SWITCH ACCOUNT

BLOCKCHAIN VALIDATION

Time: 55 mins

Introduction

In this class, the student/s will learn to store and retrieve the account addresses securely in the firebase database.

Commands Recalled

- credentials.Certificate("file.json")   initialize the Firebase service account key stored in a JSON file

- firebase_admin.initialize_app(cred , {'databaseURL': "URL"})   initialize the Firebase app using the provided service account credentials (cred) and database's URL

Vocabulary

- No new vocabulary used.

Learning Objectives

Student/s should be able to:
- **Recall** how to build a database on Firebase and connect it with the app.

- **Explain** how to authenticate the Firebase connection using the key stored in a JSON file.

- **Implement** a new feature to add the account address to the database, retrieve the account addresses, and display the selected account on the application.

Activities

1. **Class Narrative:** *(2 mins)*

    - Brief the student/s that Jack wants access the newly created accounts even after the server has been restarted.

    - Explain that Jack must store the newly created account using a database..

2. **Concept Introduction Activity:** *(5 mins)*

● Let the student/s play the explore-activity to observe the newly created accounts and all the previously created accounts can be selected from the dropdown.
Note: Start the Ganache server before starting the server.

● Explain that the balance of the selected account is updated from the database.

● Using the slides, explain that the student/s will learn:

  ○ to store account data in Firebase

  ○ to display the account addresses

  ○ to display the selected account

3. **Activity 1: Store Account Data in Firebase***(18 mins)*

   Teacher Activity: *(8 mins)*

● Explain how to build a realtime database on firebase and connect it with app.

● Demonstrate how to add address and private key to the Firebase database.

   Student Activity: *(8 mins)*

● Guide the student/s to stored the account address in Firebase by building a realtime database, connecting to it and adding account address to it.

4. **Activity 2: Display the Account Addresses** *(15 mins)*

   Teacher Activity: *(6 mins)* .

● Explain how to fetch the account addresses from the Firebase and display them on the webpage.

● Demonstrate how to get the account balance and transactions and display the list of account addresses on the web page.

   Student Activity: *(6 mins)*

● Guide the student/s to display the account addresses by fetching the balance and transaction of all the accounts and rendering them on the web page.

5. **Activity 3: Display the Selected Account** *(8 mins)*

   Student Activity: *(6 mins)*

● Guide the students to display the information of the selected account by setting the private key and defining a function to display the selected account information.

6. **Test and Summarize the class learnings:** *(6 mins)*

    ●   Check for understanding through quizzes and summarize learning after respective missions.

    ●   Summarize the overall class learning towards the end of the class.

7. **Additional activities:**

    ●   Encourage the student/s to calculate and display the total balance available in all accounts.

    ●   Encourage the student/s to remove the selected account address from the database.

8. **State the Next Class Objective:** *(1 min)*

    ●   In the next class, student/s will learn to make live transactions.

U.S. Standards:

CSTA: 2-AP-11, 2-AP-12, 2-AP-13, 2-AP-14, 2-AP-19

Links Table		
Activity	**Activity Name**	**Link**
Class Presentation	Switch Accounts	https://s3-whjr-curriculum-uploads.whjr.online/0786ae97-9801-4413-8c80-93df2ace79fe.html
Explore Activity	Switch Accounts	https://github.com/Tynker-Blockchain/TNK-M13-C99-SAS-BP
Teacher Activity 1	Store Account data in Firebaser	https://github.com/Tynker-Blockchain/TNK-M13-C99-TAS-BP
Teacher Reference: Teacher Activity 1 Solution	Store Account data in Firebaser	https://github.com/Tynker-Blockchain/TNK-M13-C99-TAS
Student Activity 1	Store Account data in Firebaser	https://github.com/Tynker-Blockchain/TNK-M13-C99-SAS-BP
Teacher Reference: Student Activity 1 Solution	Store Account data in Firebaser	https://github.com/Tynker-Blockchain/TNK-M13-C99-SAS
Teacher Activity 2	Display the Account Addresses	https://github.com/Tynker-Blockchain/TNK-M13-C99-TAS-BP
Teacher Reference: Teacher Activity 2 Solution	Display the Account Addresses	https://github.com/Tynker-Blockchain/TNK-M13-C99-TAS
Student Activity 2	Display the Account Addresses	https://github.com/Tynker-Blockchain/TNK-M13-C99-SAS-BP

Teacher Reference: Student Activity 2 Solution	Display the Account Addresses	https://github.com/Tynker-Blockchain/TNK-M13-C99-SAS
Student Activity 3	Display the Selected Account	https://github.com/Tynker-Blockchain/TNK-M13-C99-SAS-BP
Teacher Reference: Student Activity 3 Solution	Display the Selected Account	https://github.com/Tynker-Blockchain/TNK-M13-C99-SAS
Student's Additional Activity 1	Show the Total Balance	https://github.com/Tynker-Blockchain/TNK-M13-C99-SAS-BP
Teacher Reference: Student's Additional Activity 1 Solution	Show the Total Balance	https://github.com/Tynker-Blockchain/TNK-M13-C99-SAS
Student's Additional Activity 2	Remove the Account	https://github.com/Tynker-Blockchain/TNK-M13-C99-SAS-BP
Teacher Reference: Student's Additional Activity 2 Solution	Remove the Account	https://github.com/Tynker-Blockchain/TNK-M13-C99-SAS
Post Class Project	Add the Accounts	https://github.com/Tynker-Blockchain/TNK-M13-C99-PCP-BP
Teacher Reference: Post Class Project Solution	Add the Accounts	https://github.com/Tynker-Blockchain/TNK-M13-C99-PCP