← A9: Publishing an event

Tutorial A10: Claim your badge!

Estimated time: `10 minutes`

If you've completed all the tutorials up to this point, congratulations!

The purpose of this final tutorial in the set is to:

- Summarize what you have learned so far
- Give you some additional resources
- Invite you to test your learning and gain a badge

This tutorial will reference the concepts we learned in the previous tutorials in this set. If you were already familiar with IBM Blockchain Platform and jumped straight to this page to claim your badge, feel free to skip ahead to the last section.

`A10.1`: Expand the first section below to get started.

▶ **Basic Tutorials recap**

This set of tutorials started from complete basics and took you through the development lifecycle for blockchain applications.

Blockchain is simply the name given to a *distributed ledger*, which provides business networks the ability to share data, using cryptographic proofs to ensure that participants have identical information. This helps to engender trust in business networks and avoid costly processes such as dispute resolution.

Blockchains can be used to **share any data of value**. In these tutorials we stored simple key/value pairs that mapped unique numerical keys to pieces of artwork, but the data could have equally well been reference information, ownership details or anything else of value to the network.

A blockchain application consists of two main components. The business rules for each transaction are encapsulated in a *smart contract* which is the shared code that each endorsing peer runs. The *client application* asks the blockchain to run these transactions with a given set of input parameters.

The development process for smart contracts and client applications is similar to the development process for other software applications. The code is developed, built, tested, debugged and deployed. In these tutorials we used the tools provided by the IBM Blockchain Platform VS Code extension to go through the main tasks in this process using a locally installed Hyperledger Fabric peer.

The power of the network

Using a single peer is useful for testing, but it really only telling a small part of the blockchain story.

So far we have been submitting transactions that update our local *world state* database. As this transaction data eventually maps to bytes on our disk, it is still fundamentally modifiable; it doesn't give us proof that data has not been tampered with.

What sets blockchain apart from a database - even a shared database - is the power of the network to enable tamper resistance. By distributing multiple copies of the data across a network and having different nodes agree on the contents through a process of *consensus*, it makes it unfeasible, even for administrators, to modify the data.

In the next set of tutorials we will connect to an existing network and see the power of the network in action. We will see how another tool that is part of IBM Blockchain Platform - the web console - can be used to join an network. We'll then connect both VS Code and client applications to that network and use them to run transactions that are agreed by multiple nodes on that network.

▶ **Additional resources**

We have only scratched the surface of what blockchain, Hyperledger Fabric and IBM Blockchain Platform can do. This section contains links to more resources you can use to continue your learning.

- Concepts
  - Getting Started with Enterprise Blockchain: ibm.biz/BlockchainOReilly
- Hyperledger Project
  - Hyperledger: Hyperledger Project: https://www.hyperledger.org/
  - Fabric Documentation: https://hyperledger-fabric.readthedocs.io/
- IBM Blockchain
  - Homepage: www.ibm.com/blockchain/
  - IBM Blockchain Developer site: https://developer.ibm.com/technologies/blockchain/
  - Introduction to the IBM Blockchain Platform web console: https://developer.ibm.com/series/ibm-blockchain-platform-console-video-series/
  - IBM Blockchain Blog: https://www.ibm.com/blogs/blockchain/

▶ **IBM Blockchain Platform Foundation Developer badge**

By completing these tutorials you will have gained the knowledge you need to pass the IBM Blockchain Foundation Developer course and add the associated badge to your Acclaim account.

The course link above you will take you directly to the content. In order to claim the badge will need to pass a short test to demonstrate your understanding.

Have fun!

→ **Tutorials Home**