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DEPARTMENT OF BIOTECHNOLOGY
GOVERNMENT OF INDIA

CYBER CREWS ASSOCIATION

86 ISSUE

DEPARTMENT OF COMPUTER SCIENCE (UG)

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EDITORIAL BOARD

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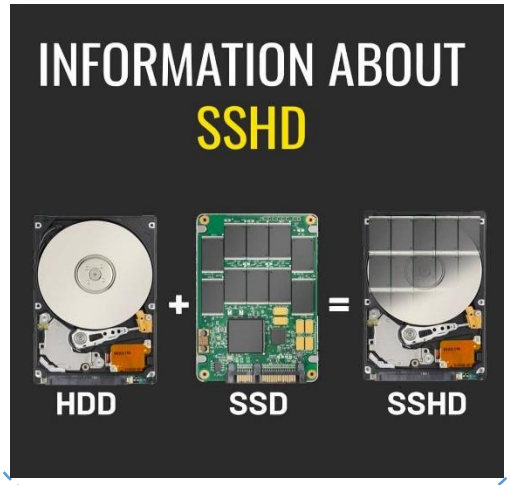
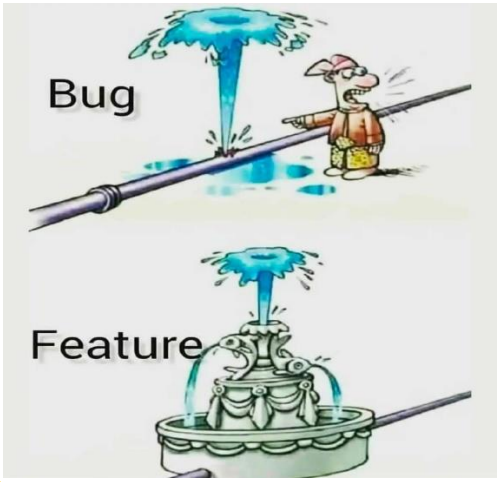
Thoughts Of The Issue

MESSAGE



JUST FOR FUN



FREE ADVICE

REMEMBER

Facebook rebrands after controversies ,Face-book meta morphosizes

Smart Quill

Lyndsay Williams of Microsoft Research's Cambridge UK lab is the inventor of the Smart-quill technology.

A pen that can remember the words that it is used to write, and then transform them into computer text.

Smart Quill contains that record data by the movement of the pen, irrespective of the plant form used.

WORKING OF SMARTQUILL

It is slightly larger than any other ordinary fountain pen.

The really clever bit of the technology is its ability to read handwriting not only on paper but also on any flat surface horizontal or vertical.

The user trains the pen to recognize a particular handwriting style no matterhow messy it is, as long as it is consistent, the pen can recognize it.

The handwritten notes are stored on memory of this pen.

DISPLAY TECHNOLOGY

Cyber Display is a Â¼ inch diagonal LCD that uses circuitry built on a silicon wafer.

There is a small 3 or 4 line screen to read the information stored in the pen.

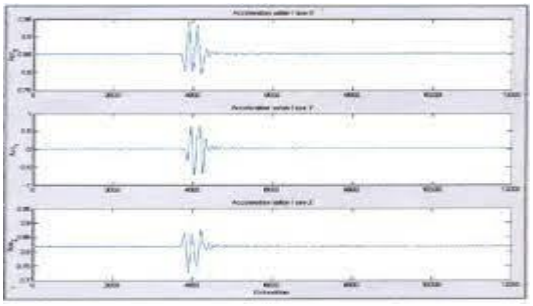
HANDWRITING RECOGNITION AND SIGNATURE VERIFICATION

Smart-Quill works by measuring the pen's movements and matching them to the movements that produce letters and words programmed into its memory.

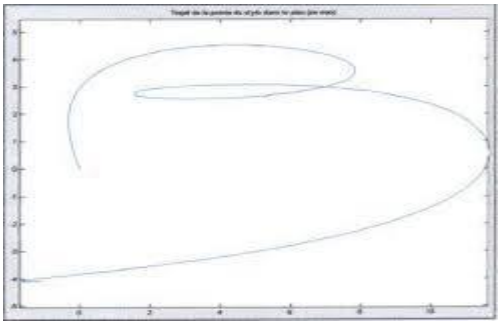
It's similar to the way a microphone detects sound.

Consistency of handwriting, rather than neatness, is the only condition for accuracy.

HANDWRITING TRANSCRIPTION



Acceleration signals



Transcription result

WORKING OF ACCELEROMETER

This technology uses a device called Accelerometer which is used for measuring motion.

A tiny accelerometer in a pen used to detect the loops,arcs of our handwriting, and transmits into a small microcessor that would make sense of its as text.

Invisible writing in air is achieved through this unique technology called accelerometers that monitors hand movements.

COMMUNICATION WITH OTHER DEVICES

The data stored in the memory part is uploaded to the personal computer when it is placed in to a docking station called as “inkwell”.

Future models could receive e-mails and pager messages via a wireless messaging system .

This enables two-way wireless communication with other computing devices.

MEMORY

Smart-Quill has 4MB EEPROM memory. At a time, up to 10 pages of notes can be stored locally on this pen.

POWER

Smart-Quill is powered by AAA battery. It will run for about 25hrs on a single AAA battery. The pen has automatic power on/off system.

ADVANTAGES

- “Spatial sensing system”
- Security
- 3D MOUSE
- Power saving
- Smart quill is all mobile

DISDVANTAGES

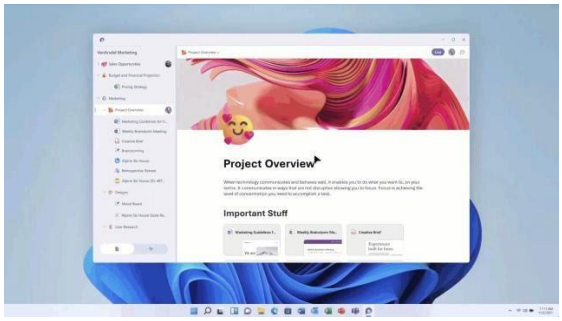
- It has accelerometer errors.
- Memory damage
- Bigger size than normal pen.

CONCLUSION

- The estimated cost of this futuristic pen is around $200.
- SmartQuill is convenient use.
- Keyboards become so tiny, we require needle-like fingers to operate the pen.

Microsoft Loop

Microsoft has unveiled a new Office app called Loop which is designed to offer hybrid workers a more fluid way to collaborate and share documents. The new service is based on the Fluid Framework tools the company launched in 2020.



Microsoft Loop, a new Office collaboration app announced today, takes the company's Fluid Framework vision one step further. You might remember that technology from Microsoft's recent developer events: It's a way to collaborate on specific chunks of content, say a table or chart, synchronized across multiple Office apps. A table you create in Outlook, for example, would instantly update if someone plugs it into a Word document and adds new information. Up until now, we've only seen that implemented in Office online as a sort of test. Microsoft Loop is a far bigger bet on the future of document collaboration.

Like Fluid Framework, one of the core parts of the new app are Loop

Components, which Microsoft calls "atomic units of productivity." They

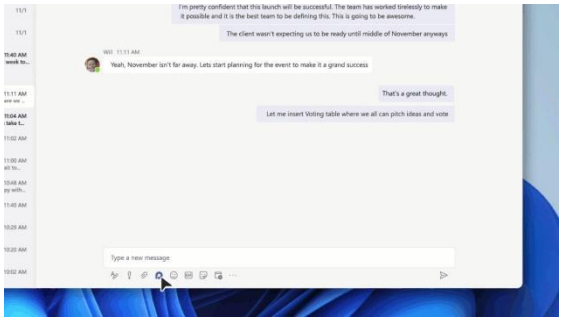
can include anything from as a list to a complex Dynamics 365 project, all of which will stay in sync when they're deployed in Office apps. You can organize your Components in Loop Pages, a new type of document that can also include files and links. Think of them like unstructured Word documents (or perhaps more like how people typically use Google Docs).

Loop components: An evolution of Fluid components—are atomic units of productivity that help you collaborate and get your work done in the flow of your work—in a chat, email, meeting, document, or Loop page. Loop components can be as simple as lists, tables, notes, tasks, or as sophisticated as a customer sales opportunity from Microsoft Dynamics 365, and because components stay in sync, no matter how many places they live in, you and your team always work with the latest information.

Finally, there are Loop Workspaces, a way to view components and pages related to specific projects. According to Microsoft,

04 Amazon algorithms promote vaccine misinformation

"Workspaces make it easy for you to catch up on what everyone is working on, react to others' ideas, or track progress toward shared goals."



If you're getting serious Google Wave vibes from all of this, you're not alone. But Microsoft Loop sounds a bit more focused than that failed attempt at team collaboration. For one, the core idea of Fluid Framework makes sense. Now that we're all working across multiple documents online, it makes sense to have a way to synchronize elements within those files. Wave felt like a solution in search of a problem, whereas Microsoft Loop, despite its seeming complexity, addresses a growing problem many office workers face today.

Microsoft says it'll share more about Loop in the upcoming months. Until then, though, you can expect to see Loop components coming to Teams, Outlook, OneNote and other Microsoft 365 apps later this month. The biggest change to Microsoft's Office documents in decades is expanding into Microsoft Loop, a hub for a new way of working in Office. Microsoft Loop is the new branding for Microsoft's Fluid work, blocks of collaborative Office content that can live independently and be copied, pasted, and shared with others.

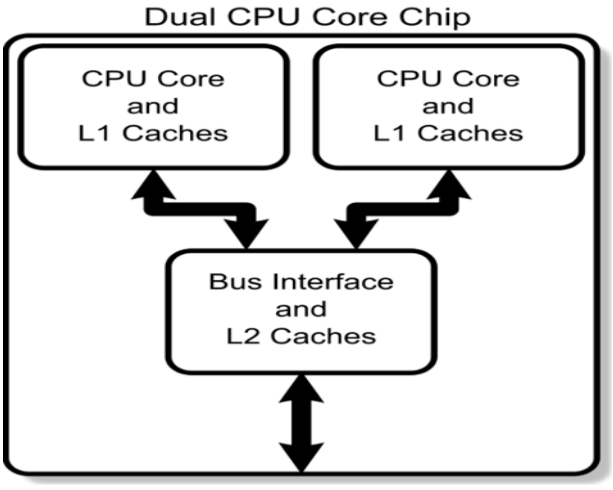
Much like Fluid, Microsoft Loop has three main elements: Loop components, Loop pages, and Loop workspaces. Loop components are live pieces of content that can exist across multiple apps, updated in real time and free for anyone to jump into. That could be a list shared in a Teams channel and also editable in a Loop page, or notes in a calendar entry that are also available to be pasted into Outlook and edited in real time within an email. components can also exist in the main Microsoft Loop hub, inside what Microsoft calls shared Loop workspaces. It's almost like a project board, where you can see a list of all Loop components and Loop pages and who is currently working inside what Microsoft calls shared Loop workspaces. It's almost like a project board, where you can see a list of all Loop components and Loop pages and who is currently working on them.

PROCESSORS

A single-core processor machine as consists of one processor, two or more levels of cache memory, main memory, hard disk, and Input/Output (I/O) devices. Levels of cache relates to the size and distance from the processor which displays the memory hierarchy, for example accessing data from Level 1 (L1) cache is faster than accessing it from L2 cache, and so on. Consequently, the use of cache memory reduces the Memory Access Time (MAT) resulting in a better performance. According to Moor's law that was stated in 1965, the number of transistors on a chip will roughly double each year, then he refined the period in 1975 to be two years. Moore's law is often quoted as Dave House's revision that computer performance will double every 18 months . The problem of adding more transistors on a chip in the amount of generated heat that exceeds the advancements rate of the cooling techniques which is known as “the power wall” problem .

Multi-core processor

A multi-core processor is an integrated circuit (IC) to which two or more processors have been attached for enhanced performance, reduced power consumption, and more efficient simultaneous processing of multiple tasks, it is a growing industry trend as single-core processors rapidly reach the physical limits of possible complexity and speed . A basic block diagram of a generic multi-core processor . Block diagram for a general Multi-Core processor International Journal of Computer Science & Information Technology (IJCSIT) Vol 10, No 1, February 2018 3 The high performance demand of users also motivated the shift from single-core to multi-core processors. A comparison between a single-core and a multi-core processors that occupies the same die area



The improvement in performance gained by the use of a multi-core processor depends very much on the software algorithms used and their implementation. In particular,

possible gains are limited by the fraction of the software that can run in parallel simultaneously on multiple cores; this effect is described by Amdahl's law. In the best case, so-called embarrassingly parallel problems may realize speedup factors near the number of cores, or even more if the problem is split up enough to fit within each core's cache(s), avoiding use of much slower main-system memory. Most applications, however, are not accelerated so much unless programmers invest a prohibitive amount of effort in re-factoring the whole problem.

Properties of Multi-core systems

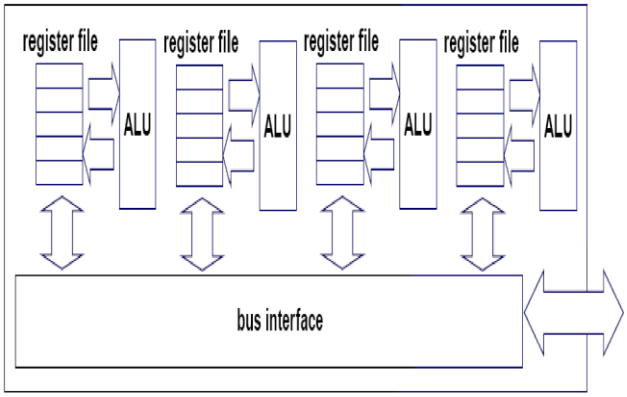
- Cores will be shared with a wide range of other applications dynamically.
- Load can no longer be considered symmetric across the cores.
- Cores will likely not be asymmetric as accelerators become common for scientific hardware.
- Source code will often be unavailable, preventing compilation against the specific hardware configuration.

What applications benefit from multi-core?

- Database servers
- Web servers
- Telecommunication markets
- Multimedia applications
- Scientific applications
- In general, applications with Thread-level parallelism (as opposed to instruction-level parallelism)

Multi-core architectures

- Replicate multiple processor cores on a single die.



- The cores fit on a single processor socket.

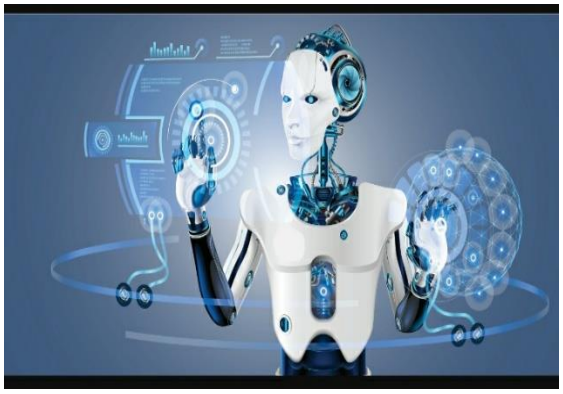
Programming for multi-core

- Programmers must use threads or processes.
- Spread the workload across multiple cores.
- Write parallel algorithms.
- OS will map threads/processes to cores

Robotic Process Automation

Robotic Process Automation is the technology that allows anyone today to configure computer software, or a software "robot" to emulate and integrate the actions of a human interacting within digital systems to execute a business process.

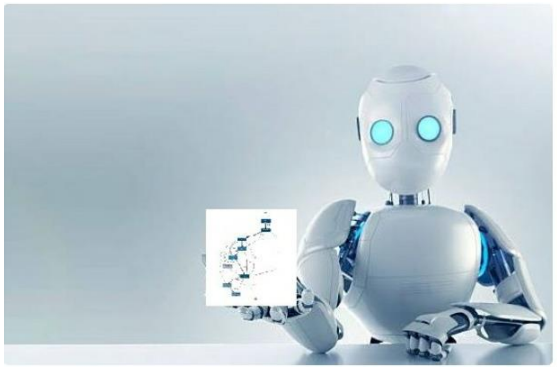
Business process and workflow automation, in the past we the most is semi-automation, we still need human to serve as the input or control due to certain business policy that learn by human, we are not implement in the software business logic as rule to allow software robot to replace human and complete take over the business process and output the correct document (for example) and reaching the user for the output, to use the final document (it can be quotation, invoice, report of status or anything that can be define and let software robot to execute for you to achieve full process automation).



Robotic process automation is the use of software bots to automate highly repetitive, routine tasks normally performed by knowledge workers. Robotic Process Automation is an application of technology, governed by business logic and structured inputs, aimed at automating. Robotic process automation is the term used for software tools that partially or fully automate human activities that are manual, rule-based, and repetitive.

Robotic process automation software utilizes bots to automate routine tasks within software applications normally performed by a company's employees. These products are used to save time and eliminate the need for human employees to conduct time-consuming, repetitive, and tedious tasks. To develop these automations, Robotic process automation solutions provide development RPA technology also increases efficiency, not only efficiency of employees who have more time to dedicate to other tasks, but because it almost completely removes the opportunity for human error, saving the business even more time, money and resource. A barrier to introducing new technologies for organizations can often be the cost of implementation. It's absolutely a factor any savvy business decision maker needs to consider. But with low implementation costs, leveraging

RPA technology quickly delivers a return on the investment and one that is fast becoming a popular choice in the world of expense management. environments for building workflows that the agents then follow. These development environments are usually code less, drag-and-drop systems, so they are accessible enough that non-developers can build.



Robotic Process Automation is well suited for processes that are clearly defined and well documented, repeatable without many changes and also if they are rules. Since software robots need to execute the business logic and rules just like running a software program. It helps to let employees focus on innovation and value creation activities and key result areas (KRA), rather than spend the time on the manual processing tasks that can be fully automated and taken over by the software robots.

In the modern world we can remote desktop working in anyplace in the world, create scripts to run predefined tasks to get things done. As well as record steps and get system automated executions list of actions with the help of task scheduler and upon certain action being triggered, is not something new, what really news is the practice of it and now we create a domain of function as robotic process automation. As you can imagine, it helps to free up enterprise as well as employees from those repetitive tasks so they can deploy to business innovation and creativity, as well as areas we human kind is best and hard to replace area and activity.

Feel free to contact E-SPIN for your specific employee training, education and development requirements. E-SPIN provides a mix of the training delivering methods that cater for the various products and solutions we represented, from standard training to customized training based on formal and systematic organizational training need analysis (TNA). As well as consulting on the robotic process automation, supply and implementation to boost enterprise business productivity.

09 Split Wave: Researchers Develop Component for Neuromorphic Computer

Digital Image Processing

Digital image processing is the use of digital computer to process digital images through an algorithm. As a subcategory or field of digital signal processing, digital image processing has many advantages over analog image processing.

It allows a much wider range of algorithms to be applied to the input data and can avoid problems such as the build-up of noise and distortion during processing. Since images are defined over two dimensions(perhaps more) digital image processing are mainly affected by three factors.

They are:

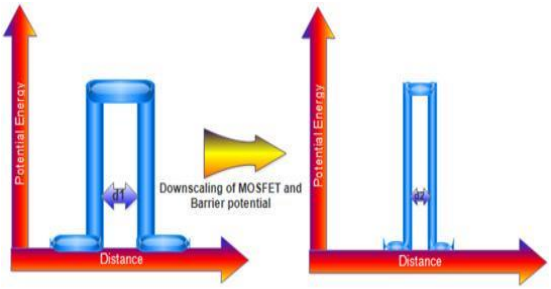
1) The development of computers.

2) The development of mathematics(especially the creation and improvement of discrete mathematics theory).

3)The demand for a wide range of applications in environment, agriculture, military, industry and medical science has increased.

Image Sensors

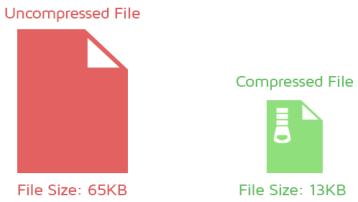
The basis for modern image sensors is metal-oxide-semiconductor (MOS) technology , which originates from the invention of the MOSFET (MOS field-effect transistor)by Mohamed M. Atalla and Dawon Kahng at bell labs in 1959. This led to the development of digital semiconductor image sensors, including the charged-coupled device(CCD) and later the CMOS sensor.



The NMOS active-pixel sensor(APS) was invented by Olympus in japan during the mid-1980s. This was enabled by advances in MOS semiconductor device fabrication, with MOSFET scaling reaching smaller micron and then sub-micron levels. The NMOS APS was fabricated by Tsutomu Nakamura's team at Olymous in 1985. The CMOS active-pixel sensor(CMOS sensor) was later developed by Eric

Fossum's team at the NASA jet Propulsion Laboratory in 1993. By 2007, sales of CMOS sensors had surpassed CCD sensors.

Image Compression



An important development in digital image compression technology was the discreate cosine transform (DCT), a lossy compression technique first proposed by Nasir Ahmed in 1972. DCT compression became the basis for JPEG, which was introduced by the joint Photographic Experts Group in 1992. JPEG compress images down to much smaller file sizes, and has become the most widely used image file format on the internet. Its highly efficient DCT compression algorithm was largely responsible for the wide proliferation of digital images and digital photos, with several billion JPEG images produced every day as of 2015.

Digital Signal Processor (DSP)

Electronic signal processing was revolutionized by the wide adoption of MOS technology in the 1970s. MOS integrated circuit technology was the basis for the first single-chip microprocessors and microcontrollers in the early 1970s, and then the first single-chip digital signal processor(DSP) chips in the late 1970s. DSP chips have since been widely used in digital image processing.

The discrete cosine transform(DCT) image compression algorithm has been widely implemented in DSP chips, with many companies developing DSP chips based on DCT technology. DCTs are widely used for encoding, decoding, video coding, audio coding, multiplexing, control signals, signaling, analog-to-digital conversion, formatting luminance and color differences , and color formats such as YUV444 and YUV411. DCTs are also used for encoding operations such as motion estimation, motion compensation, inter-frame prediction, quantization, perceptual weighting, entropy encoding, variable encoding, and motion vectors, and decoding operations such as the inverse operation between different color formats(YIQ,YUV and RGB) for display purposes DCTs are also commonly used for high-definition television(HDTV) encoder/decoder chips.

Edge Computing

Edge Computing is basically a method of Cloud Computing with a pinch of Internet of Things, (IoT). To understand this, let's define it better in ways that there are several micro data centers around which stores data for a time to serve the data as fast as possible to the nearby requirements.

This typically refers to IoT uses, where edge devices would collect data - could be a large part of a data or the minimal amount of it to enhance the performance and experience of both data and user, it chooses upon the frequency of data where the particular data is called every time and asked for action.

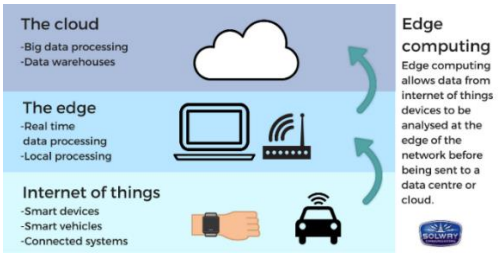
Edge computing is very much suited for a variety of situations, like when one IoT device has poor connectivity and it's not so efficient or not capable of for IoT devices to be continually be connected in a central cloud infrastructure. Other use cases have to do with latency-sensitive information, so edge computing reduces the latency of information because data does not have to traverse over a network to a data center or cloud for processing.

Benefits Of Edge Computing

Real Time Data Processing: This is the core objective of edge computing. Since the data computing happens locally that can achieve real time data processing. The economical monitoring approach of real time processing prevent many concerns even prior of their occurrence.

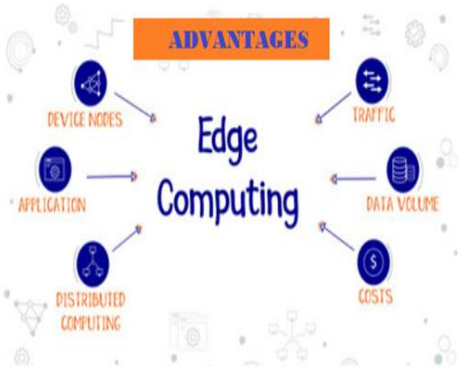
Reduced Internet bandwidth usage and associated cost: Edge can significantly reduce internet bandwidth usage and cost. Since the data processing happens at the edge network. The server resources are free most of the time and can be utilized in other cloud specific operations hence it can reduce server resources utilization and is associated cost.

Responsive and Robust Application Performance –



Twitter delete tweets , Nigeria bans the whole platform No more tweets

Responsive and robust application performance can be achieved by uploading the processing logic to local edge environment. Therefore, it improves the business efficiency and reliability by doing critical operations in local environment without feeling about network disconnect for response time out.



Distributed Security – The key advantage of the Edge computing is that it processes the data locally. Thus, minimizing the direct interaction with the cloud. As a result, it reduces the risk of DDoS attacks that cripple networks and maintains the security.

Increased Reliability – Micro data centers operate in all manner of environments due to which the interruptions occurring due to internet and cloud are gone. Edge Computing brings everything closer to the user and supports robust, secure, and intelligent on-premise infrastructure.

Industries Using Edge Computing

Banking and Insurance With banking business data and processes are most critical things and Edge can play vital role in improving the overall service performance.

Health care

Real-time information is so important that they cannot compromise with it, such as tracking patient health conditions, monitoring of hospital equipment, active drug tracking, improved fitness, and wellness for users. It also enhances wearable Healthcare Devices for Real-time Data Analysis.

Energy sector

Oil fields and mines, where edge computing can help to do real-time tracking of worksite safety conditions tracking equipment conditions critical sensor with drilling device conditions monitoring.

Public Sectors

In smart cities, a healthy and safe lifestyle involves ample elements. Edge computing has affected citizens' lives by monitoring air quality, traffic check, congestion monitoring, smart parking etc.,

Learn a Tool

Todoist is a project management application for personal and professional productivity. It allows users to manage their tasks from a smartphone, tablet or computer. The app is free, though additional features to enable collaboration are available in a paid version. Todoist was created in 2007 by startup Doist. As of June 2014, it has 2 million users.

In Todoist, tasks are either aligned to projects or sit loosely in an inbox. Projects may contain other sub-projects, and tasks may contain sub-tasks. Tasks can be filtered by label, date or priority. Completion of tasks results in "karma" points being awarded to the user, introducing an element of gamification.

Why Todoist is so popular?

The paid Premium version of Todoist is one of the most feature-rich to-do apps on the market. It has a simple and functional interface, great collaboration capabilities, and apps for nearly every device so that you can get to your to-do list no matter where you are.

Todoist is completely free to use. When you need higher project limits or additional features like reminders, you can always upgrade to the Pro or Business plan. ... When it comes to working with a team, you can invite 25 people to your projects free of charge.

Amir Salihefendić owns the Todoist and he the founder and CEO of Doist, the company behind Todoist. He want to share a system he've perfected over the past 13+ years that has helped him achieve his goals while reducing his stress.

Todoist offline mode is automatically activated whenever you don't have access to the internet on the following platforms: Web, Android, iOS, macOS and Windows 10. Any changes that you make in Todoist while offline will be automatically synced with the

server as soon as you reconnect to the internet.

We make extensive use of their built-in firewalls to protect your data against unauthorized remote access. Projects, tasks, comments, account information, and payment information are all stored and encrypted at rest. All files uploaded after April 11, 2016 are stored and encrypted at rest.

Features:

Todoist gives you the confidence that everything's organized and accounted for, so you can make progress on the things that are important to you.

★ Start each day feeling calm and in control.

★ Focus your energy on the right things. ...

★ Share the workload.

★ Personalize your task views.

★ Centralize all your work in one place. And go on..

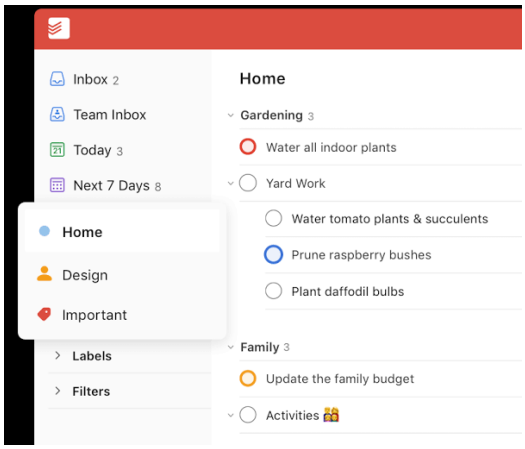
Cons:

★ Subtasks don't work well. Among other complaints, Todoist doesn't let you indent subtasks in its Inbox view.

★ Windows app isn't as good as the Mac app. This probably applies to a lot of apps.

★ Creating custom views or lists take some fiddling.

★ $36 per year.



Pros:

★ Cross-platform. Todoist is a to-do application that works well on various platforms and devices such as Mac, Apple iOS, Android, and Windows.

★ Intuitive UI and classification tools.

★ Enhanced collaboration.

REVIEW BOX

Bitcoin

Bitcoin is a digital currency created in January 2009. It follows the ideas set out in a whitepaper by the mysterious and pseudonymous Satoshi Nakamoto. The identity of the person or persons who created the technology is still a mystery. Bitcoin offers the promise of lower transaction fees than traditional online payment mechanisms and, unlike government-issued currencies, it is operated by a decentralized authority.

Bitcoin is a type of cryptocurrency. There is no physical bitcoin, only balances kept on a public ledger that everyone has transparent access to. All bitcoin transactions are verified by a massive amount of computing power. Bitcoin is not issued or backed by any banks or governments, nor is an individual bitcoin valuable as a commodity. Despite it not being legal tender in most parts of the world, bitcoin is very popular and has triggered the launch of hundreds of other cryptocurrencies, collectively referred to as altcoins. Bitcoin is commonly abbreviated as "BTC."

Peer-to-Peer Technology

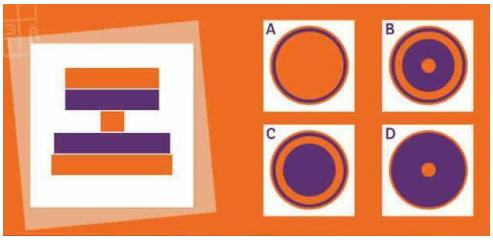
Bitcoin is one of the first digital currencies to use peer-to-peer technology to facilitate instant payments. The independent individuals and companies who own the governing computing power and participate in the bitcoin network bitcoin "miners" are in charge of processing the transactions on the blockchain and are motivated by rewards (the release of new bitcoin) and transaction fees paid in bitcoin.

These miners can be thought of as the decentralized authority enforcing the credibility of the bitcoin network. New bitcoin are released to the miners at a fixed, but periodically declining rate.

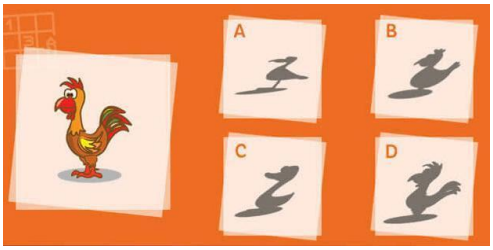
!MindPunch

1.Can you guess who is left-handed and why?

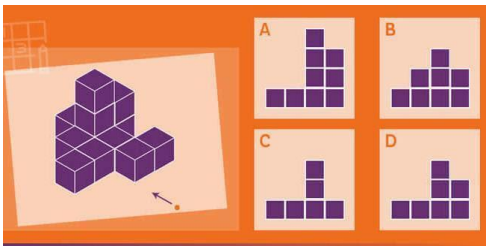
2. Which one is the air view of the tower on the left?



3. Which shadow corresponds to the image on the left?

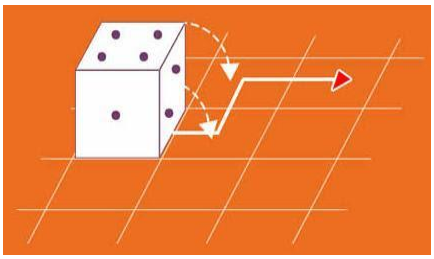


4. View the blocks on the left from the orange point and direction of the arrow. Which image on the right is the correct view?



5. Let's guess how many blocks in this tower?

6. If we move the dice to the point where there is a red arrow, what will be the number on the top? The sum of the two opposite of the dice is 7.



7. I do not have any special powers, but I can predict the score of any football game before it begins. How can I do this?

8. Which is heavier, a pound of feathers or a pound of rocks?

9. How far can a dog run into the woods?

10. Using only addition, how can you use eight eights to get the number 1,000?

Apple releases update fixing nso spyware vulnerability affecting Macs,iphone,ipods,and watches

IT VITA+

1. Who invented mechanical calculator called pascaline?

2. Who is the ‘father of artificial intelligence’?

3. Which was the world’s first successful electronic computer?

4. Which was the first virus detected on ARPANET, the forerunner of the internet in the early 1970’s?

5. Who programmed the first computer game ‘spacewar’! in 1962?

6. Which is the current fastest super computer in India?

7. Who first developed QWERTY keyboard used in computers and phone?

8. Number of bit used by the IPv6 address ?

9. A dual layer blue-ray disc can store data upto?

10. Computer hard disk was first introduced in 1956 by?

11. In computer world. Trojan refers to?

12. A folder in windows computer can’t be made with the name?

13. The maximum number of rows supported by excel 2003 spreadsheet is?

14. What is the maximum number of primary partitions that can be created on a hard disk?

15. How many users can access a share folder simultaneously from a windows 7 machine?

$Famous and Favourite

Dame Stephanie "Steve" Shirley

Dame Stephanie "Steve" Shirley, DBE, FREng, FRSA, FBCS, is a British information technology pioneer, businesswoman and philanthropist. Dame Vera Stephanie "Steve" Shirley CH, DBE, FREng, FBCS, (previously Brook, née Buchthal; born 16 September 1933) is a British information technology pioneer, businesswoman and philanthropist

Shirley was born as Vera Buchthal to a Jewish father, a judge in Dortmund who lost his post to the Nazi regime, and a non-Jewish Viennese mother. At the age of 5 she arrived together with her 9 year old sister Renate in Britain unaccompanied in July 1939 as a Kindertransport child refugee.

She was placed in the care of foster parents. In order to study mathematics which was not taught at the school, she received permission after assessment to take lessons at the local boys school. At the age of 18 she became a British citizen and changed her name to Stephanie Brook. In the 1950s she worked at the Post Office Research Station, building computers from scratch and writing code in machine language. She took evening classes for six years to obtain a degree in mathematics. In 1959 she moved to CDL Ltd, manufacturers of the ICT 1301 computer.

In 1962, Shirley founded, with a capital of £6, the software company Freelance Programmers, (later Xansa since acquired by Steria and now part of the Sopra Steria Group).

19 Instagram controversially removed the feature shortly after being acquired by Facebook in 2012

Solutions

!MIND PUNCH

1. It's irregular to serve drinks with left hand for a right-handed person. So, it's 5.
2. A
3. D
4. 9
5. 9
6. 3
7. Well, the score before any football game is always zero to zero!
8. Neither. Both weigh a pound
9. Halfway. Once it reaches halfway, it's running out of the woods
10. 888 +88 +8 +8 +8

IT VITA+

1. Blaise pascal
2. John mc carthy
3. ENIAC
4. Creeper virus
5. Steave russell
6. sahasraT
7. Christopher latham sholes
8. 128 bit
9. 50 GB
10. IBM
11. Malware
12. Con
13. 65536
14. 4
15. 20

DEPARTMENT OF
COMPUTER SCIENCE (UG)

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