

BEACON

WEEKLY NEWSLETTER FROM SAND-BOX



*A GATEWAY FOR YOUR
SUCCESS*



BEACON

The weekly newsletter of Sandbox Technologies

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Government jobs after graduation

Union Public Service Commission(UPSC):

The Union public service commission conducts some of the aspired examinations in India. The UPSC examinations are the gateway for participating directly in the bureaucratic system of the country. Most aspired government jobs for graduates provided by UPSC are here below.

S.no	Exam name	Post	Age limit	Salary
1	UPSC CSE	- secretary - Additional district magistrate - Joint secretary - Divisional commissioner - Principal secretary	21 - 32 years	Level 10 - 7th CPC Level 11 - 7th CPC Level 12 - 7th CPC Level 14 - 7th CPC Level 15 - 7th CPC
2	UPSC CDS	Lieutenant	24 years maximum	Level 10(Rs 56,100 to 1,77,500)
3	UPSC CAPF AC	Assistant commandants	20 -25 years	Basic pay 44,135/-
4	UPSC IES	Various engineering posts	21 - 30 years	Pay band 56,100/-

Staff Selection Commission(SSC):

This is the most popular exam for the fresh graduates in India. Staff Selection Commission (SSC) is an organization controlled by Government of India for the purpose of recruiting staff for various posts in various Ministries and reputed Departments of the Government of India and in their Subordinate Offices.

S.no	Exam name	Post	Age limit	Salary
1	SSC CGL	- Assistant Audit officer - Inspector of income tax - Inspector (Examiner) CBEC - Assistant section officer	30 years maximum 30 years maximum 18-30 years 18-30 years	Level 8(Rs 47,600 to 1,51,100) Level 7(Rs 44,900 to 1,42,400) Level 4(Rs 25,500 to 81,100) Level 7(Rs44,900 to 1,42,400)
2	SSC CPO	Sub inspector	20-25 years	Level 6 -7th CPC
3	SSC JE	Junior engineer	18-32 years	Pay band (Rs 35,400 to 1,12,400)

Railway Recruitment Board(RRB):

Indian Railways is a governmental entity under the ministry of Railways that operates India’s national railway system. Indian railways is one of the largest employers in the world. This recruits the graduates through below listed exams.

S.no	Exam name	Post	Age limit	Salary
1	RRB JE	• Junior Engineer • Junior Engineer(Information technology)	18 33 years	Level 6(Rs 35,400 to 1,12,400)
2	DMRC Recruitment	• General Manager • Section Engineer	55 years maximum 50 years maximum	Rs 37,400 to 67,000 Rs 47,500

Banking:

Banking jobs have always had the highest demand in the country. There are numerous exams that take place for the government bank jobs. IBPS, PO, NABARD have offered various posts every year.

S.no	Exam name	Post	Age limit	Salary /month
1	IBPS	Probationary officer	20 -30 years	Rs 23,700/-
2	NABARD Grade A	Assistant manager in grade A	21 -30 years	Rs 62,600/-
3	NABARD Grade B	manager in grade B	21 -35 years	Rs 35,150/-
4	NABARD development assistant	Development assistant	18 -35 years	Rs 14,650/-
5	SBI PO	Probationary officer	21 -30 years	Rs 27,620/-
6	IBPS Clerk	Clerk	20 -28 years	Rs 11,765 to 42,020

Defence Sector:

Every year lakhs of candidates aspire to appear in the Defence exams to fulfill their dream of working with Indian elite forces.

S.no	Exam name	Post	Age limit	Salary
1	AFCAT	• Flying duty	20-24 years	Rs 85,372/-
		• Ground duty(Technical)	20 -26 years	Rs 74,872/-
		• Ground duty(Technical)	20 -26 years	Rs 71,872/-
2	DRDO	Junior Research Fellows	18 -27 years	Rs 31,000/- to 54,000/-



Interview Experience

(of one among Sandbox Team)

Company - Cisco

Branch - ECE

The interview started with the usual question - Tell me about yourself. There were 2 panel members for the interview. They introduced themselves and asked me about my project work. I gave a briefing and they posed some technical questions regarding networking and asked about challenges I've faced during project. It lasted around 40min.

These were the questions asked:

1. Advantage of TCP/IP over OSI.
2. Protocols of OSI Model.
3. What is IP address? How do you find IP of your system?
4. Projects (what difficulties did u face and how did you overcome?)
5. Python: about lists Tuples, Dictionaries and where will you use them?
6. Implementation of Python program using Command line which is located at different path.
7. Basics of HTML5.



FAILURES BUILD THE FUTURE

A lot of people might be curious to know just what question landed Pichai that job. Well, funny enough it was about Gmail. In a talk at IIT Kharagpur in 2017, Sundar Pichai was asked about his interview with Google and he recounted how that went. He said, "I interviewed at Google on April 1 2004, which is April Fool's Day. Google had just announced Gmail and it was invited only at that time but people weren't exactly sure whether it was just an April Fool's joke."

Yes, people actually thought Gmail was an April Fools joke at that time and so did Pichai. He recalled how in his first three interviews, he was asked about what he thought about Gmail and he couldn't respond well since he had never used the product and thought it was a joke. In his fourth interview as well, the interviewer asked, "Have you seen Gmail?" and Pichai answered No.

Instead, the person (the interviewer) went on to show Gmail to him and explain what the product was. In his fifth interview when he was asked about Gmail again, Pichai answered confidently about what he thought of the product and how it could be improved and well, the rest in history. Well, that didn't eliminate him.



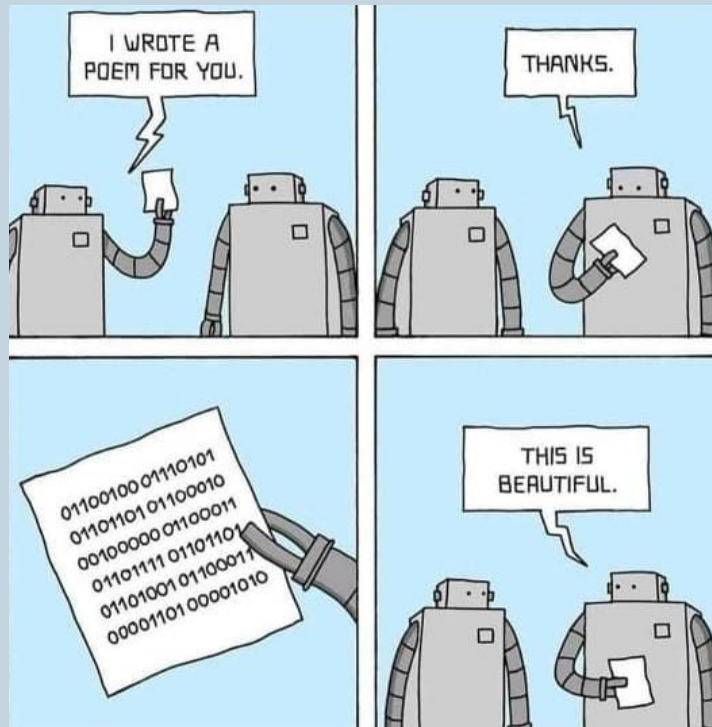
LESSONS FROM THIS STORY

- ❖ Interviewees should never try to fool the interviewers.
- ❖ Interviewees should learn to be honest and tell them "I DON'T KNOW" if they are not sure about anything which they ask them.
- ❖ If that interviewer from Google had rejected Sundar Pichai for not performing well on his first level of interview then Google would never have got such a brainy guy as its CEO. He (the interviewer) gave him chances not just for one or two times but for 4 times, it is only on his 5th round he cracked his interview. Whereas every HR professionals/interviewer should take this as a lesson and learn to acquire the talented employees for the organization where there lies the real growth of the organization. AND, THAT'S WHAT I CALL IT AS A REAL 'TALENT ACQUISITION PROCESS'.
- ❖ If we fail in an interview, we should never feel down, rather we should take it as a learning experience, so we can do better in the next! Those things don't decide our future

REMEMBER, JACK MA, THE CHAIRMAN OF THE ALIBABA GROUP HAS FACED THE MAXIMUM NUMBER OF FAILURES IN HIS LIFE THAN US



JOKE OF THE WEEK



BRAIN TEASER

You have 1,000 bottles of juice. One contains poison and tastes bitter. How do you find the poisoned bottle using the smallest number of sips?



Answer at the end of the newsletter

THE IRREGULAR SUDOKU

Place a digit from 1 to 9 into each of the empty squares so that each digit appears exactly once in each of the rows, columns and the irregularly shaped regions.

	9		4		1		5	
6								4
		7		9		2		
9								1
		6				7		
8								5
		2		1		4		
7								6
	8		1		9		6	

TRY OUT THIS AND WE WILL PUBLISH THE SOLUTION IN NEXT WEEK EDITION

LATEST TECHNOLOGIES

HYBRID DATABASE

What is hybrid database?

what is relational database? In relational database data exist in the form of relations (set tables)

what is No Sql database?? A NoSQL database does not make use of tables for the storage of data. In No sql data stored in the form of video, audio, text files, email etc. this database used for complex and distributed systems.

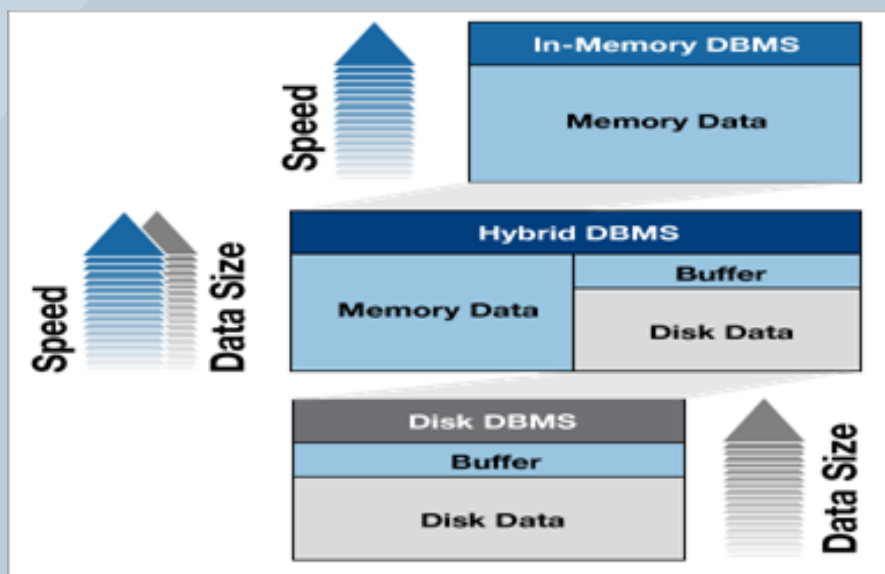
Simply, A Hybrid Database is the combination of both

Relational and NoSQL databases. A Hybrid Database enjoys the benefits of both Relational and NoSQL databases and eliminates their limitations.

The Hybrid Database uses the physical disk for storing and retrieving data, and it is uses memory to boost the performance.

How It Works?

First the developer join both the database models in-memory and on-disk in a single DB instance. The underlying working of the hybrid databases is based upon the HTAP (Hybrid Transactional and Analytical Processing) functionality. For data storage, both the medium-types in-memory and on-disk are available inside a single application. This permits customers to manage trade-offs between latency, cost, and storage preservation options. For customers and applications, the variance in operation crosswise storage types will be negligible, as data manipulation will be consistent across all tables, however, cost savings can be significant.



The Hybrid Database optimizes the transactional and analytical queries by supporting both Row-based (for transactional queries) and Column-based storage (for analytical queries) with a single DB instance. All the data is kept in a manner that optimizes the current operation.



Some Hybrid databases Available in Industry:

1. Alti hybrid database (first commercial hybrid database)

In 2005 AltiBase is the first company to develop a first commercial hybrid database. It handles thousands of transactions per second and the response time is in microseconds. We can switch from Oracle to AltiBase and AltiBase is open source.

2. DataStax hybrid cloud database:

It is developed on Apache Cassandra. This is created for hybrid cloud. It provides a single platform for all kinds of applications anywhere, on any cloud.

3. LeanXcale:

It is easy to work with a database designed for transactional and analytical workloads. This ACID-compliant database allows quick insertion and aggregation over real-time data. With LeanXcale, you can execute operations and analytics within the same database manager at any scale.

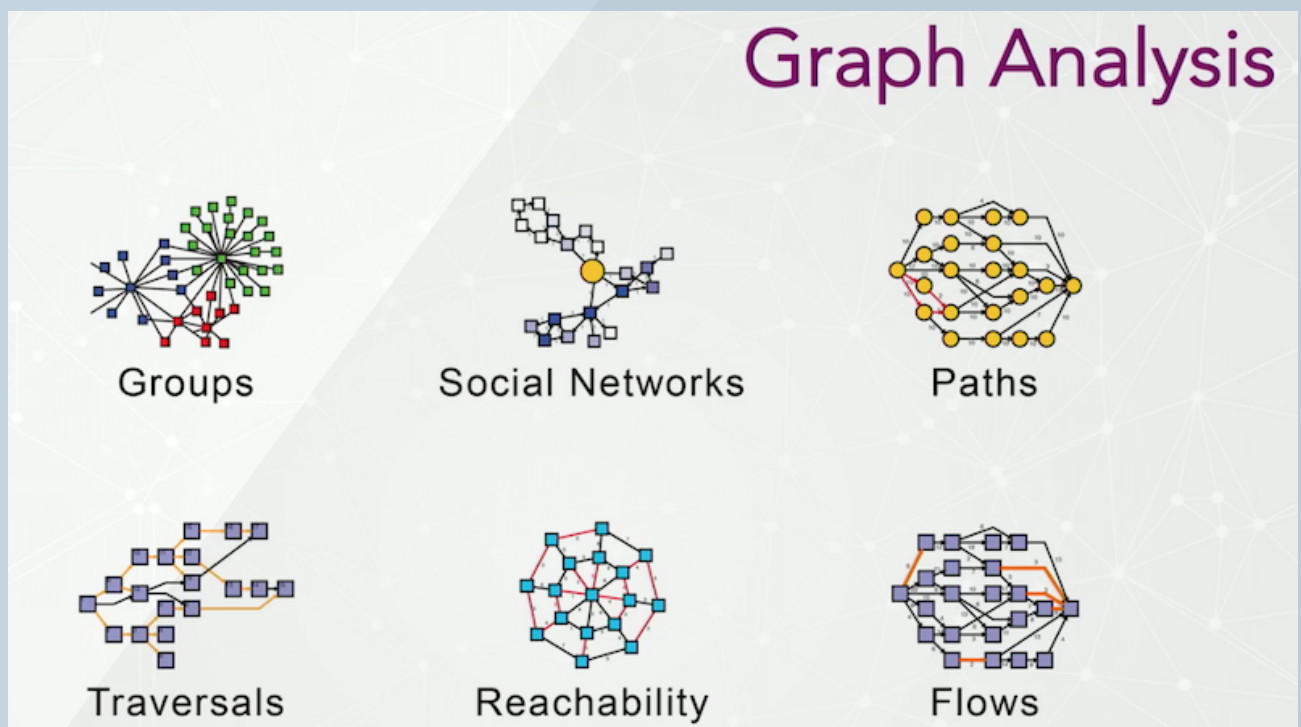


FUTURE OF DATA VISUALISATION

Data visualization has evolved dramatically over the last decade. It is no longer simply a case of analysts putting up a few bars charts, rather we are seeing data presented through highly-engaging, often interactive designs that are far better for convincing decision makers of the validity of discoveries you have made from data. They draw an impactful response from users, taking them on a journey that enables them to understand the insights being presented or discover insights for themselves. A recent Business2community survey of data professionals found that the data science skill with the highest correlation to project success was data mining and visualization tools, and this is translating into investment. In Progress's recent 2017 Data Connectivity Outlook Survey, 59% said they are using data visualization, and this number is sure to rise in the coming years. There are three big changes, we will see in the next five years:

- 1) disruptive tools with serious differentiations,
- 2) application in new industry verticals, and
- 3) cross-pollination of people from different backgrounds entering this field

This trend will continue to expand to more traditional industries and smaller companies. The next step will be having the correct visualizations available on demand, too, to be used and reused in multiple channels and media of communication.



WITH THE MASSIVE INCREASE IN VOLUME AND VARIETY OF DATA, DATA VISUALIZATION TECHNOLOGY IS EVOLVING AT A RAPID RATE TO COPE WITH THE EVOLVING BUSINESS REQUIREMENTS. THIS ARTICLE OUTLINES SOME OF THE TRENDS ON HOW DATA VISUALIZATION IS EVOLVING INTO THE NEAR FUTURE.

PROJECT WORK

(BY PAVAN.E)

SERVER SIDE APPLICATION FOR A ORGANISATION WITH CLUSTER OF STORES

INTRO :

Have you ever wondered what will happen in the background ,if you like a post in facebook or comment for a reel on Instagram or when you check your city's weather . All these are possible only through the help of rest api's .

So what else is rest Apis doing ? Let's say you're trying to find videos about Batman on Youtube. You open up Youtube, type "Batman" into a search field, hit enter, and you see a list of videos about Batman. A REST API is behind the scenes. You search for something, and you get a list of results back from the service you're requesting from.

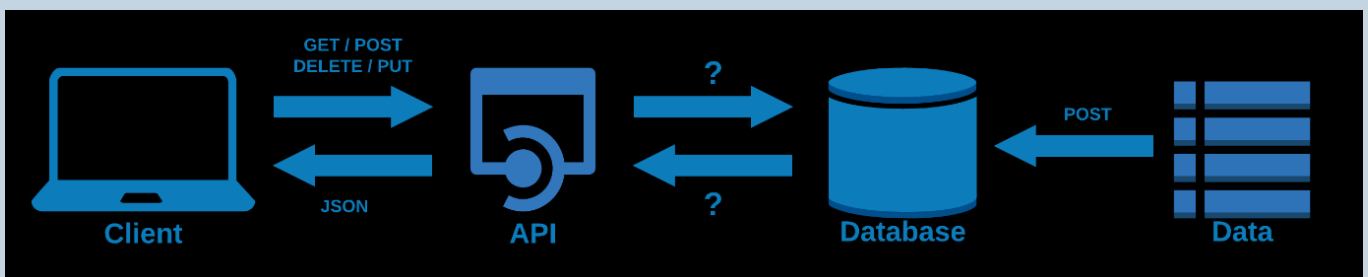
Brief about API's and REST API's :

An API is an application programming interface. It is a set of rules that allow programs to talk to each other. The developer creates the API on the server and allows the client to talk to it.

REST determines how the API looks like. It stands for "Representational State Transfer". It is a set of rules that developers follow when they create their API. One of these rules states that you should be able to get a piece of data (called a resource) when you link to a specific URL.

Each URL is called a request while the data sent back to you is called a response.

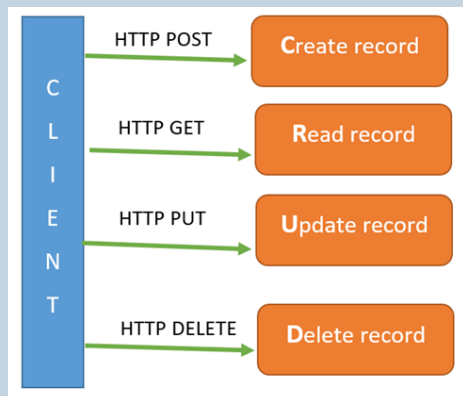
THIS IS THE STANDARD WORKING OF REST APIS :



Client is the end user , client sends a rest call or api call and then it reaches to the data base server and it does the required operations and takes data if required from database and sends back the requested data back to the client or the end user .

Any thing that is accessible on the internet is the result of rest api's. So if you are familier with python you can build rest api's in flask or Django. You can build in javascript and many other. Do you believe that the entire facebook or google works primarily on the 4 standard rest procedures.

CRUD:



Still shocking right , but its true not just fb or google , all the companies primarily use these 4 rest operations for their applications .

So how about an example ?

I have created a set of rest api's for a imaginary cluster of stores and their customers . The primary language that I have used is python . And these are built with Flask . Secure user authentication is developed using flask-jwt-extended . the databases and the management systems used are SQLite , SQLAlchemy and Postgree sql .

Libraries used :

```
>flask
>flask_sql_alchemy
>flask_jwt_extended
>flask_restful
>sqlite
>uwsgi
>psycopg2
>werkzeug.security
```

OPERATIONS POSSIBLE: FEW OF THEM ARE : -CREATE -READ -UPDATE -DELETE -LOGIN -LOGOUT -REVOKE ACCESS -REGISTER -BLACKLISTING USERS

BETTER TO USE AND TEST WITH POSTMAN DEVELOPMENT ENVIRONMENT

GITHUB LINK FOR THE EXAMPLE :

[HTTPS://GITHUB.COM/PAVAN-ELISETTY/STORES-FLASK-JWT-EXTENDED-RESTAPI](https://github.com/pavan-elisetty/stores-flask-jwt-extended-restapi)

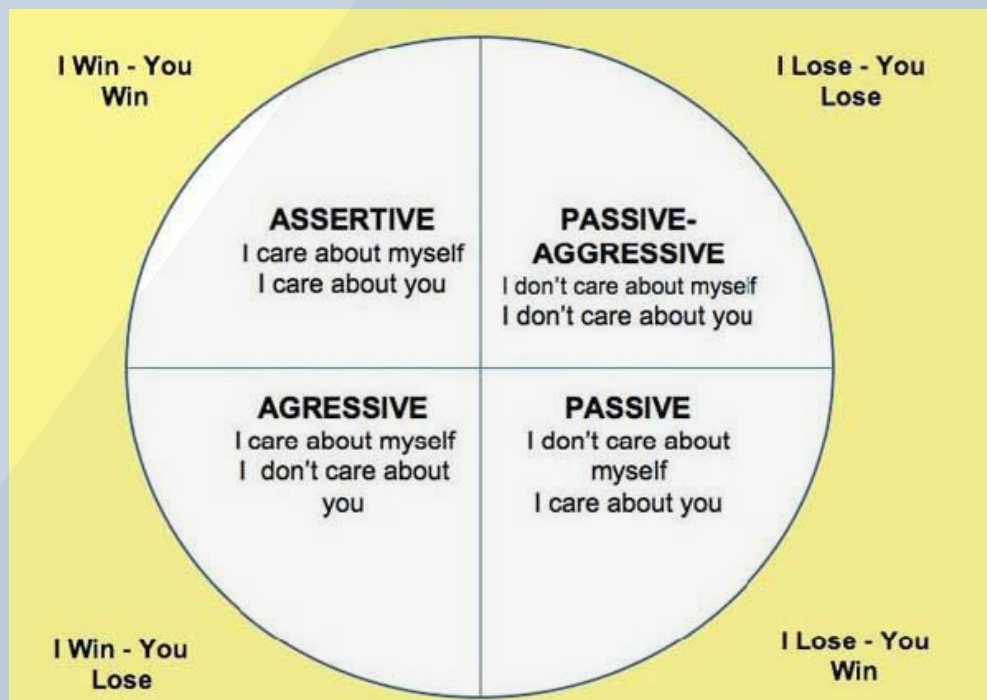
Assertive Communication

Assertiveness is communicating and expressing your thoughts, feelings, and opinions in a way that makes your views and needs clearly understood by others, without putting down their thoughts, feelings, or opinions.

Communicating in an assertive manner can help you to:

- >Minimise conflict
- >Control anger
- >Have your needs better met
- >Have more positive relationships with friends, family and others.

Expressing your point of view in a way that is clear and direct, while still respecting others.



Here are some tips for practicing being assertive:

- >State your point of view or request clearly.
- >Tell the other person how you feel as honestly as you can, and remember to listen to what they say as well.
- >Think about the tone and volume of your voice – how you say it is as important as what you say. Speak at a normal conversation volume, rather than a shout or whisper, and make sure that you sound firm but not aggressive.
- >Make sure your body language matches – your listener will get mixed messages if you are speaking firmly while looking at the floor. Try to look the other person in the eye, stand tall, and relax your face.
- >Try to avoid exaggerating with words like always and never. For example “You are 20 minutes late, and it is the third time this week” rather than “You are always late!”.
- >Try to speak with facts rather than judgements. For example, “This report has important information missing” rather than “You have done a bad job again”.
- >Use ‘I statements’ as much as possible, to tell the other person how you feel, rather than be accusing. For example, “When you leave your dishes on the table, I feel frustrated because I don’t like the mess but don’t want to clean it up for you” rather than “You’re such a pig!”.
- >Practice often – assertiveness is a skill which requires you to practice in many different situations. Don’t forget to praise yourself for your good efforts.



SANDBOX EVENTS

FedEx Day

Sand-box Technologies organized FedEx day with the theme of "The Story & Science of Data". FedEx Day is a 24-hour event in which students deliver innovation. It is called FedEx Day, because you have to deliver overnight, like the parcel delivery company. Only one rule applies: People who sign up show the results to the company at the end of the FedEx Day. A full day data science bootcamp which we made it as a hands-on project implementation session by Ms. Papri, Sand-box training facilitator, who is 12+ years experienced in this domain. Students were given 12 hour window for task implementation that is from 12:00PM Sunday 29.Nov.2020 till 11:59 PM by which the task given to students was to be completed and submitted within this task implementation window. Monday 30.Nov.2020, Sand-box team evaluated the assignments to see the best assignments. Participation certificates were received by all the participants but the Top 5 students with the best solution were rewarded with Project Completion certificate.

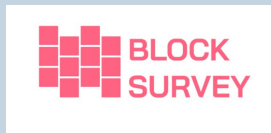


The graphic features a background image of a person's hands typing on a laptop. Overlaid on the image is a white box containing the text "Sand-Box FedEx Day". In the top left corner of the graphic is a QR code, and in the top right corner is the "sand-box" logo. At the bottom right of the graphic, it says "For more details please visit <http://sand-boxtech.com>".

**29.NOV.2020
DELIVER ON SAME
DAY!**

THE STORY & SCIENCE OF DATA
BY PAPRI, SAND-BOX TRAINING
FACILITATOR
12+ YEARS EXPERIENCE IN DATA SCIENCE & DATA
ENGINEERING DOMAINS

- Free - One day hands on boot camp on Data science
- LIVE Project implementation by industry experts
- Task to be submitted within the given 12 hour window to receive certificate of task completion
- Suitable for students who have programming knowledge of Python and understanding of Data science



BLOCK SURVEY

The data collected online isn't secure in today's platforms. Breaches, leaks and data mining are proof that we don't have ownership of our data. All the valuable, sensitive data tossed out to everyone and everyone to be exploited and misused. Data breaches have been consistent and seem unstoppable which lead to a steady decrease in the public's confidence and trust in surveys, polls, or information sharing online.

A survey conducted by the famous Harris Poll (2017) stated that "Privacy" is the #1 priority for Americans, with 82% choosing technologies that protect their privacy. This begs the question, are the new survey tools secure enough? Unfortunately, they're not. Data confidentiality is believed to be a human right in today's digital era.

To tackle such spine-chilling problem, here is a tool called Block Survey, for data collectors that guarantees end-to-end encryption to your responses, that only you can access. Your data is yours, you own it. For data providers, to guarantee that when you share your answers online, you're not sharing your identity too. Your data is yours, you own it. It is a private and secure forms & survey platform to collect data with guaranteed end-to-end encryption and privacy. Using Blockchain technologies from Blockstack is a methodology for implementing private, secure, and anonymous surveys.

Working:

BlockSurvey UI can be downloaded from the webserver and is run on the client. There are no trackers, no cookies, and no fingerprints. Resetting of passwords, requesting owner to delete the accounts is also not possible. What data is being collected or where it is collected from, any such info cannot be revealed.

It uses Stacks Blockchain for Decentralized Identity/Account(DID). It uses Stacks API for identity, authentication and storage management. This is the core working system that enables true ownership of the identity and data for you. You get a unique identity and private storage(GAIA). You have your keys for your identity and storage. You own it, and only you can access it. One can create surveys and forms from scratch or use templates to get started. By default, all your surveys and forms are encrypted and stored privately in your storage. surveys and forms are accessible by URL to the public only when they are published. People having access to your URL alone can see the questionnaire.

Today, one can distribute them in many ways using BlockSurvey. Like Web URL, QR Code, Widgets. etc., you can also use your own domain to share for branding. These respondents or data providers can remain anonymous by default unless they choose to disclose their identity in the form voluntarily by filling it.

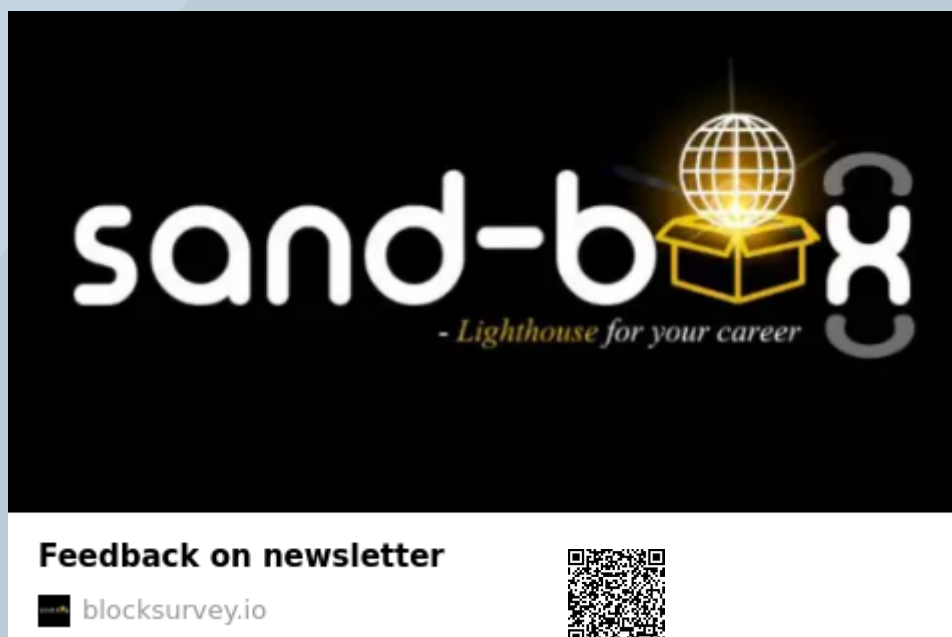
Note that one should never share personally identifiable information with unknown data collectors at any time. Take caution. Data submitted by the respondents or data provider is encrypted using your public key and sent to BlockSurvey's temporary data store to collect when you return online. All the data stored in BlockSurvey is encrypted using your keys. BlockSurvey has zero knowledge of your data and cannot understand any of it. Only your key can unlock it to see it. Once you will collect your data from BlockSurvey and store it in your private storage(GAIA), using your private key, you'll be able to decrypt the data and see in the form of results and analytics.

In a nutshell, this is like keeping the keys of your house safely with yourselves. The only responsible person will be you.

YOUR FEEDBACK MATTERS A LOT FOR US



THANKS FOR READING OUR NEWSLETTER AND
PLEASE FILL THE FEEDBACK FORM USING THE
BELOW LINK



<https://shrl.ink/RHTS>

ANSWER TO RIDDLE
YOU WILL NEED TO MAKE A MAXIMUM OF 10 SIPS. TAKE ONE DROP FROM 500 OF THE BOTTLES, AND TAKE A SIP. IF IT TASTES BITTER, IT'S IN ONE OF THOSE 500 BOTTLES. THEN DO THE SAME FOR 250 BOTTLES, THEN 125 BOTTLES, AND SO ON AND SO FORTH, UNTIL YOU FIND THE EXACT BOTTLE THAT'S THE POISON.