

CITY ENGINEERING COLLEGE



Tech Samachar

Expand your mind; change your world.....

OCTOBER -2021

Volume I, Issue-07

“Ideas are the beginning points of all fortunes”



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Department Monthly Newsletter Issue-07

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

VISION

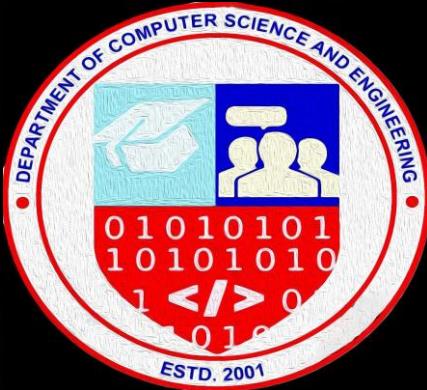
“To contribute to Global Development by producing Knowledgeable and Quality professionals who are Innovative and Successful in advanced field of Computer Science & Engineering to adapt the changing Employment demands and social need “

MISSION

M1: To provide Quality Education for students, to build Confidence by developing their Technical Skills to make them Competitive Computer Science Engineers.

M2: To facilitate Innovation & Research for students and faculty and to provide Internship opportunities

M3: To Collaborate with educational institutions and industries for Excellence in Teaching and Research.



About the Department

The Department of Computer Science & Engineering was started in the year 2001 is known for imparting Quality education and carrying out cutting edge research. In addition to the UG program, PG CSE program and Research facilities for Ph.D. The department offers undergraduate program and has a comprehensive curriculum on topics related to software and hardware with an emphasis on theoretical and practical learning. It has well equipped, state of the art laboratories supported by highspeed Internet and wireless networks.

The students of CSE Department deliver value to the department with a dynamic character and active culture towards learning and delivering through assigned projects guided by faculty. The faculty members are highly qualified experienced and dedicated. All faculty members are masters, some doctorates and few are pursuing their Ph.D. from various reputed universities. All are inspired in delivering top class education blending their research in the area of information technology. The infrastructure of the department provides the student and staff a conducive learning environment.

The Department regularly organizes industrial visits, conferences, workshops, technical talks, project exhibitions for the faculty and students training by using in-house resources as well as industry experts. This helps in effectively bridging the gap between academic and industry.

Editorial Committee

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Prof. Vivekavardhana Reddy, HOD CSE

Dr. Sowmya, Professors, CSE (Alumni)

Prof. Ambika P R, A.P. CSE

Prof. Deepika R, A.P. CSE (Alumni)

Prof. Archana Bhat, A.P. CSE

Prof. Laxmi M C, A.P. CSE



Chairman's Message

Tech Samachar is particularly important as it encourages the students to share the knowledge they have acquired. Writing articles for the Newsletter also improves the communication skills of the budding engineers of the Computer Science and Engineering Department. It is common knowledge that representation of an idea is as important as, if not more important, than the idea itself.

Tech Samachar aims to inspire and nurture upcoming Engineers to bring a revolution in this ever-evolving world of Technology. The Newsletter captures the current Technological advancements.

To conclude I would like to congratulate the faculty and the students of the editorial team on bringing out this Issue of Tech Samachar. I am glad to see that they have lived up to the high standards and my best wishes to the students for a bright future.

Dr K. R. Paramahamsa

Chairman, AMC – CITY – BROOKLYN – CAMBRIDGE Group of Institutions



Principal's Message

Congratulations to the students and faculty associated to Newsletter committee for successfully publishing this Issue of Departmental Technical Newsletter Tech Samachar. Tech Samachar is creating platform which provides an opportunity to the students and staff to express their original thoughts on technical topics.

The Newsletter plays an important role in providing exposure to the students to develop written communication skills and command over the language. It is a step towards building professional and ethical attitude in them. The entire journey of creating Tech Samachar is an outcome of rigorous effort made by students and faculty. Students not only gain the knowledge about the latest technological developments and advancements through reading and writing articles but they also develop verbal and written communication skills.

On concluding note, I would like to thank all the stakeholders for their involvement and encouragement and wish All the Best for their bright future.

Dr. Thippe Swamy H N

Principal ,City Engineering College



HOD's Message

This is the Seventh Issue of the Computer Science and Engineering Department Newsletter. Tech Samachar is all about the technology that motivates students to do something, that leaves an eternal mark on the world of Technology. Thus, it was our job to ensure inspiring technological developments are being brought to the students of CEC, by the students of CEC itself.

The work was performed in an organized, almost professional manner and credits to my entire Tech Samachar team, for their admirable job.

I would also like to Thank every member of the Tech Samachar team, without whose contribution, this issue would not have been possible. I hope you enjoy reading this Newsletter as much as I enjoyed working towards its creation and more importantly, I hope that the articles in this magazine inspire you.

Mr. Vivekvardhana Reddy

HOD, Computer Science and Engineering



Editorial

At the outset, on behalf of the entire Computer Science and Engineering Department and all the readers we extend our whole hearted gratitude to our beloved Chairman, Dr. K. R. PARAMAHAMSA, to the honorable principal Dr. Thippe Swamy H N, and also to our HOD, CSE Mr. VIVEKAVARDHANA REDDY for their dynamic, inspirational, enthusiastic contribution and motivation towards our department also boosting our confidence for the publishing of seventh Issue of the Monthly Newsletter TECH SAMACHAR. This technical newsletter named 'TECH SAMACHAR' signifies an giving out of current technical datum. Team 'TECH SAMACHAR' will always remain grateful for the massive support and interest shown by you all.

Computer Science and Engineering is an ever-expanding field and the power what technology holds today is definitely beyond one's imagination rendering impressive set of ideas. This seventh Issue is full of exciting new technologies and Department achievements. This Newsletter is intended to be published once in a month. Finally, quoting our special thanks to the departmental faculty members and also to all our team members without whom this Issue wouldn't have been possible. We hope all the readers will enjoy this issue as much as we enjoyed creating it.....Happy Reading!

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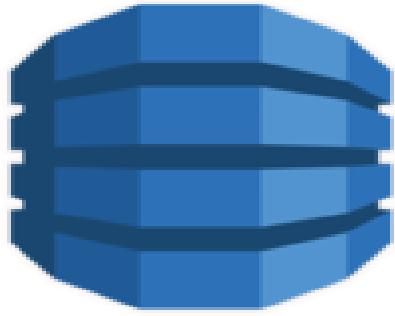
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DynamoDB

FACULTY



Amazon DynamoDB

DynamoDB is a fully-managed NoSQL database service designed to deliver fast and predictable performance. It uses the Dynamo model in the essence of its design, and improves those features. It began as a way to manage website scalability challenges presented by the holiday season load.

DynamoDB allows users to create databases capable of storing and retrieving any amount of data, and serving any amount of traffic. It automatically distributes data and traffic over servers to dynamically manage each customer's requests, and also maintains fast performance.

The screenshot shows the Amazon DynamoDB console. At the top, there is a large blue button labeled "Create table". Below it, a section titled "Amazon DynamoDB" contains a brief description: "Amazon DynamoDB is a fast and flexible NoSQL database service for all applications that need consistent, single-digit millisecond latency at any scale. Its flexible data model and reliable performance make it a great fit for mobile, web, gaming, ad-tech, IoT, and many other applications." There are two buttons: "Create table" and "Getting started guide". At the bottom, there are three main navigation links: "Create tables" (with a database icon), "Add and query items" (with a search icon), and "Monitor and manage tables" (with a chart icon).

The two main advantages of DynamoDB are scalability and flexibility. It does not force the use of a particular data source and structure, allowing users to work with virtually anything, but in a uniform way.

Its design also supports a wide range of use from lighter tasks and operations to demanding enterprise functionality. It also allows simple use of multiple languages: Ruby, Java, Python, C#, Erlang, PHP, and Perl.

- **Capacity Unit Sizes** – A read capacity unit is a single consistent read per second for items no larger than 4KB. A write capacity unit is a single write per second for items no bigger than 1KB.
- **Provisioned Throughput Min/Max** – All tables and global secondary indices have a minimum of one read and one write capacity unit. Maximums depend on region. In the US, 40K read and write remains the cap per table (80K per account), and other regions have a cap of 10K per table with a 20K account cap.
- **Provisioned Throughput Increase and Decrease** – You can increase this as often as needed, but decreases remain limited to no more than four times daily per table.
- **Table Size and Quantity Per Account** – Table sizes have no limits, but accounts have a 256 table limit unless you request a higher cap.
- **Secondary Indexes Per Table** – Five local and five global are permitted.

- Projected Secondary Index Attributes Per Table** – DynamoDB allows 20 attributes.
- Partition Key Length and Values** – Their minimum length sits at 1 byte, and maximum at 2048 bytes, however, DynamoDB places no limit on values.
- Sort Key Length and Values** – Its minimum length stands at 1 byte, and maximum at 1024 bytes, with no limit for values unless its table uses a local secondary index.
- Table and Secondary Index Names** – Names must conform to a minimum of 3 characters in length, and a maximum of 255. They use the following characters: AZ, a-z, 0-9, “_”, “-”, and “.”.
- Attribute Names** – One character remains the minimum, and 64KB the maximum, with exceptions for keys and certain attributes.
- Reserved Words** – DynamoDB does not prevent the use of reserved words as names.
- Expression Length** – Expression strings have a 4KB limit. Attribute expressions have a 255-byte limit. Substitution variables of an expression have a 2MB limit.

DynamoDB - Operations Tools

DynamoDB provides three options for performing operations: a web-based GUI console, a JavaScript shell, and a programming language of your choice.

In this tutorial, we will focus on using the GUI console and Java language for clarity and conceptual understanding.

GUI Console

The GUI console or the AWS Management Console for Amazon DynamoDB can be found at the following address – <https://console.aws.amazon.com/dynamodb/home>

It allows you to perform the following tasks –

- CRUD

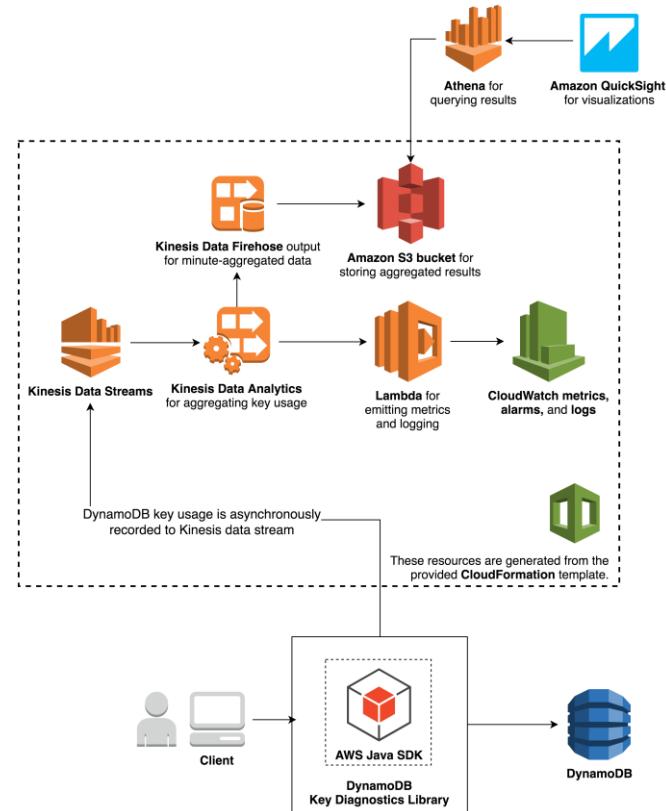
- View Table Items
- Perform Table Queries
- Set Alarms for Table Capacity Monitoring
- View Table Metrics in Real-Time
- View Table Alarms

DynamoDB - Best Practices

Certain practices optimize code, prevent errors, and minimize throughput cost when working with various sources and elements.

The following are some of the most important and commonly used best practices in DynamoDB.

DynamoDB Key Diagnostics Library architectural diagram



Tables

The distribution of tables means the best approaches spread read/write activity evenly across all table items.

Aim for uniform data access on table items. Optimal throughput usage rests on primary key selection and item workload patterns. Spread the workload evenly across partition key values.

- Utilize standard compression tools. Use alternate

Avoid things like a small amount of heavily used partition key values. Opt for better choices like large quantities of distinct partition key values.

Gain an understanding of partition behavior. Estimate partitions automatically allocated by DynamoDB.

DynamoDB offers burst throughput usage, which reserves unused throughput for “bursts” of power. Avoid heavy use of this option because bursts consume large amounts of throughput quickly; furthermore, it does not prove a reliable resource.

On uploads, distribute data in order to achieve better performance. Implement this by uploading to all allocated servers concurrently.

Cache frequently used items to offload read activity to the cache rather than the database.

Items

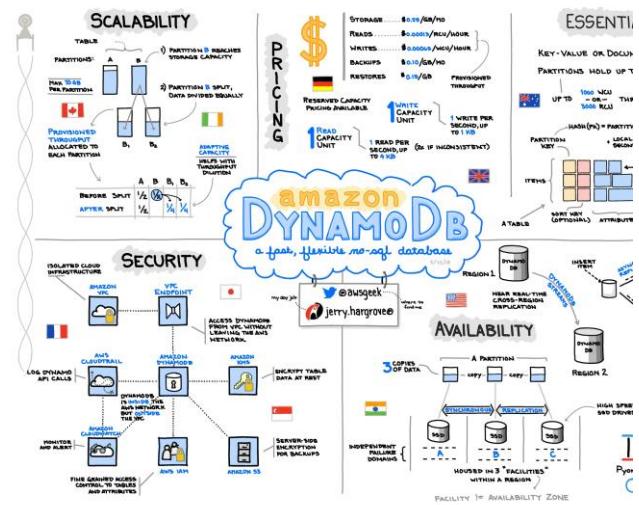
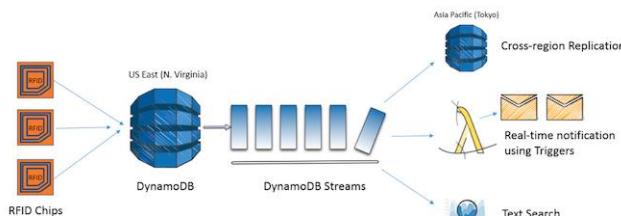
Throttling, performance, size, and access costs remain the biggest concerns with items. Opt for one-to-many tables. Remove attributes and divide tables to match access patterns. You can improve efficiency dramatically through this simple approach.

Compress large values prior to storing them storage for large attribute values such as S3. You can store the object in S3, and an identifier in the item.

Distribute large attributes across several items through virtual item pieces. This provides a workaround for the limitations of item size.

Queries and Scans

Queries and scans mainly suffer from throughput consumption challenges. Avoid bursts, which typically result from things like switching to a strongly consistent read. Use parallel scans in a low-resource way (i.e., background function with no throttling). Furthermore, only employ them with large tables, and situations where you do not fully utilize throughput or scan operations offer poor performance.



Local Secondary Indices

Indexes present issues in the areas of throughput and storage costs, and the efficiency of queries. Avoid indexing unless you query the attributes often. In projections, choose wisely because they bloat indexes. Select only those heavily used.

Utilize sparse indexes, meaning indexes in which sort keys do not appear in all table items. They benefit queries on attributes not present in most table items.

Pay attention to the item collection (all table items and their indices) expansion. Add/update operations cause both tables and indexes to grow, and 10GB remains the limit for collections.

Global Secondary Indices

Indexes present issues in the areas of throughput and storage costs, and the efficiency of queries. Opt for key attributes spreading, which like read/write spreading in tables provides workload uniformity. Choose attributes which evenly spread data. Also, utilize sparse indexes.

Exploit global secondary indices for fast searches in queries requesting a modest amount of data.

By

Prof. B. Ramesh

Assistant professor, Dept. Of CSE

Here's a List of All the Computer Science Jobs We Can Think Of

Here, we list as many computer science jobs as we can so you can widen your graduate job searches.

Social media and digital marketing jobs



One of the coolest things about 2019 is that you can sit on social media and call it work. Companies use Facebook, Twitter, YouTube, Instagram and Snapchat to mine statistics, offer up [marketing insights](#), solve functionality issues and develop new platforms. Sold on STEM + socials? Pop these on the jobs-to-follow list:

- ❖ Marketing technologist
- ❖ SEO consultant
- ❖ Web analytics developer
- ❖ Digital marketing manager
- ❖ Social media manager
- ❖ Growth hacker

Data science jobs

The next generation of stats gigs provide companies with the information needed to make smarter – more informed – business decisions. They hunt down numbers to uncover new insights, predict trends and understand complex

In computer science jobs, some of the highly valued data roles now trending include:

- ❖ Database administrator
- ❖ Data architect
- ❖ Data modeler
- ❖ Data analyst
- ❖ Data scientist
- ❖ Cloud architect
- ❖ Statistics specialist
- ❖ Decision scientist

Cyber security jobs



High pay, job security and the flexibility to work between sectors and cities, are just some of the reasons people are jumping on a career in cybersecurity. And with cyber-crime costing the global economy over [\\$400 billion](#) each year, there is serious demand for such a specialised skill set. A degree in computer science or cybersecurity – could offer up one of these exciting pathways:

- Information security analyst
- Software security engineer
- Information security officer
- Security architect
- Security engineer
- Penetration tester
- Information security crime investigator

User experience jobs

Shutterstock

Consider yourself creative, but heaps into tech too? User experience jobs fuse design with problem-solving smarts to deliver meaningful and relevant experiences and products (think: drafting an interface or developing new physical tech like a phone). Search for degrees in User Interface and Experience Design and look into the following roles:

- ❖ UX designer
- ❖ UX strategist
- ❖ UX product manager
- ❖ UX analyst
- ❖ UX architect
- ❖ UI designer
- ❖ UX engineer
- ❖ UI designer
- ❖ Accessibility specialist
- ❖ Interaction designer
- ❖ Usability researcher
- ❖ UX researcher

- ✓ Application developer
- ✓ Applications engineer
- ✓ Associate developer
- ✓ Computer programmer
- ✓ Developer
- ✓ Digital archaeologist
- ✓ Java developer
- ✓ Software engineer
- ✓ .NET developer
- ✓ Programmer
- ✓ Programmer analyst
- ✓ Applications engineer
- ✓ Software engineer
- ✓ Systems architect
- ✓ System designer

Web development jobs



Software jobs



Software developers design, run, test and troubleshoot various computer programs and apps. And their chosen language? HTML, Java, Python and C++! Software developer gigs are expected to grow up to 21 per cent by 2028, so hit up a computer science/software engineering/programming degree and become fluent in code stat.

These guys often work in client-serving jobs – designing, creating and modifying functional websites with their slick HTML, JavaScript and SQL smarts. Bachelors degrees in Information Technology and Computer Science can equip you with the relevant skill-set, alongside a bunch of specialized diplomas and TAFE courses.

- Web designer
- Front end developer
- UI designer
- UX designer
- Interaction designer
- Web developer
- Full stack developer
- IT technician
- Dev ops
- SEO specialist

By

Prof. Shashikala H C

Assistant professor, Dept. Of CSE



Amazon, on 22 July, announced a slew of new features for developers who want to write Alexa skills. In total, the team released 31 new features at its Alexa Live event. Unsurprisingly, some of these are relatively minor, but a few significantly change the Alexa experience for the more than 700,000 developers who have built skills for the platform so far.

Maybe it's no surprise that one of the highlights of this release is the beta launch of Alexa Conversations, which the company first demonstrated at its re:Mars summit last year. The overall idea here is, as the name implies, to make it easier for users to have a natural conversation with their Alexa devices. Which is a very hard technical challenge.



"We're observing that consumers really want to speak in a natural way with Alexa," said Fresko. "But using traditional techniques, implementing naturalness is very difficult. Being prepared with random turns of phrase, remembering context, carrying over the context, dealing with oversupply or undersupply of information — it's incredibly hard. And if you put it in a way and create a state diagram, you get bogged down and you have to stop. Then, instead of doing all of that, people just settle for 'Okay, fine, I'll just do robot robotic commands instead.' The only way to break that cycle is to have a quantum leap and the technology required for this, so skilled developers can really focus on what's important to them."

For developers, this means they can use the service to create sample phrases, annotate them and provide access to APIs for Alexa to call into. Then, the service extrapolates all the path the conversation can take and makes it work, without the developer having to specify all of the possible turns the conversation with their skills could take. In many respects, this makes it similar to Google's Dialogflow tool, though Google Cloud's focus is a bit more on enterprise use cases.

"Alexa Conversations promises to be a breakthrough for developers, and will create great new experiences for customers," said Steven Arkonovich, founder of Philosophical Creations, in the announcement. "We updated the Big Sky skill with Alexa Conversations, and now users can speak more naturally, and change their minds mid-conversation. Alexa's AI keeps track of it, all with very little input from my skill code."

For a subset of skills — around 400 for now, according to Fresko — the team will also enable a new deep neural network to improve Alexa's natural language understanding. The company says this will lead to about a 15% improvement in accuracy for the skills that will get access to this.

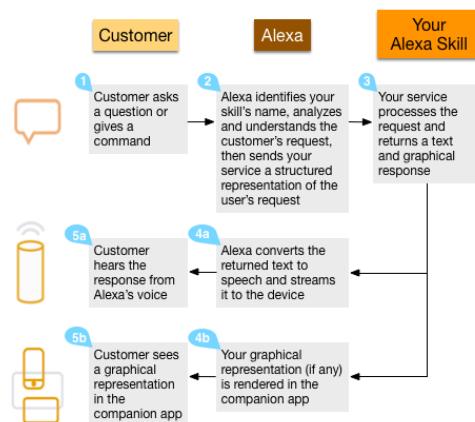
"The idea is to allow developers to get an accuracy benefit with no action on their part by just changing the underlying technology and making our models more sophisticated, we're able to provide a lift in accuracy for all skills," explained Fresko.



Another new feature that will likely get a lot of attention from developers is Alexa for Apps. The idea here is to enable mobile developers to take their users from their skill on Alexa to their mobile apps. For Twitter, this could mean saying something like “Alexa, ask Twitter to search for #BLM,” for example, and the Twitter skill could then open the mobile app. For some searches, after all, seeing the results on a screen and in a mobile app makes a lot more sense than hearing them read aloud. This feature is now in preview.



Another new feature is Skill Resumption, now available in preview for U.S. English, which basically allows developers to have their skill sit in the background and then provide updates as needed. That's useful for a ridesharing app, for example, that can then provide users with updates on when their car will arrive. These kinds of proactive notifications are something that all assistant platforms are starting to experiment with, though most users have probably only seen a few of those in their daily usage so far.



The first of these launches is the beta of Quick Links for Alexa, now in beta for U.S. English and U.S. Spanish, which allows developers to create links from their mobile apps, websites or ads to a new user interface that allows them to launch their skills on a device. “We think that’s going to really help folks become more reachable and more recognized,” said Fresko.

The second new feature in this bucket is the name-free interactions toolkit, now in preview. Alexa already had the capabilities to launch third-party skills whenever the system thought that a given skill could provide the best answer for a given question. Now, with this new system, developers can specify up to five suggested launch phrases (think “Alexa, when is the next train to Penn Station?”). Amazon says some of the early preview users have seen interactions with their skills increase by about 15% after adapting this tool, though the company is quick to point out that this will be different for every skill.

Conclusion: Among the other updates are new features for developers who want to build games and other more interactive experiences. New features here include the APL for audio beta, which provides tools for mixing speech, sound effects and music at runtime; the Alexa Web API for Games, to help developers use web technologies like HTML5, WebGL and Web Audio to build games for Alexa devices with screens; and APL 1.4, which now adds editable text boxes, drag-and-drop UI controls and more to the company’s markup language for building visual skills.



BHANTU PRAKASH R

4 SEM, CSE



Why Tesla Is Designing Chips to Train Its Self-Driving Tech?



At a promotional event in August, Tesla revealed details of a custom AI chip called D1 for training the machine-learning algorithm behind its Autopilot self-driving system. The event focused on Tesla's AI work and featured a dancing human posing as a humanoid robot the company intends to build.

Tesla is the latest non-traditional chipmaker to design its own silicon. As AI becomes more important and costly to deploy, other companies that are heavily invested in the technology—including Google, Amazon, and Microsoft—also now design their own chips.

At the event, Tesla CEO Elon Musk said squeezing more performance out of the computer system used to train the company's neural network will be key to progress in autonomous driving. "If it takes a couple of days for a model to train versus a couple of hours, it's a big deal," he said.



Tesla already designs chips that interpret sensor input in its cars, after switching from using Nvidia hardware in 2019. But creating a powerful and complex kind of chip needed to train AI algorithms is a lot more expensive and challenging.

Many car companies use neural networks to identify objects on the road, but Tesla is relying more heavily on the technology, with a single giant neural network known as a "transformer" receiving input from more than five cameras at once.

"We are effectively building a synthetic animal from the ground up," Tesla's AI chief, Andrej Karpathy, said during the August event. "The car can be thought of as an animal. It moves around autonomously, senses the environment and acts autonomously."



Transformer models have provided big advances in areas such as language understanding in recent years; the gains have come from making the models larger and more data-hungry. Training the largest AI programs requires several million dollar worth of cloud computer power.

Tesla's strategy is built around its neural network. Unlike many self-driving car companies, Tesla does not use lidar, a more expensive kind of sensor that can see the world in 3D. It relies instead on interpreting scenes by using the neural network algorithm to parse input from its cameras and radar. This is more computationally demanding because the algorithm has to reconstruct a map of its surroundings from the camera feeds rather than

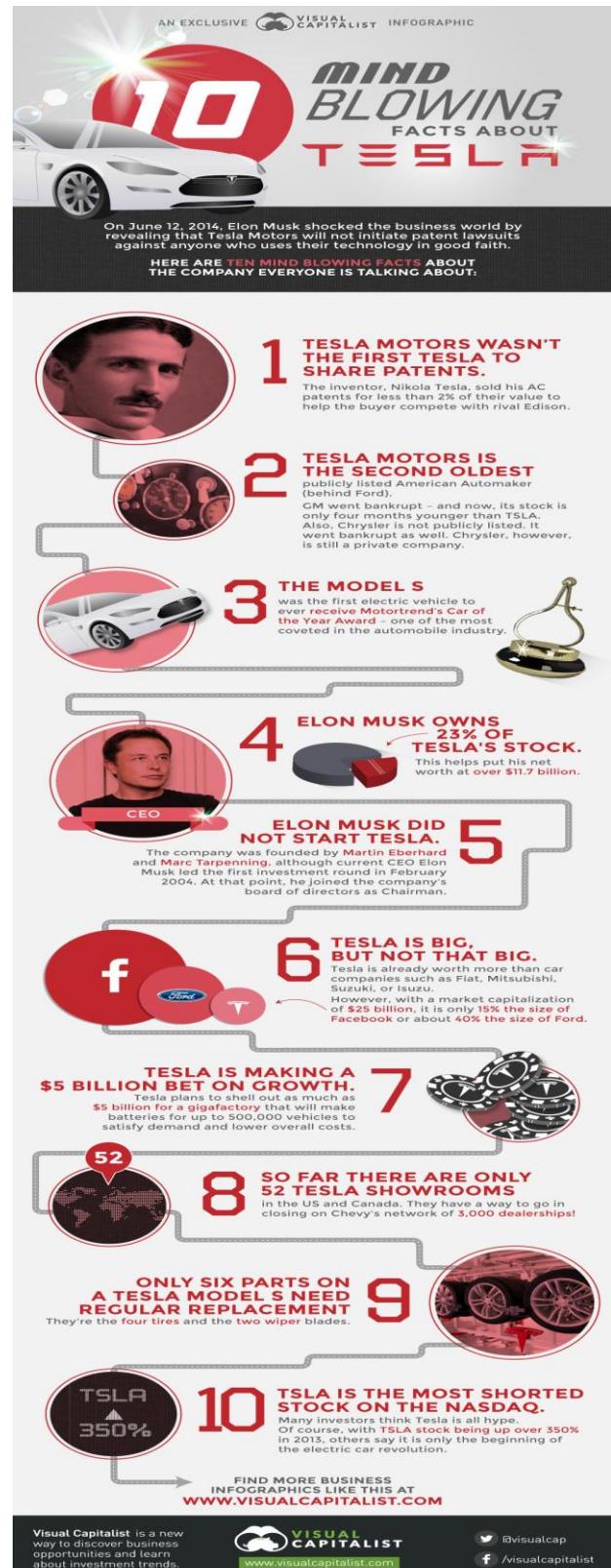
relying on sensors that can capture that picture directly. But Tesla also gathers more training data than other car companies. Each of the more than 1 million Tesla is on the road sends back to the company the video-feeds from its cameras. Tesla says it employs 1,000 people to label those images—noting cars, trucks, traffic signs, lane markings, and other features—to help train the large transformer. At the August event, Tesla also said it can automatically select which images to prioritize in labelling to make the process more efficient.



The rise of large, expensive AI models has not only inspired some big companies to develop their own chips; it has also spawned dozens of well-funded start ups working on specialized silicon.

The market for AI training chips is currently dominated by Nvidia, which started out making chips for gaming. The company pivoted to supplying AI chips when it became clear that its graphics processing units (GPUs) were better suited to running large neural networks than the central processing units (CPUs) at the core of general-purpose computers.

In a neat bit of recursion, AI is also driving a diversification of chip designs. Chip design normally requires deep technical expertise and judgment, but machine learning has proven effective for automating elements of the process. Google, Samsung, and others are making chips that were designed, in part, by AI.



Mrudula
5th SEM, CSE

CalyxOS

What is CalyxOS?

Calyx OS is an Android based operating system, the main focus of this OS is privacy, security and accessibility. The idea for Calyx OS came to the founder, Nicholas Merrill, when he realized that government entities use, dare I say, misuse their power and try to take advantage of private data.

When a government entity asked for data from his company, which was Calyx Internet Access, Merrill refused to provide the data, thus the idea of protecting user data completely, took root. After said incident, Merrill founded Calyx Institute as a non-profit organization to create awareness about privacy and security.

How is CalyxOS different?



Let's talk about OS for a minute, the Android OS was created by Google, Android, at its core, is open source implying the code is public, thus there are no hidden trackers or spyware. Android was made as this way so as to compete with Apple.

As soon as Android became popular, Google realized that it's not making any profit from this. So, to make some profit, Google made other closed source software, such as Chrome, Google calendar, Google camera, etc. which are essential features of android but upgraded to be better.

Google has made it such that every app that utilizes Google Play Services, the user has to consent to handing their data to Google services, which of course, is closed source.

Now closed source implies that us, users, have no idea about how the software works, what data it collects etc. all that we do know is that our data is being collected.

Interesting Fact - An average Android phone, connects to Google's server on average every 4.5 minutes. What does it mean? it means what you do or where you are is tracked every 5 minutes. This takes place even when device is not in use.

Of course, Google is a advertising giant, so some of this data is used for advertisement. But the biggest implication of this, is that many governments around the world want to control and censor the citizens, and unfortunately, google is known for just handing over the data, unlike the founder of Calyx, who refused to give even internet service data when asked. It also means that majority of all android phones are tracking us, and we don't know how, and what data is being recorded.

This is the reason for CalyxOS's existence. We know android is open source at its core. CalyxOS, basically works like DE-GOGLED ANDROID. This is not an exact statement but more like principle. Calyx, instead of using play services, uses something called microG, which basically creates a "random anonymous unique ID" which registers itself as a google device, but it doesn't let Google track user activity.



Now you might ask, what about closed source software/apps, they can still track us. Well, Yes it's a valid question. To answer which, Calyx provides an app store called F-Droid which only has open source apps. Open source means we can know everything about the app. Another option it provides, is Aurora app store, but instead of the

user going directly and downloading/asking for the service from Google, Aurora does it in its name, so it can't be tracked back to the user.

For users who are paranoid about privacy, such as myself, Aurora tells you what trackers the app has, and u can see what data is being collected, and choose whether u want to use the said app or use some alternative app.

[CalyxOS](#) [About](#) [Features](#) [Community](#) [Development](#) [News](#) [Install CalyxOS](#)

Your Phone Should Be Private

Everyone needs a phone. Not everyone wants to be spied on. Reclaim your privacy with CalyxOS.



How secure is the CalyxOS?

Calyx has a built-in firewall, that restricts the amount of internet access each app can have, which in the process also removes ads. CalyxOS gives you control over app permissions. you can also monitor how many times a certain permission has been used



Calyx also has a permanently active free vpn, which restricts web pages from accessing user data, thus making internet usage untraceable. Another interesting feature is that Even calls are end to end encrypted. Basically, every data collecting app has either been replaced or can't collect user data (Aurora apps). A very useful feature, is the panic button, a user can set up this button to do almost anything they want like delete certain messages, call logs or apps or even factory reset the entire phone. So, in conclusion by using CalyxOS a user can choose the level of privacy they want.



Charan Simha

5th SEM, CSE



SOCIAL ENGINEERING

Social Engineering as an Attack Strategy

Social engineering is the term used for a broad range of malicious activities accomplished through human interactions. It uses psychological manipulation to trick users into making security mistakes or giving away sensitive information.

Social engineering attacks happen in one or more steps. A perpetrator first investigates the intended victim to gather necessary background information, such as potential points of entry and weak security protocols, needed to proceed with the attack. Then, the attacker moves to gain the victim's trust and provide stimuli for subsequent actions that break security practices, such as revealing sensitive information or granting access to critical resources.

What makes social engineering especially dangerous is that it relies on human error, rather than vulnerabilities in software and operating systems. It relies on mistakes made by legitimate users, these mistakes are much less predictable, making them harder to identify and fight against compared to malware-based intrusion.



Social Engineering attack Techniques

Social engineering attacks come in many different forms and can be performed anywhere where human interaction is involved. The following are the five most common forms of digital social engineering assaults.

- ❖ **Baiting**
- ❖ **Scareware**
- ❖ **Pretexting**
- ❖ **Phishing**
- ❖ **Spear Phishing**



Baiting

As its name implies, baiting attacks use a false promise to pique a victim's greed or curiosity. They lure users into a trap that steals their personal information or inflicts their systems with malware. Baiting scams don't necessarily have to be carried out in the physical world. Online forms of baiting consist of enticing ads that lead to malicious sites or that encourage users to download a malware-infected application.

Scareware



Scareware involves victims being bombarded with false alarms and fictitious threats. Users are deceived to think their system is infected with malware, prompting them to install software that has no real benefit (other than for the perpetrator) or is malware itself. Scareware is also referred to as deception software, rogue scanner software and fraud ware. Scareware is also distributed via spam email that doles out bogus warnings, or makes offers for users to buy worthless/harmful services.

Pretexting

Here an attacker obtains information through a series of cleverly crafted lies. The scam is often initiated by a perpetrator pretending to need sensitive information from a victim so as to perform a critical task. The attacker usually starts by establishing trust with their victim by impersonating co-workers, police, bank and tax officials, or other persons who have right-to-know authority. The pretender asks questions that are ostensibly required to confirm the victim's identity, through which they gather important personal data.



Phishing

As one of the most popular social engineering attack types, phishing scams are email and text message campaigns aimed at creating a sense of urgency, curiosity or fear in victims. It then prods them into revealing sensitive information, clicking on links to malicious websites, or opening attachments that contain malware. Given that identical, or near-identical, messages are sent to all users in phishing campaigns, detecting and blocking them are much easier for mail servers having access to threat sharing platforms.



Spear Phishing

This is a more targeted version of the phishing scam whereby an attacker chooses specific individuals or enterprises. They then tailor their messages based on characteristics, job positions, and contacts belonging to their victims to make their attack less conspicuous. Spear phishing requires much more effort on behalf of the perpetrator and may take weeks and months to pull off. They're much harder to detect and have better success rates if done skilfully.

Effectiveness of social engineering

- ❖ 98% of cyber-attacks rely on social engineering.
- ❖ 43% of the IT professionals said they had been targeted by social engineering schemes in the last year.
- ❖ New employees are the most susceptible to socially engineered attacks, with 60% of IT professionals citing recent hires as being at high risk.

- ❖ 21% of current or former employees use social engineering to gain a financial advantage, for revenge, out of curiosity or for fun.



In many attack scenarios, the success of social engineering relies heavily on the information gathered, such as personal information of the targets (victims), organization information, network information, social relation information. In a broad sense, every bit of information posted publicly or leaked in cyberspace or in reality might provide attackers the resource, so as to learn the environment, to discover targets, to find vulnerable human factors and cyber vulnerabilities, to formulate attack strategy, and to craft attack methods. This is also a feature of social engineering compared with classical computer attack. Thus, social engineering information represents any information that helps the attacker to conduct a social engineering attack. Social engineering information includes but is not limited to 1) person's name, 2) identity, 3) photograph, 4) habits and characteristics, 5) hobbies or interests, 6) job title, 7) job responsibility, 8) schedule, 9) routines, 10) organizational logo, 11) company partner, 12) interpersonal relations, 13) family information, 14) posts in social media, 15) (internal) phone numbers, 16) email information, 17) username, 18) network information, 19) computer name, 20) IP addresses, 21) server name, 22) application/software information, 23) version information, 24) hardware information, 25) location information. Majority of all the information mentioned above, can be obtained by human interaction, given that some information cannot be obtained easily, it is

possible to obtain it. This is the reason that social engineering is highly effective. It all boils down to human error.

Social engineering prevention

Social Engineering Tactics to Watch For

Knowing the red flags can help you avoid becoming a victim.



Your 'friend' sends you a strange message.



Your emotions are heightened.



The request is urgent.



The offer feels too good to be true.



You're receiving help you didn't ask for.



The sender can't prove their identity.

Social engineers manipulate human feelings, such as curiosity or fear, to carry out schemes and draw victims into their traps. Therefore, be wary whenever you feel alarmed by an email, attracted to an offer displayed on a website, or when you come across stray digital media lying about. Being alert can help you protect yourself against most social engineering attacks taking place in the digital realm.

Moreover, the following tips can help improve your vigilance in relation to social engineering hacks.

- ❖ Don't open emails and attachments from suspicious sources
- ❖ Use multifactor authentication
- ❖ Be wary of tempting offers
- ❖ Keep your antivirus/antimalware software up-to-date



Shalini R

5th SEM, CSE

THE MOTIVATION GUIDE FOR PROCRASTINATORS

How to get yourself to start getting things done!

FINDING YOURSELF PUTTING OFF TASKS? BUILD THESE SIMPLE TRICKS IN YOUR DAILY ROUTINE TO TICK OFF EVERY GOAL IN YOUR LIST!

FORCE YOURSELF TO START



If you want to start something, just start, don't wait for the right moment or for someone else to come along and do it for you. Put in the burst of activation energy, and everything else will just follow. Want to start studying? Want to blog? Just start!

"You can't plan for everything or you never get started in the first place." - Jim Butcher

THE 5 OR 10-MINUTE RULE

Finding yourself procrastinating over larger, daunting tasks?? Use the 5-minute or 10-minute rule! Tell yourself that you will do a particular task for only 5 or 10 minutes. No more, no less.

This builds up the momentum, & within no time you would have reached a level of not leaving the task half-done and eventually end up completing it

"A little action often spurs a lot of momentum" - Noah Scalin



TAKE BACK YOUR TIME



As Brian Tracy has said - Technology is a terrible master and is also a wonderful servant! It really depends on how we use it! All of us are easily distracted when the tasks are too hard or too boring! Or when we hit a road-block! For you to be capable of performing at your best, detach on a regular basis from technology, electronic gadgets, social media, and other time-killers!

"Time is really the only capital that any human has, and the only thing he can't afford to lose" - Albert Einstein

CREATE A SENSE OF URGENCY

Have you noticed that you've completed the tasks you've been putting off for a long-time, in just a few minutes or few hours? Didn't you feel terrific about yourself after the task was done? One of the best ways to get more things done is by working as though you have only one day to get your job done. Put pressure on yourself and slowly you will build the habit of rapid-task completion subconsciously. Don't wait for your exam schedule, to study! Assume your exam is tomorrow, and start now!

"It is easier to resist at the beginning than at the end." - Leonardo da Vinci



PROMISE YOURSELF A REWARD

Finished that topic you decided to study? Finished cleaning your room? Finished an assignment well in-time? Reward yourself with a treat such as a slice of cake, or a good coffee! Another way to motivate yourself is to schedule social media and game time as a reward for a job well-done. Do the task, earn the reward!

"The reward for work well done is the opportunity to do more" - Jonas Salk



YOU MAY DELAY, BUT TIME WILL NOT! - BENJAMIN FRANKLIN



Madhuri Dwarakanath

Technical Content Developer at Dell Technologies IncBE Batch – 2010 to 2014

MTech Batch – 2014 to 2016

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Procrastination becomes a vicious cycle: you become overwhelmed with what must be done and the lack of time left to do it, become increasingly stressed, and feel completely stuck and unable to move forward. Lack of motivation is part of procrastination. ... Motivation is what drives **you to achieve what needs to be done**.

"If you put off everything till you're sure of it, you'll never get anything done." – Norman Vincent Peale

WHY PEOPLE PROCRASTINATE?



THIS MONTH IN HISTORY

OCTOBER



Text Messaging Possible Factor in Fatal Train Wreck



ENIAC Computer Retired



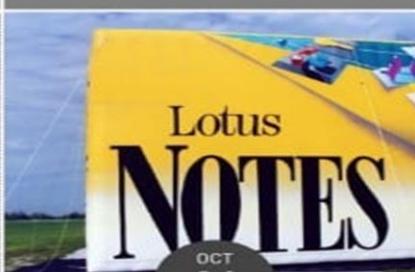
Transistor Inventors Receive Patent



Computer Pioneer Atanasoff Born



Supercomputer Pioneer Cray Dies in Auto Accident



Lotus Development Goes Public



The Computer Bowl Begins



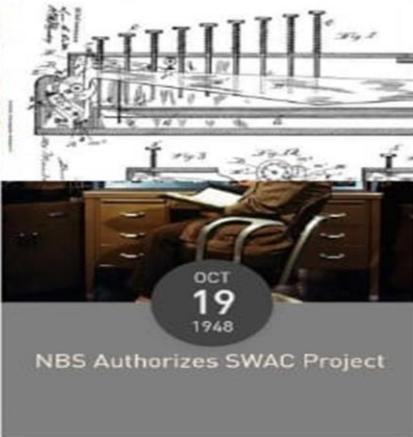
Special US Stamp Commemorates ENIAC



BINAC Computer to Be Built



Atanasoff Judged Official "Inventor" of Computer



NBS Authorizes SWAC Project



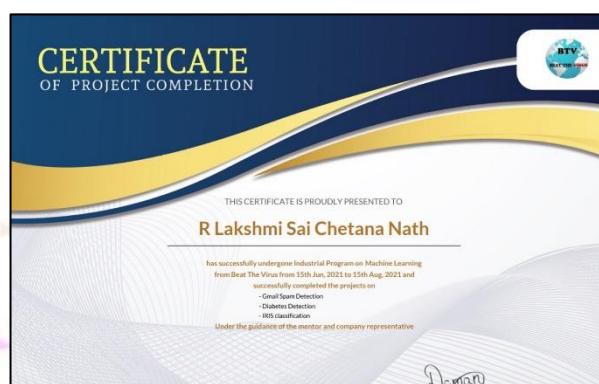
The First Ubuntu Linux Distribution Released

ACHIEVEMENTS

**Udanka Aarunjain, Surabhi G R, Karthik A N has successfully undergone Industrial Program on Data Science from Plot My Data from 15th Jun, 2021 to 15th Aug, 2021 and successfully completed the projects on
“DETECTION OF PARKINSON DISEASE,
PREDICTION OF MARKS, FAKE NEWS DETECTION USING DATA SCIENCE”**



**Chetana Nath has successfully undergone Industrial Program on Machine Learning from Beat The Virus from 15th Jun, 2021 to 15th Aug, 2021 and successfully completed the projects on
“GMAIL SPAM DETECTION DIABETES DETECTION IRIS CLASSIFICATION”**



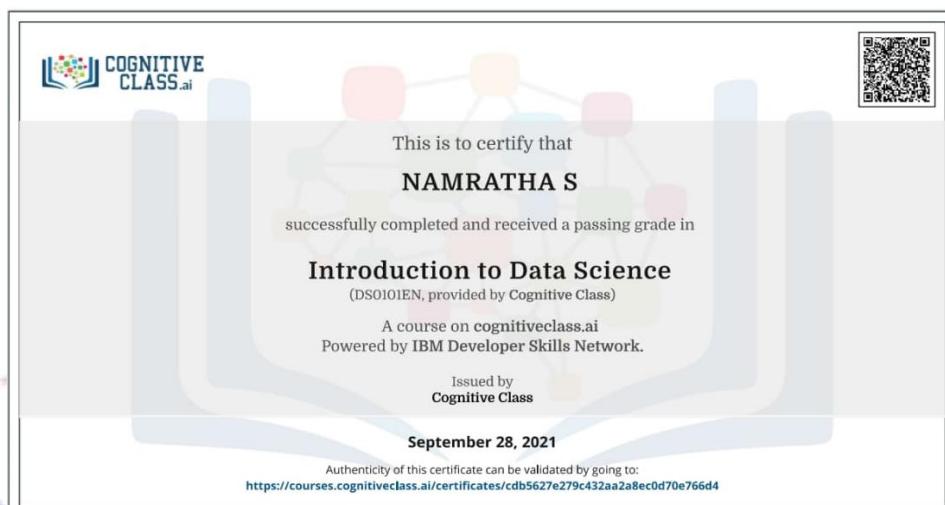
Aayusha Kumari, Astha presented the Project titled "MUSIC PLAYER" at the National level project competition INNOVATIONS-2021 held at CMR Institute of Technology, Bangalore on 8th Sept. 2021



Vivek Gautam, Pulkit Yadav, Namrata S Palaki, presented the Project titled "BODY MASS INDEX CALCULATOR" at the National level project competition INNOVATIONS-2021 held at CMR Institute of Technology, Bangalore on 8th Sept. 2021.



Namratha S have successfully completed and received a passing grade in INTRODUCTION TO DATA SCIENCE powered by IBM DEVELOPER SKILLS NETWORK issued by Cognitive Class on 28th September 2021





Congratulations

To 2021 batch for getting placed in
campus placement



Aditya Prasad
INFOSYS, Cognizant,



Anushree K. R.
**Verzeo, Brito IT services
pvt Ltd.**



Sridhar D. N.
Verzeo, Infosys



Sagar M
Verzeo



Sahana N
Verzeo



Monika R
BETSOL



Soundarya Raj G
INFOSYS



Mujtaba Nayaz
INFOSYS



Manoranjani
SKOLAR



Roopita K
Mind Tree

Technical Quiz (October)



Instructions:

- 1. Scan the QR code provided**
- 2. Provide the answers to the given field**
- 3. The names of the fastest 5 with correct answers will be featured in TECHSAMACHAR's next edition**



GOOD LUCK!!

Previous Issue's QUIZ answers (September):

1. (1). RFID
2. (3). Oracle
3. (2). NVIDIA
4. (1). Blogging
5. (2). Two
6. (1). Transport Layer
7. (2). Implementation
8. (4). Perl
9. (3). Bangalored
10. (2). Voice over Long-Term Evolution
11. (1). Thrashing
12. (3). Platform-based design
13. (2). Software/ hardware codesign
14. (4). Hardware / Software partitioning
15. (2). The Fixed-Point Programming Design Environment

**CONGRATULATIONS
To the Winners-September**



1st Sneha S
(3rd sem)



2nd Vishrutha V.
(5th sem)



3rd Dhanya Jogi
(3rd sem)



4th Afrid Pasha HP
(5th sem)



5th Namratha
(3rd sem)