IJARCCE ISSN (O) 2278-1021, ISSN (P) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

ISO 3297:2007 Certified ⁜ Impact Factor 7.39 ⁜ Vol. 11, Issue 6, June 2022

DOI: 10.17148/IJARCCE.2022.116107

A Secure Blockchain-based Data Trading Ecosystem

MEENAKSHI BHRUGUBAND[1], KANURI KRISHNA CHAITANYA[2]

[1]Assistant professor Dept of Information Technology, MGIT, Hyderabad,500075, India

[2]UG Student, Dept of Information Technology, MGIT, Hyderabad, 500075, India

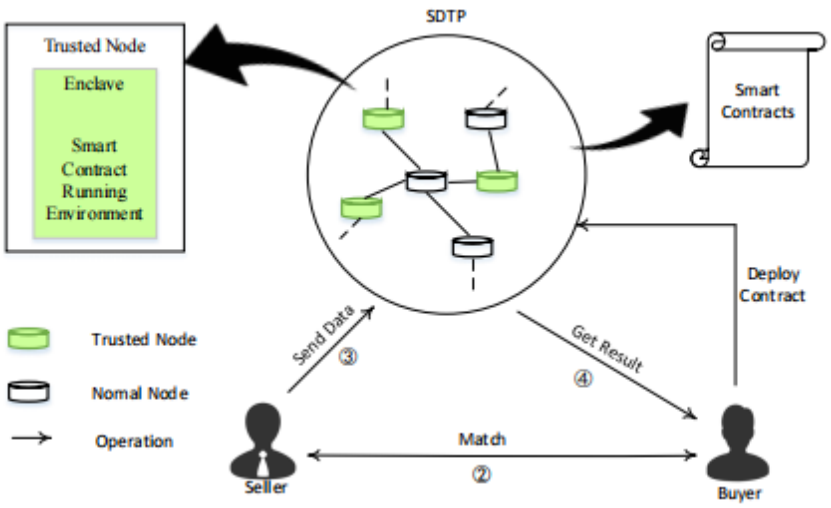
Abstract: With the rising usage of room related information, the interest for spatial enormous information sharing and exchanging is developing quickly, which advances the rise of spatial information market. Notwithstanding, in customary information markets, the two information purchasers and information dealers need to utilize a concentrated exchanging stage which may be deceptive. Blockchain is a decentralized dispersed information capacity innovation, which utilizes the detectability and unforgeability to affirm and record every exchange, can tackle the inconveniences of the unified information market, in any case, it likewise presents the issues of safety and security. To address this issue,in this paper,we propose a blockchain-based spatial information exchanging structure with Trusted Execution Environment to give a believed decentralized stage, including information stockpiling, information question, information estimating and security processing. In view of this structure, a spatial information exchanging show framework was carried out and its plausibility and security were checked.

Keywords: blockchain, trading, ecosystem

I. INTRODUCTION

Information, a vital resource in our information driven economy, has powered the rise of another information exchanging industry. Nonetheless, there are various restrictions in regular information exchanging stages because of the presence of exploitative purchaser/information merchant. To relieve these constraints, we place the significance of an information handling as-a-administration model, which supplements customary information facilitating/trade as-aservice model. In particular, in this paper, we present a solid information exchanging environment and present a new blockchain-based information exchanging biological system . In the biological system, the two information specialist and purchaser can't get admittance to the merchant's crude information, as they are just gaining admittance to the examination discoveries that they require. All in all, we decrease the test of getting the dataset to the test to get the information handling. We likewise fabricate a security model to break down the information exchanging market, and portray another arrangement of exchanging conventions for the whole information exchanging market. To exhibit utility, we carry out our proposed secure information exchanging stage (SDTP) on Ethereum and Intels Software Guard Extensions (SGX) and play out an inside and out examination.

SYSTEM DESIGN



 This work is licensed under a Creative Commons Attribution 4.0 International License

IJARCCE ISSN (O) 2278-1021, ISSN (P) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

ISO 3297:2007 Certified ⁜ Impact Factor 7.39 ⁜ Vol. 11, Issue 6, June 2022

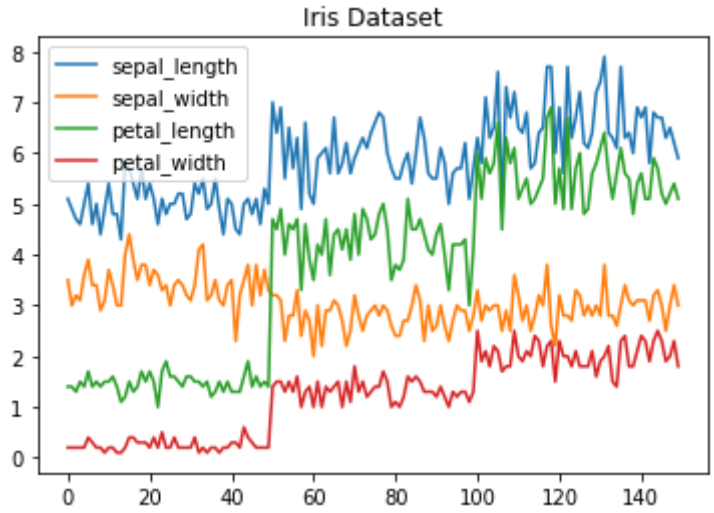
DOI: 10.17148/IJARCCE.2022.116107

PROPOSING SYSTEM:

Subsequently, we present another information exchanging biological system to supplement the current exchanging environment. All in all, we move from information facilitating/trade as-a-administration to information handling as-a-administration, where the purchaser is paying for the examination of the dealer's dataset. Hence, the test of getting the dataset is currently diminished to the test in getting the information handling. In particular, we fabricate an Intels Software Guard Extensions (SGX)- based secure execution climate to safeguard the information handling, the source information and the examination results. We likewise develop a protected information exchanging environment (SDTE), utilizing block chain to forestall single-point disappointment. The utilization of block bind likewise permits us to guarantee that each exchange in SDTE is straightforward, and works with the location of any change of the value-based data.

1) Line Chart

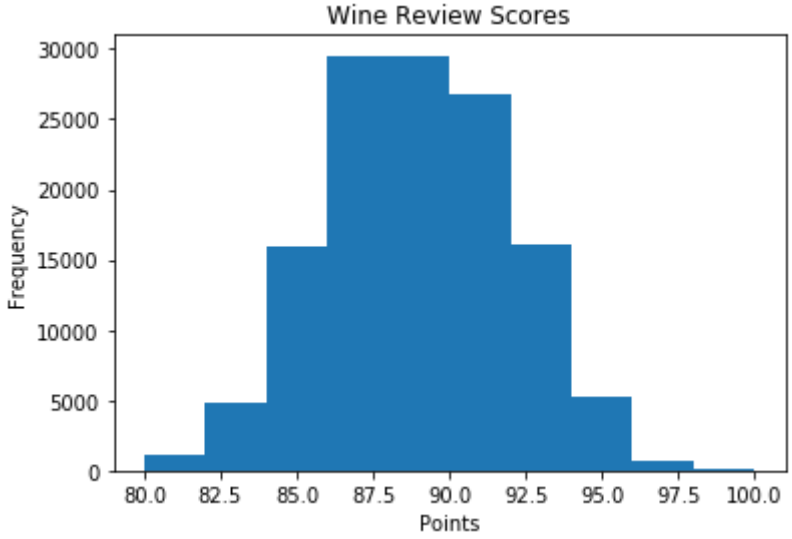
In Matplotlib we can create a line chart by calling the plot method. We can also plot multiple columns in one graph, by looping through the columns we want, and plotting each column on the same axis.



Line Chart

Histogram

In Matplotlib we can create a Histogram using the hist method. If we pass it categorical data like the points column from the wine-review dataset it will automatically calculate how often each class occurs.



Histogram

IJARCCE ISSN (O) 2278-1021, ISSN (P) 2319-5940

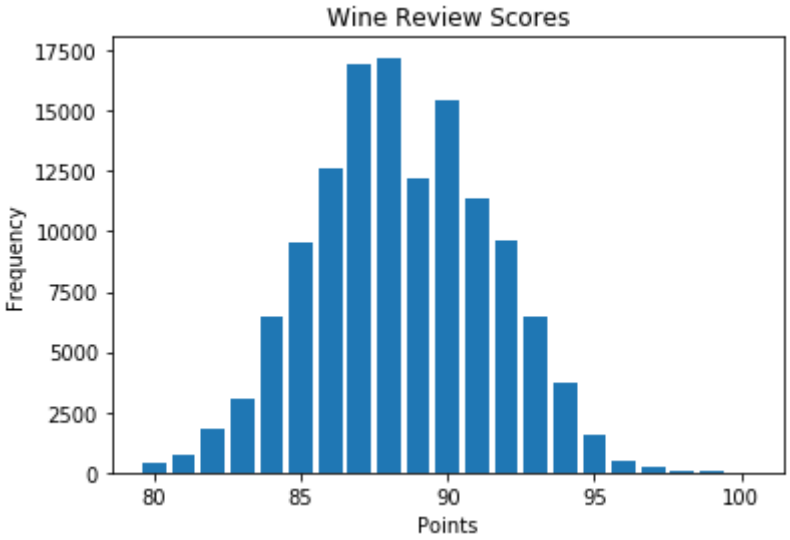
International Journal of Advanced Research in Computer and Communication Engineering

ISO 3297:2007 Certified ⁜ Impact Factor 7.39 ⁜ Vol. 11, Issue 6, June 2022

DOI: 10.17148/IJARCCE.2022.116107

Bar Chart

A bar-chart can be created using the bar method. The bar-chart isn't automatically calculating the frequency of a category so we are going to use pandas value_counts function to do this. The bar-chart is useful for categorical data that doesn't have a lot of different categories (less than 30) because else it can get quite messy.



Bar-Chart

Pandas Visualization

Pandas is a open source high-performance, easy-to-use library providing data structures, such as dataframes, and data analysis tools like the visualization tools we will use in this article.

Pandas Visualization makes it really easy to create plots out of a pandas dataframe and series. It also has a higher level API than Matplotlib and therefore we need less code for the same results.

1. **Pandas can be installed using either pip or conda.**
2. **pip install pandas**
3. **conda install pandas**

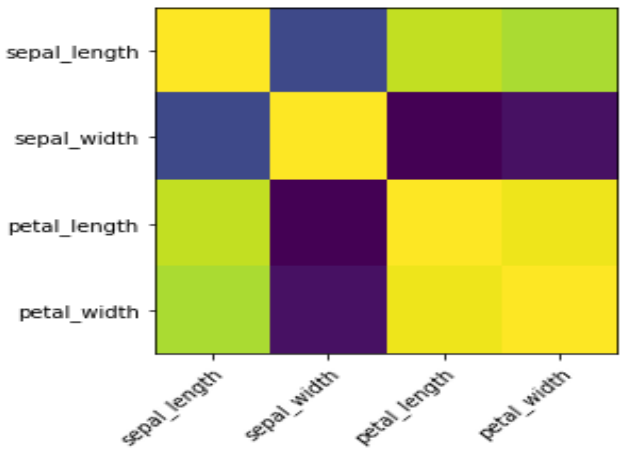
Heatmap

A Heatmap is a graphical representation of data where the individual values contained in a matrix are represented as colors. Heatmaps are perfect for exploring the correlation of features in a dataset.

To get the correlation of the features inside a dataset we can call <dataset>.corr() , which is a Pandas dataframe method. This will give use the correlation matrix.

We can now use either Matplotlib or Seaborn to create the heatmap.

Matplotlib:



Heatmap without annotations

IJARCCE ISSN (O) 2278-1021, ISSN (P) 2319-5940

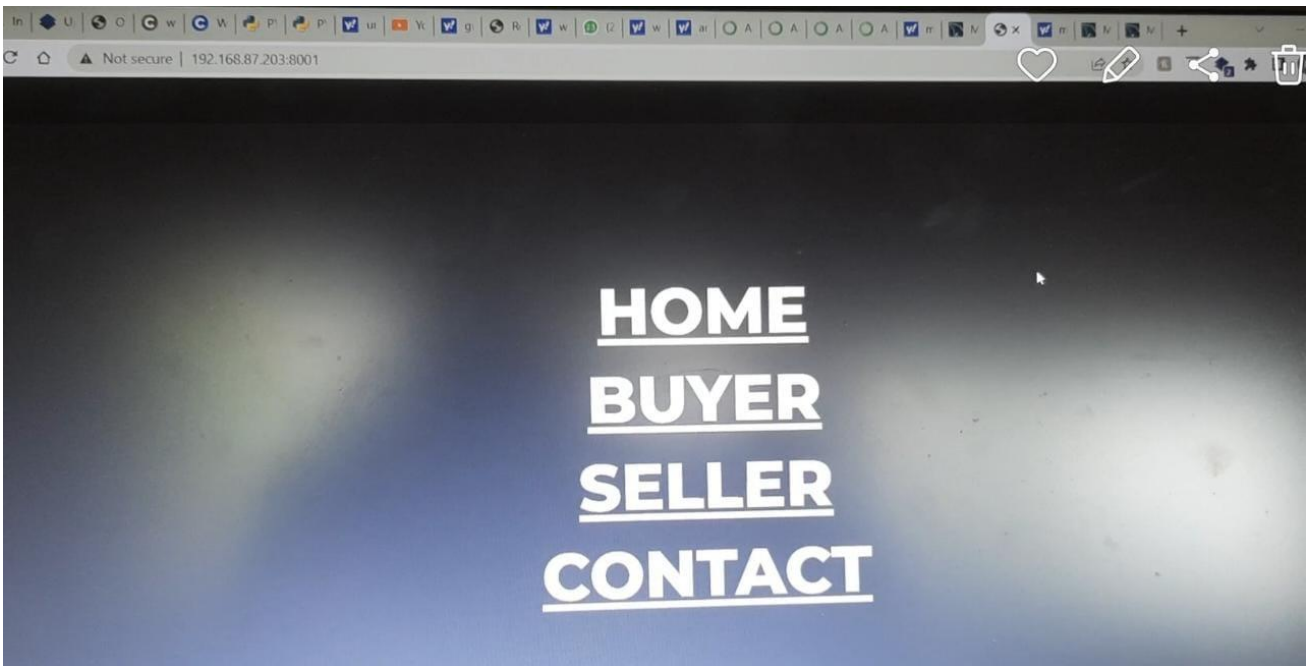
International Journal of Advanced Research in Computer and Communication Engineering

ISO 3297:2007 Certified ⁜ Impact Factor 7.39 ⁜ Vol. 11, Issue 6, June 2022

DOI: 10.17148/IJARCCE.2022.116107

Data visualization is the discipline of trying to understand data by placing it in a visual context, so that patterns, trends and correlations that might not otherwise be detected can be exposed.
Python offers multiple great graphing libraries that come packed with lots of different features. In this article we looked at Matplotlib, Pandas visualization and Seaborn.

OUTPUT

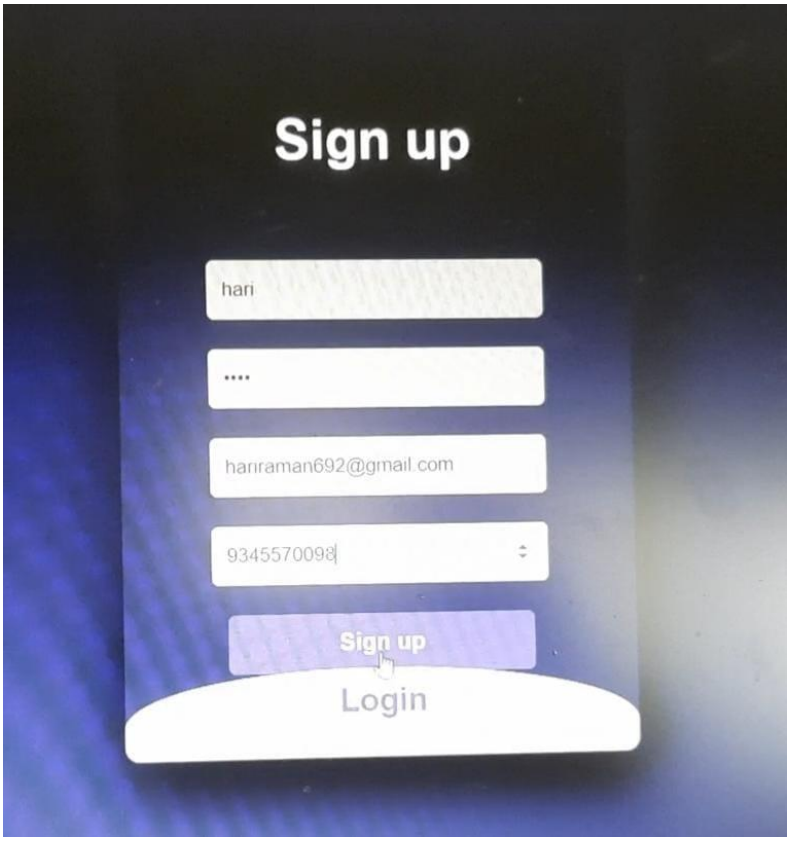


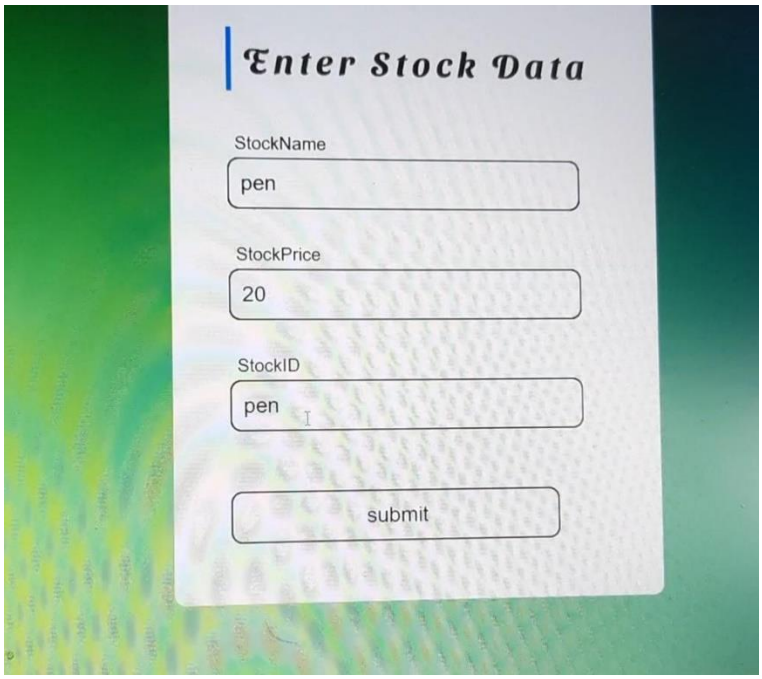
IJARCCE ISSN (O) 2278-1021, ISSN (P) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

ISO 3297:2007 Certified ⁜ Impact Factor 7.39 ⁜ Vol. 11, Issue 6, June 2022

DOI: 10.17148/IJARCCE.2022.116107





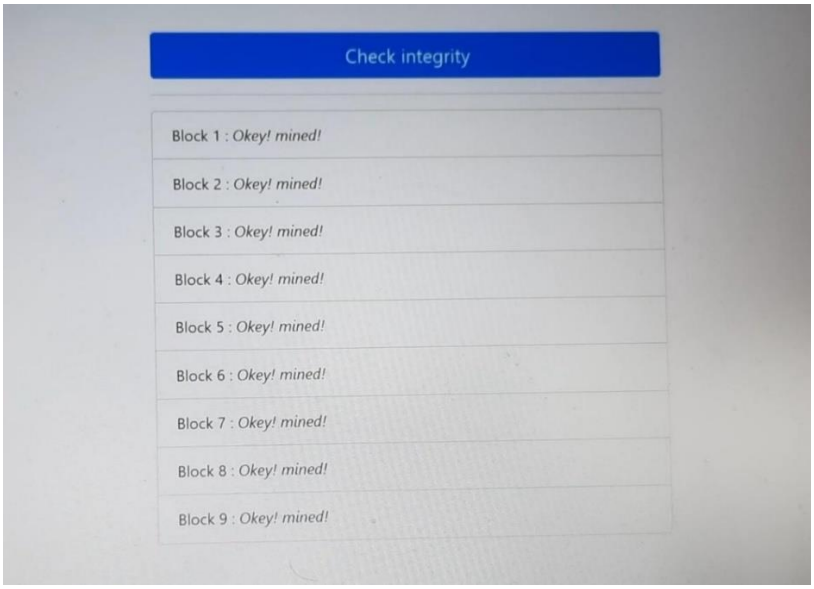
© IJARCCE This work is licensed under a Creative Commons Attribution 4.0 International License

IJARCCE ISSN (O) 2278-1021, ISSN (P) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

ISO 3297:2007 Certified ⁜ Impact Factor 7.39 ⁜ Vol. 11, Issue 6, June 2022

DOI: 10.17148/IJARCCE.2022.116107



CONCLUSION

We introduced SDTE, a blockchain-based biological system to supplement and relieve constraints in existing information exchanging market. In particular, we presented a change in outlook where a purchaser gets the consequence of the information examination as opposed to the real dataset. We utilized blockchain to permit the following of unapproved value-based changes. We likewise constructed a SGX-based secure agreement execution climate to safeguard the source information and the investigation result. We exhibited the security of SDTE, including the capacity to endure assaults led by plotting inconsistent gatherings. SDTP was carried out in view of Ethereum and SGX, and its presentation assessed. At present, SDTP is carried out utilizing SGX SDK and C++ client, yet Go client is additionally well known with Ethereum clients. Subsequently, future exploration remembers having an execution for Go client and stretching out the help to different conditions (e.g., LLVM and JVM) to take special care of a more extensive scope of uses. Additionally as recently talked about, future work will incorporate source information following in the area to additional improve the security of merchant's crude information.

REFERENCES

[1] Y. Sun, H. Song, A. J. Jara, and R. Bie, "Internet of things and big data analytics for smart and connected communities," IEEE Access, vol. 4, pp. 766–773, 2016.
[2] X. Chen and X. Lin, "Big data deep learning: Challenges and perspectives," IEEE Access, vol. 2, pp. 514–525, 2014.
[3] M. Mohammadi, A. I. Al-Fuqaha, S. Sorour, and M. Guizani, "Deep learning for iot big data and streaming analytics: A survey," arXiv preprint arXiv:1712.04301, 2017.
[4] J. Manyika, M. Chui, B. Brown, J. Bughin, R. Dobbs, C. Roxburgh, and A. H. Byers, "Big data: The next frontier for innovation, competition, and productivity," https://www.mckinsey.com/business-functions/digital-mckin sey/our-insights/big-data-the-next-frontier-for-innovation, 2011.
[5] A. McAfee, E. Brynjolfsson, T. H. Davenport, D. Patil, and D. Barton, "Big data: the management revolution," Harvard business review, vol. 90, no. 10, pp. 60–68, 2012.
[6]E. Dumbill, "Data markets compared-a look at data market offerings from four providers." http://radar.oreilly.com/2012/03/data-markets-survey.html, 2012.
[7] F. Liang, W. Yu, D. An, Q. Yang, X. Fu, and W. Zhao, "A survey on big data market: Pricing, trading and protection," IEEE Access, vol. 6, no. 1, pp. 15 132–15 154, 2018.
[8] C. Zuo, J. Shao, J. K. Liu, G. Wei, and Y. Ling, "Fine-grained twofactor protection mechanism for data sharing in cloud storage," IEEE Trans. Information Forensics and Security, vol. 13, pp. 186–196, 2018.
[9] M. Felici, T. Koulouris, and S. Pearson, "Accountability for data governance in cloud ecosystems," in Proceedings of the 2013 IEEE 5th International Conference on Cloud Computing Technology and Science (CloudCom). Los Alamitos, CA, USA: IEEE Computer Society, 2013, pp. 327–332.
[10] T. Jung, X. Li, W. Huang, J. Qian, L. Chen, J. Han, J. Hou, and C. Su, "Accounttrade: Accountable protocols for big data trading against dishonest consumers," in Proceedings of the IEEE INFOCOM 2017 - IEEE Conference on Computer Communications (INFOCOM). Piscataway, NJ, USA: IEEE, 2017, pp. 1–9.