بسم الله الرحمن الرحيم

IBM

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Introduction:

Discover why blockchain is such a disruptive force across business, government and society. Blockchain technology sparked the creation of Bitcoin, a decentralized digital payment system, as well as other popular cryptocurrency systems. Today industry leaders and experts are picturing radical new ways of using blockchain technology to form connections in the global economy. In this course, you will learn how to design smart contracts, bitcoin wallets, fabricode, chain SDKs, and more.

Advantages of IBM:

1. **Enhanced security**
   Your data is sensitive and crucial, and blockchain can significantly change how your critical information is viewed. By creating a record that can't be altered and is encrypted end-to-end, blockchain helps prevent fraud and unauthorized activity. Privacy issues can also be addressed on blockchain by anonymizing personal data and using permissions to prevent access. Information is stored across a network of computers rather than a single server, making it difficult for hackers to view data.

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2. **Greater transparency**
   Without blockchain, each organization has to keep a separate database. Because blockchain uses a distributed ledger, transactions and data are recorded identically in multiple locations. All network participants with permissioned access see the same information at the same time, providing full transparency. All transactions are immutability recorded, and are time- and date-stamped. This enables members to view the entire history of a transaction and virtually eliminates any opportunity for fraud.

3. **Instant traceability**
   Blockchain creates an audit trail that documents the provenance of an asset at every step on its journey. In industries where consumers are concerned about environmental or human rights issues surrounding a product — or an industry troubled by counterfeiting and fraud — this helps provide the proof. With blockchain, it is possible to share data about provenance directly with customers. Traceability data can also expose weaknesses in any supply chain — where goods might sit on a loading dock awaiting transit.

4. **Increased efficiency and speed**
   Traditional paper-heavy processes are time-consuming, prone to human error, and often requires third-party mediation. By streamlining these processes with blockchain, transactions can be completed faster and more efficiently. Documentation can be stored on the blockchain along with transaction details, eliminating the need to exchange paper. There's no need to reconcile multiple ledgers, so clearing and settlement can be much faster.

5. **Automation**
   Transactions can even be automated with "smart contracts," which increase your efficiency and speed the process even further. Once pre-specified conditions are met, the next step in transaction or process is automatically triggered. Smart contracts reduce human intervention as well as reliance on third parties to verify that terms of a contract have been met. In insurance, for example, once a customer has provided all necessary documentation to file a claim, the claim can automatically be settled and paid.

Abdulrahman Hamood

Disadvantages of IBM:

1. **Cost:**IBM Blockchain Platform can be expensive, especially for smaller businesses or startups.
2. **Limited to Hyperledger Fabric:**
   It does not support other blockchain frameworks, which might be a constraint for companies looking for more flexibility.
3. **Complexity:**
   Setting up and managing a blockchain network can be complex, especially for users unfamiliar with blockchain technology. The learning curve to understand the platform's intricacies might be steep.
4. **Scalability:**
   Like many blockchain solutions, scalability can be a concern. As the number of transactions grows, the performance might degrade, impacting transaction speed and throughput.
5. **Regulatory Challenges:**
   Blockchain technology often faces regulatory uncertainties and compliance challenges. IBM Blockchain Platform users might encounter regulatory hurdles or ambiguities depending on the region and industry.
6. **Security Risks:**
   While blockchain is known for its security, any vulnerabilities in the platform's architecture, smart contracts, or implementation can pose risks. Additionally, the potential for human error in coding smart contracts remains a concern

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Programming languages that are used in IBM:

- **C and C++**
  These manuals provide guidance and reference material for the American National Standards Institute (ANSI) Standard C++ Library and the Integrated Language Environment (ILE) versions of the C and C++ programming languages.
- **CICS**
  These manuals provide programming and reference material for Customer Information Control System (CICS), including CICS administration, operations, and inter product communications.
- **COBOL**
  These manuals provide reference and guidance information about the COBOL program structure, procedure division statements, and compiler directing statements.

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- **ILEConcepts**
  This manual describes concepts and terminology for the Integrated Language Environment (ILE) architecture of the IBM operating system. Topics covered include module creation, binding, how to run and debug programs, and exception handling.
- **PDF file for ILE concepts**
  You can view and print a PDF file of this information.
- JAVA
  Find information about the IBM Developer Kit for Java, IBM Toolbox for Java, and the Qshell command environment. Also learn about the Agent Building and Learning Environment (ABLE).
- **REXX**
  These manuals include information about general concepts, specific functions, and instructions about REXX programming.
- **RPG**
  These manuals include information about ILE, ILE RPG, Visual Age RPG, and RPG programming languages for network administrators and for both new and experienced programmers.
- **SQL**
  Structured Query Language (SQL) implementation for IBM enables you to define, manipulate, query, and control access to your data.

Is IBM Public or Private?

The IBM Blockchain Platform can be used to deploy blockchain components on public or private clouds. The IBM Blockchain Platform for IBM Cloud provides a blockchain as a service offering hosted at the IBM Cloud that allows the deployment and configuration of Hyperledger Fabric based components while having the flexibility to take advantage of other services and capabilities available in the IBM Cloud. IBM Blockchain Platform for Multi cloud is the next generation of IBM Blockchain Platform for IBM Cloud Private, which enables you to run a blockchain network across public and private clouds, such as the IBM Cloud, your own data center, and third-party public clouds, through IBM Cloud Private..

Is IBM Free or Not?

There are **no costs that are associated with signing up, and you can try out IBM Cloud for free**. You pay only for billable services that you choose to use, with no long-term contracts or commitments.

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Integrate of IBM with Python & AI :

IBM helps integrate and scale AI applications and machine learning and infuse AI-powered intelligent workflows into business processes on **Google Cloud**. IBM also partners with clients to transform customer service with Google's Contact Center AI Platform.

Python Integration Package
The Python Integration Package provides functions that operate on the IBM SPSS Statistics processor, extending IBM SPSS Statistics command syntax with the full capabilities of the Python programming language. With this interface, you can access IBM SPSS Statistics variable dictionary information, case data, and procedure output. You can submit command syntax to IBM SPSS Statistics for processing, create new variables and new cases in the active dataset, or create new datasets. You can also create output in the form of pivot tables and text blocks, all from within Python code.

Data mining in application of IBM:

IBM offers different solutions for data mining, which is the process of discovering hidden patterns, trends, and relationships in data. IBM Process Mining is a specific solution that focuses on mining business processes and providing insights for performance analysis and optimization. IBM Process Mining can also integrate with IBM Cloud Packs for Automation to enable automation, simulation, and corrective actions based on process mining results. IBM Infosphere Warehouse provides mining functions to solve various business problems using different PMML model types and mining algorithms.

Summary:

Blockchain's disruptive potential across sectors is explored, with IBM's focus on security, transparency, traceability, efficiency, and automation highlighted. However, challenges like cost, framework limitations, complexity, scalability, regulatory hurdles,

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and security risks exist. IBM utilizes programming languages such as C/C++, Java, COBOL, and SQL, and offers its blockchain platform for deployment on public or private clouds. It provides free sign-up with pay-as-you-go services. IBM integrates with Python and AI to enhance business processes, customer service, and data analysis. Data mining solutions like IBM Process Mining and Infosphere Warehouse aid in uncovering insights for performance optimization

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