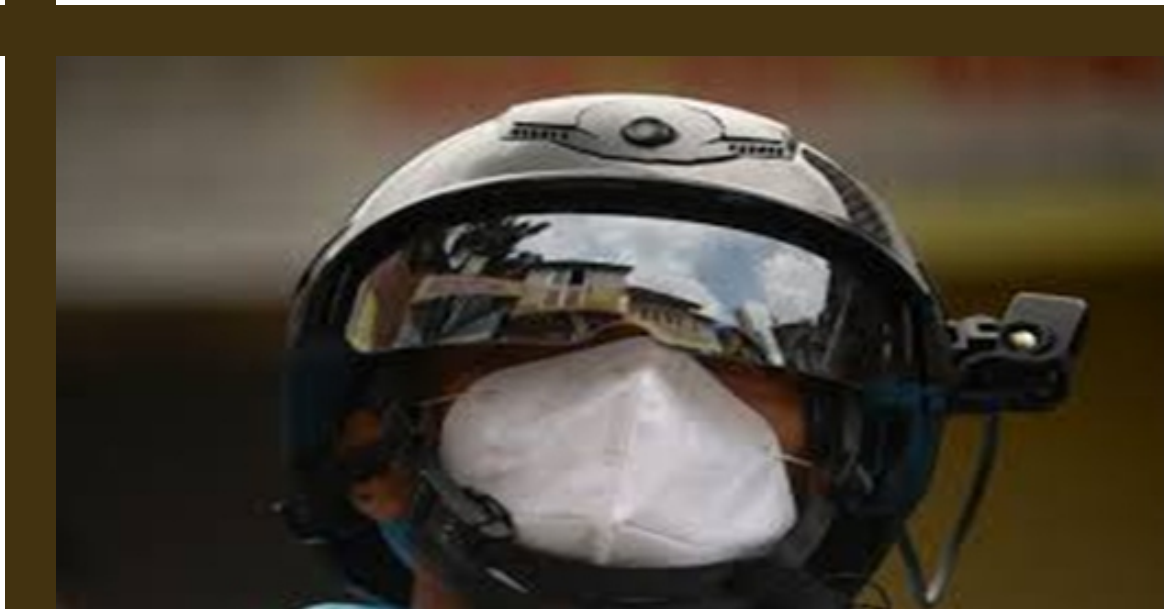
Government launched AI enabled ASEEM portal to help skilled people find sustainable livelihood opportunities

National Skill Development Corporation (NSDC) in collaboration with Bengaluru-based company 'Betterplace'. Launched an AI based **Aatamanirbhar Skilled Employee Employer Mapping (ASEEM) portal** which help to improve the information flow and bridge the demand-supply gap in the skilled workforce market.

It will provide **real-time data analytics** about the demand and supply patterns including - industry requirements, skill gap analysis, demand per district/ state/cluster, key workforce suppliers, key consumers, migration patterns and multiple potential career prospects for candidates.it will enable policymakers to take a more objective view of various sectors in the economy.

Driven by Prime Minister's assertion of 'India as a talent powerhouse' at the India global week summit, it will further **re-engineer the vocational training landscape** in the country ensuring a skilling, up-skilling and reskilling in a more organised set up.

This portal is a perfect example that how the power of AI and Data Science is utilised for the betterment of society.

Devices like fit-bit to help in detection and eradication of Corona virus

In a fight against novel coronavirus, the researchers have developed a free mobile app which will allow scientists to investigate the use of wearable devices and smartphones for digital detection of Covid-19.

The research team has created the 'Mass Science' app that allows Covid-Collab study participants to connect wearables, such as Fitbit devices, and share data including heart rate, activity and sleep. Participants can also use the app to provide information on geographic location, mood, and mental health in addition to Covid-19 symptoms and a diagnosis if they have tested positive for the disease.

According to the study, with the help of the app, the researchers will analyse the data including heart rate and activity when a participant reports feeling ill or tests positive for Covid-19. By looking for differences in the data during the time of reported illness compared with their normal healthy periods, they aim to develop a potential digital test for early warning signs of coronavirus.

If a Fitbit user was previously ill or diagnosed with Covid-19 in the past, they can use the study app to share their historical data covering this period of illness.

Robot referee: How artificial intelligence is helping people settle divorces

While AI-powered applications are in no way substitutes for legal counsel, they may certainly reduce the emotional stress induced in family law cases, while driving down legal costs as well.Artificial intelligence is increasingly becoming a daily part of our lives. In the coming years, nearly every app you have on your phone will incorporate some form of AI whether it may be consumer-facing, or to support backend operations. AI tools can be used to automate tasks that are highly repetitive, labour intensive usually quite error-prone. As such, there is generally an immediate tendency to associate it with big data crunching, and industrial manufacturing. The truth is though, we have only breached the surface when it comes to the boundless applications that AI might have.

So it may then come as little surpise to learn that an indigenously created Australian app called Amica is now being used to help couples mediate their divorces, structure parenting arrangements, and divide assets in family law matters. With the pandemic forcing individuals to remain indoors, the stress on couples who may have already been in strained relationships has grown markedly. Coupled with the suspension of courts, and curbs on mobility, instigating separation or divorce proceedings has proved to a be a challenge for many. Against this backdrop, the Australian government has backed the use of the Amica app for individuals seeking separation advice.

AI to reduce stress and augment legal counsel's abilities

So how does it work? Amica's website states that it "considers legal principles and applies them to your circumstances." Independent evaluators of the app have further elaborated stating that the app makes use of troves of data inputted by its designers from hundreds of previous cases, to forward suggestions to its users.

But Amica isn't alone in the AI-family law space. For instance, Penda, another app, provides free legal and safety information to its users via an AI-powered chatbot. Another app, Adieu uses its own chatbot to help couples arrive at financial and parental agreements. The app can even, reportedly, generate an analysis of users' financial records.

While these apps are in no way substitutes for lawyers, they certainly do go some way towards improving the convenience of those involved in family-related matters, while driving down legal costs which almost always seem to spiral out of control. Moreover, these apps help augment the ability of legal counsel, and, perhaps, crucially, reduce the pressure on overburdened courts already struggling with huge backlogs of cases.

Of course, these apps do certainly have a number of limitations at the moment. Amica representatives have stated that the app has not proved useful for complex cases, or those where domestic violence may be involved.

At their current stage of development, chatbots are only capable of providing relatively simple responses based on the information inputed. Then, there is also the question of inherent bias in the development of such apps, which may translate to the needs of children involved in a legal dispute, for instance, not being accounted for accurately or sensitively.

Google Cloud announces enhanced Confidential Computing

Amid ever-increasing demands for privacy and security for highly sensitive data stored in the cloud, Google Cloud announced this week the creation of Confidential Computing. Terming it a "breakthrough technology," Google said the technology, which will offer a number of products in the coming months, allows users to encrypt sensitive data not only as it is stored or sent to the cloud, but while it is being worked on as well. Confidential Computing keeps data encrypted as it's being "used, indexed, queried, or trained on" in memory and "elsewhere outside the central processing unit," Google said in a statement about the new technology.

The first product, Confidential Virtual Machines, was formally announced at Google's annual Cloud Next conference being held online this year, due to COVD-19 restrictions, over a nine-week period. It builds upon its Google Cloud Services unveiled by Google and AMD earlier this year that featured processors capable of generating and managing encryption key that remain on the chip. Google said Confidential Computing is a step beyond isolation and sand-boxing currently employed on virtual machines.

"Confidential VMs take this to the next level by offering memory encryption so that you can further isolate your workloads in the cloud," Google said in an online statement announcing the technology. Google is using AMD's Secure Encrypted Virtualization feature of its massive second-generation EPYC processors. These allow demanding processing tasks to proceed with real-time encryption by dedicated VM instance keys generated by and residing solely within the VM. This approach blocks access by Google and other VMs running on the host site, and the encryption keys cannot be exported.

The program will not compromise current performance. And because no coding is required, the transition to the bolstered platform will be seamless. Confidential Virtual Machines, in fact, can be accessed by clicking a single checkbox. Google said the program is not simply an add-on feature but is an integral component covering the entire Google Cloud Platform.

"We believe this is a foundational differentiator for Google Cloud in these regulated markets," Google Cloud General Manager Sunil Potti said. Describing Confidential Technology as "game-changing technology," Potti referred to companies that had withheld their most sensitive data from the cloud due to security concerns: "It's almost like the last bastion of sensitive data that can now be unlocked to leverage the full power of the cloud."

AMD's Greg Gibby explained the advantage of enhanced security provided by virtual machine under Google Cloud Services in an interview with wired magazine.

IT spending in India to fall 8% in 2020 due to Covid-19, first dip in 5 years: Report

Spending on devices and data center systems in India will see the steepest declines in 2020, at a negative 15.1% and 13.2%, respectively. IT spending in India will fall 8.1% to $83.5 billion in 2020, according to research firm Gartner, the first decline in five years."The fear of a global economic recession due to the Covid-19 pandemic is forcing CIOs in India to be very cautious on their IT spending this year," said Naveen Mishra, senior research director at Gartner.

"In partnership with their CFOs, CIOs in India are reprioritising their IT budgets on mission-critical initiatives."

Due to continued government restrictions on social distancing Indian companies will need to spend more on business continuity, remote working and workforce collaboration said Gartner. This will create a shift in spending towards technologies such as desktop as a service (DaaS), infrastructure as a service (IaaS), virtual private network (VPN) and security.

The overall cloud adoption in India has however increased due to the adoption increase.

While spending will dip across all segments in India in the year, technologies such as telehealth, smart-chatbots, mobile applications enabling deliveries, and distance learning education software will experience an increase in spending in 2020. As a result, spending on enterprise software is set to record a moderate decline in 2020 at -2.6%.

"The lockdown measures forced sectors such as education, healthcare, and public utilities to accelerate their digital transformation," said Mishra. "However, sectors such as retail, insurance, and banking that were already advanced in their digital transformation have to reduce their IT spending in 2020. These sectors will continue to spend on targeted digital initiatives such as artificial intelligence, machine learning and virtual sales assistants, however, they will have to reduce or stop spending on business transformation, process re-engineering and modernization of existing systems."