# Digital Walk-Around Project - Fat 6
## Backend Installation Guide

## Project Manager: Aidan Clarke Scott

Team Members: John Chapman, Willem van Doorn, Christopher Cliff, Matt Wilson, Sasha Maximovitch, Shane Labelle

April 3rd, 2022
Version 1.0

## Revision History

| Date | Version | Description |
| --- | --- | --- |
| 03/04/2022 | 1.0 | Creation of Document |
| 18/04/2022 | 1.1 | Added extra command for adding users |

# Contents

# 10 Appendix

# 1  Intro

This is the backend installation guide for the Fat6 HSBC Digital Walkaround Project. Follow the steps in order to properly set up the backend of the application. Begin with installing the

backend source code from Github, compile the scripts and set up AWS. Next set up the middle-end webhook handler on Heroku, followed by the Zoom app and organisation. Then set up Firebase for authentication and be sure to add all of the API keys/environment variables to the Parameter Store on AWS. Lastly, build and deploy the source to AWS and add all of the users to the database.

# 2  Important Notes

- ***Make sure you do these steps in order (note: in the AWS step, you will have to skip ahead to other sections to fill out the Parameter Store fully)***
- If you wish to access the accounts we used for Zoom, Firebase and AWS see the Credentials in the appendix (section 10.0)
- If you wish to use our mock users you must also use our Zoom Admin account

# 3  Backend Installation

## 3.0 Intro

This section outlines the initial steps involved with installing the actual backend code repository and ensuring that everything is ready for the following steps and actual deployment on the backend in its entirety.

## 3.1 Download repository

Download the backend directory (Fat-6-HSBC-Backend) from the zip file provided or clone it from the git repository here: https://github.com/CPSC319-Winter-term-2/Fat-6-HSBC-Backend. If you decide to clone the repository, make sure you copy it into a local directory with the git history, and link to the actual repo (ie) create a local copy of the repo without the .git file).

## 3.2 Download node

Download node if you haven't already from https://nodejs.org/en/download/. Node is necessary for compiling typescript and installing all the required lambda dependencies.

## 3.3 Run initial scripts

If you are on a Windows Machine:
1. Go to the **aws/** directory
2. Run the init.bat script

If you are on a Mac/ Linux Machine:
1. Go to the **aws/lambdas/** directory
2. For *every* directory in **aws/lambdas/** dir, 'cd' into it, and run 'npm start'

ex)

```
$ cd auth-lambda
$ npm start
```

# 4 AWS

## 4.0 Intro

This section describes how to set up and deploy the serverless backend of our application on Amazon Web Services.

## 4.1 AWS Setup

1. Create a new AWS account
2. Setup an administrator IAM user and user group:
   https://docs.aws.amazon.com/IAM/latest/UserGuide/getting-started_create-admin-group.html
   a. Create a new IAM user
   b. Set the username to: Administrator
   c. Select AWS credential type: Access key - Programmatic access
   d. Create a new group named: Administrators
      i. Attach the AdministratorAccess policy
      ii. Add the user to this new group
      iii. Review and finish creating the user
3. Save the Access key ID and Secret access key of the new Administrator user (you will need this when configuring the CLI in the next step)
4. Follow the guide to install the AWS SAM CLI
   https://docs.aws.amazon.com/serverless-application-model/latest/developerguide/serverless-getting-started.html
5. Configure the Admin credentials with the CLI
   a. Enter the command:  aws configure into the CLI
   b. Use the Access key ID and Secret Access Key from step 3
   c. Use Defaults for region name and output format

## 4.2 Adding Parameters/Environment Variables

Refer to the documentation for additional information on AWS Parameters:
https://docs.aws.amazon.com/systems-manager/latest/userguide/systems-manager-parameter-store.html

1. In the AWS Console open the AWS Systems Manager

2. Scroll down to the Features section of the main page and open the Parameter store by clicking the "Explore Parameter Store" button
3. Once in the Parameter Store click the "Create parameter" button to create a new parameter
    a. Be sure to name the parameter appropriately as they are referenced by the SAM template when deploying the app
    b. Tier - Standard
    c. Type - String
    d. Data type - text
    e. Set the Value of the parameter to the environment variable

**Checklist of Parameters:**
☐ FirebaseServiceKey - this will be obtained in section 7.1, once you have finished that section, make sure you return here, and enter the FirebaseServiceKey into the AWS parameter store
☐ ZoomAPIKey - ZoomAPISecret, (these are two separate parameters) both of these will be obtained in section 6.3, once you create the Zoom JWT application. Make sure you return here after, and enter both the ZoomAPIKey and ZoomAPISecret as separate credentials in the AWS parameter store.
Note: if you do not have a gmail account this will not work (if you do not wish to create a gmail account, just enter empty strings for values of both of the following parameters)
☐ NOTIF_EMAIL - a gmail email you wish to use as your zoom admin account, that will notify any users that miss scheduled meetings
☐ NOTIF_EMAIL_PASSWORD - using your gmail admin account, enter the app password created after following these steps: https://support.google.com/accounts/answer/185833?hl=en

*Note: for examples of parameter values see the API keys we used for our demonstration in appendix section 10.1

# 5  Webhook Handler

## 5.0 Intro

This section describes how to set-up and deploy the 'middle-end' system that handles the REST webhooks from zoom, and passes them on to our backend as AWS websocket events.

## 5.1 Download repository

Download the hook-handler directory (Fat-6-HSBC-Hook-Handler) from the zip file provided or clone it from the git repository here: https://github.com/CPSC319-Winter-term-2/Fat-6-HSBC-Hook-Handler. If you decide to clone the repository, make sure you copy it into a local directory with the git history, and link to the actual repo (ie) create a local copy of the repo without the .git file).

## 5.2 Heroku Deployment

If you wish to link your Heroku deployment directly to a git repository through the GUI
1. Create your own private git repository from the hook-handler directory, (ie) ensure that it is not linked to the hook-handler repo in the link above), by either simple creating a new git repo from scratch and copying over the hook-handler files, or forking the hook-handler repo.
2. Copy the link of your new git repo, and note it down for later
3. Go to https://id.heroku.com/login and login, or create a new account
4. Navigate to the apps page here: https://dashboard.heroku.com/apps and click, 'New', then 'Create new app'.
5. Give the app a name, select the region closest to you, then click 'Create app'
6. Once the app page loads, select the option 'GitHub - Connect to GitHub' under the 'Deployment method' section
7. If you haven't linked your heroku account to GitHub, click the 'Connect to GitHub' button under the 'Connect to GitHub' section
8. Once you have authorised Heroku to use your GitHub, enter the repository link you copied earlier (for your version of the hook-handler repository)
9. Once Heroku has found the repository click the 'Connect' button
10. If you wish, enable automatic deploys, or click 'manual deploy'
11. Once your app is deployed click the 'Open app' button on the Heroku app's main page and ensure that you are brought to a page that says "server is running"
12. Note down the URL of the Heroku app as it will be used later in the Zoom setup (section 6.4)

If you wish to manually link Heroku to a git repository using the CLI
1. Create your own private git repository from the hook-handler directory, (ie) ensure that it is not linked to the hook-handler repo in the link above), by either simple creating a new git repo from scratch and copying over the hook-handler files, or forking the hook-handler repo.
2. Follow the instructions here: https://devcenter.heroku.com/articles/git

# 6 Zoom

## 6.0 Intro

This section describes how to set up a Zoom admin account. **Note: if you wish to use our test users (ex) fatsix1@outlook.com), you will have to use our Zoom admin account (email: fat6hsbc@gmail.com , password: Thicc6hsbc!), in which case everything is set up**

**already, and you can skip this section.** If you wish to use your own zoom admin account, you can follow the steps below, but note that you will also have to also create your own set of test users and their corresponding emails/ zoom accounts.

## 6.1 Create a zoom admin account

1. Go to https://zoom.us/ and create a zoom account (if you do not already have one) that you wish to use as the admin account for the application, and the other zoom users.

## 6.2 Add users to admin user

This is outlined in section 8.2 (do this for each user you wish to add)

## 6.3 Create Zoom JWT App

1. Go to the Zoom App Marketplace (https://marketplace.zoom.us/)
2. Sign in to your zoom admin account
3. Click 'Develop' on the top right corner, then 'Build App' from the dropdown options
4. Under the 'JWT' card click 'Create'
5. Enter a name for your app
6. Enter all of the required information under the 'information' section
7. Keep note of the API Key and API Secret for use in the AWS section 4.2, where they will need to be entered as environment variables in AWS parameter store

## 6.4 Create Zoom Webhook App

1. Go to the Zoom App Marketplace (https://marketplace.zoom.us/)
2. Sign in to your zoom admin account
3. Click 'Develop' on the top right corner, then 'Build App' from the dropdown options
4. Under the 'Webhook Only' card click 'Create'
5. Enter a name for your app
6. Enter all of the required information under the 'information' section
7. Click the slider under the 'Event Subscriptions' section
8. Click 'Add Event Subscription'
9. You will want to create five total event subscriptions as follows (note the <hook-handler-heroku-url> is the Heroku app URL created in step 5.2:
   a. user-joined-meeting
      i. For the URL enter: <hook-handler-heroku-url>/userJoinedMeeting
      ii. Click '+ Add Events', go to meetings, and click the participant/host joined meeting hook option.
      iii. Click 'Done'
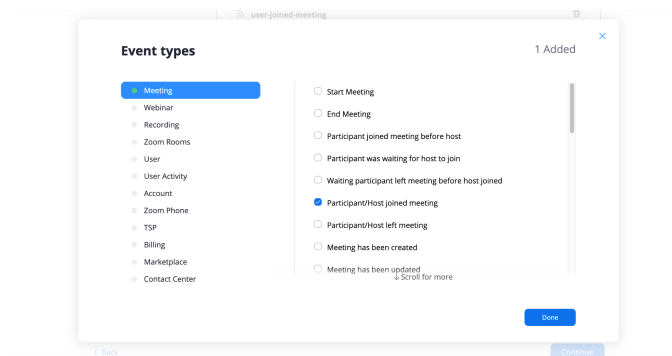
b. user-left-meeting
    i. For the URL enter: <hook-handler-heroku-url>/userLeftMeeting
    ii. Click '+ Add Events', go to meetings, and click the participant/host left meeting hook option.
    iii. Click 'Done'
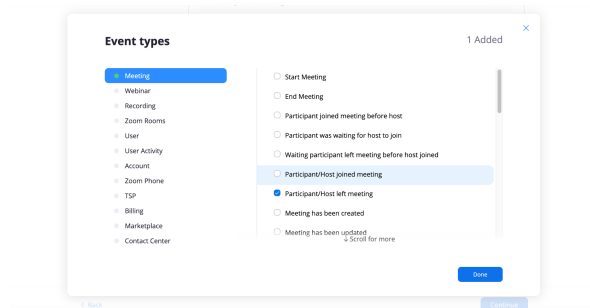


c. meeting-created
    i. For the URL enter: <hook-handler-heroku-url>/meetingCreated
    ii. Click '+ Add Events', go to meetings, and click the meeting has been created hook option.
    iii. Click 'Done'
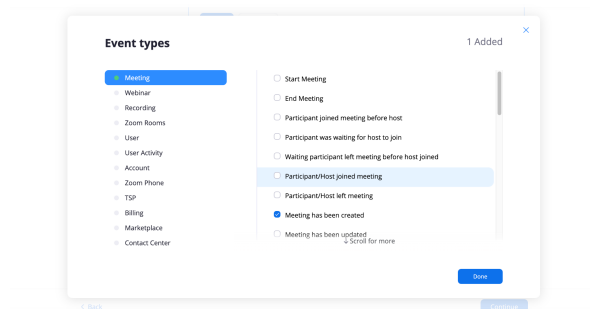


d. meeting-ended
    i. For the URL enter: <hook-handler-heroku-url>/meetingEnded
    ii. Click '+ Add Events', go to meetings, and click the 'End meeting', 'Meeting has been deleted', and 'Meeting has been permanently deleted' hook options
    iii. Click 'Done'
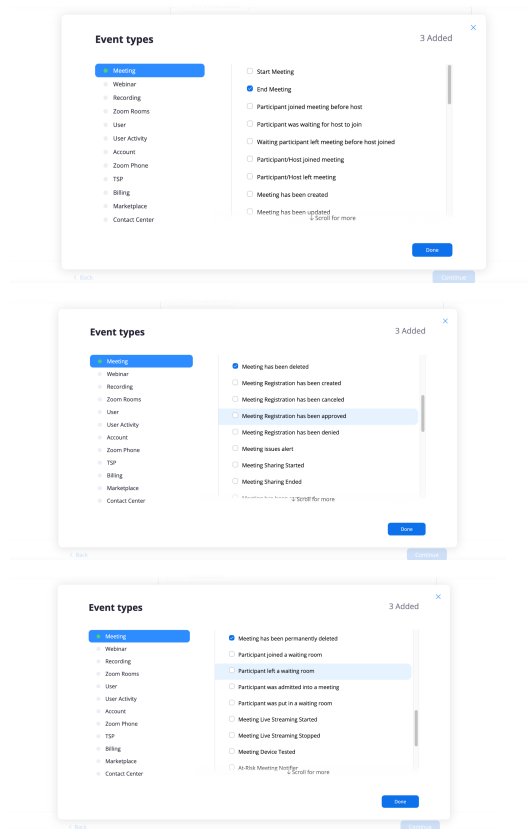
e.   meeting-started
     i.   For the URL enter: <hook-handler-heroku-url>/meetingStarted
     ii.   Click '+ Add Events', go to meetings, and click the meeting has been created hook option.
     iii.   Click 'Done'
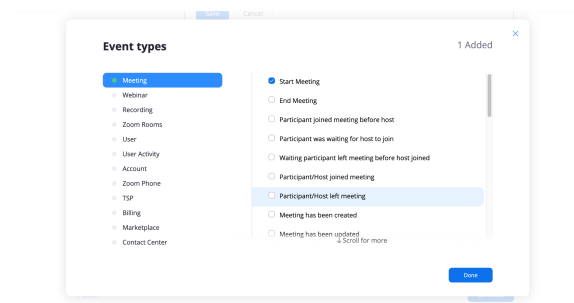
# 7 Firebase

## 7.0 Intro

This section describes how to set up Firebase for authentication.

## 7.1 Setup

1. Create a Google account to use for Firebase
2. Login to the Firebase console at: https://console.firebase.google.com/u/1/
3. Create a new project by clicking "Add project" then give the project a name
4. Add Users
   a. Within the new project head to the Authentication tab by clicking the Authentication icon on the left sidebar
   b. Select "Sign-in method" from the top menu-bar and add an Email/Password sign-in provider
   c. Add all your users to the project (refer to section 7.3)
5. Setup Firebase Admin SDK
   a. Head to the Project settings page by selecting the "Project settings" icon on the left sidebar
   b. Select "Service accounts" from the top menu-bar
   c. Under the Firebase Admin SDK section generate a new private key, download and copy the file contents (see example in appendix section 10.1)
   d. Create a new parameter in the Parameter Store on AWS for the Firebase Admin SDK key (refer to section 4.2)
   e. Name the parameter "FirebaseServiceKey"
   f. Set the type as String
   g. Paste the contents of the file from part 5 as the Value of the parameter

# 8 Deployment

## 8.0 Intro

This section describes how to deploy the backend on AWS.

## 8.1 Build and Deploy

1. Navigate to the **aws/** directory of the backend repository (Fat-6-HSBC-Backend). Be sure to follow the initial script set up laid out in **Section 2.3** if any changes to the code have been made.
2. Run the command sam build from the command line in the **aws/** directory.
3. Run the command sam deploy --guided from the command line in the **aws/** directory.
4. Follow the instructions printed out in the command line, which will ask you to enter deployment settings. Pressing enter without providing any settings will deploy with default settings.
5. Confirm the deployment changes when prompted in the command line.

## 8.2 Websocket URL

Copy the link for your live websocket, easily obtained from the [AWS management console](#). Login to the console, search for "API Gateway" in the top left search bar, and click the websocket from the list. On the left side menu, click "stages" and then click "v1" (by default in our app, otherwise click the relevant stage). From here copy the websocket URL, which should look like this: **wss://xxxxxxxxx.execute-api.REGION.amazonaws.com/v1**

1. Open up the AWS console and navigate to the Fat6WebSocketApi in the APIGateway
2. Select Stages on the left sidebar and select the v1 stage
3. Copy the WebSocket URL (e.g. wss://byaipicimd.execute-api.ca-central-1.amazonaws.com/v1)

## 8.3 Set the Hook Handler Websocket URL

In the Fat-6-HSBC-Hook-Handler repository checked out above, replace the constant "URL" in **index.js** on line 10 with the copied URL as a string. At the end of the string, append the following characters: ?token=testToken. The URL line should look like this:
const URL =
"**wss://xxxxxxxxx.execute-api.REGION.amazonaws.com/v1?token=testToken**";
Further consult the frontend installation guide to add the websocket link to the frontend.

Re-deploy the Hook Handler Heroku App by following the steps in section 5.2.

# 9 Users

## 9.0 Intro

 This section describes how to add users to the application.

## 9.1 User Info

Here is a list of the info you need for each user:
- Name
- Profile picture image URL
- Email to be associated with Zoom
- Rank within the organisation (for the internal user hierarchy)
  - Ranks are ordered such that 1 is the lowest rank in the organisation
  - Users can only view meetings and locations of other users at their rank and below

## 9.2 Zoom

1. Create a Zoom account for each user and make note of the email associated with their account
2. Login to your organisation's Zoom admin account
3. Add all the users to the Zoom account
   a. Select My Account at the top right of Zoom in the browser
   b. Under Admin/User Management on the left sidebar select Users

   c. On the left side of the page select the Add Users button and input the email of each user
 4. Have each user confirm through their email that they should be added to the Zoom organisation

## 9.3 Firebase

 1. Login to the Firebase console
 2. Select Authentication from the left sidebar to open the Authentication page
 3. Select "Users" from the top menu-bar
 4. For each user:
   a. Select the "Add user" button
   b. Enter in the email associated with their Zoom account and a password
   c. Make note of the UID of each user

## 9.4 Database

 1. Create a JSON file containing the users to put into the database
   a. Copy the template found in appendix section 10.2
     i. For each user duplicate the PutRequest section
       1. Fill in the placeholders with the user information
       2. Set the users rank
     ii. For more information on creating the JSON file checkout the AWS documentation:
     https://docs.aws.amazon.com/amazondynamodb/latest/developerguide/SampleData.LoadData.html
   b. Alternatively you wish to use the Mock Users, you can use the Users file from appendix section 10.6
 2. Use the AWS CLI to write the items to the database
   a. Enter the following command into the CLI where file://users.json is the path to the JSON file (named users.json)
     i. aws dynamodb batch-write-item --request-items file://users.json

# 10 Appendix

## 10.0 Credentials

| Account | Username | Password |
|---------|----------|----------|
| Google | fat6hsbc@gmail.com | thicc6hsbc |
| Zoom | fat6hsbc@gmail.com | Thicc6hsbc! |
| AWS | fat6hsbc@gmail.com | thicc6hsbc! |

The login credentials for each test user has the format:
- App
  - Email: fatsixXX@outlook.com
  - Password: fatsix
- Zoom
  - Email: fatsixXX@outlook.com
  - Password: Thicc6hsbc!

The full credentials list for all the test users can be found in the backend source code folder:
- Source Code/Backend/Fat-6-HSBC-Backend/Mock Users.csv

## 10.1 Environment Variables/Parameters

**FirebaseServiceKey**

```
{
        "type": "service_account",
        "project_id": "digital-walk-around-project",
        "private_key_id": "46a077c714c704f122e2900aad4867356c7f73b3",
        "private_key": "-----BEGIN PRIVATE
KEY-----\nMIIEvQIBADANBgkqhkiG9w0BAQEFAASCBKcwggSjAgEAAoIBAQDRrFwIqeREzju4\
nrBvFJ1Kp0bKL2Cn2MYTxM+gkdjnZI06jLgMuZ0VXfGwcvZ3nI4/XIO3PBq/267wb\nHrL7MUl1
XxLOblIZ9uo8qvaYaIcxqart+ElRnRJ83c+SRLk1F9XZVmu1eUWfwVvX\nzhSmtkBkXvHU6VQ+v
9+JAf7cUGoPHLQCkQ3iM8VpX0AgCAF/0hkPKHcdKxaeNjAr\nyKwVyMiuvsJ2cIJYflDEw53kvz
CEBKNn7rbUD+9T8mWUknvOlrUGFuKQ7M4vFSFU\n9Mw9l2MeOjEEr6oFl0kEugNQlGfVwrGnWXc
W09+nBjIPeqwHg09LRMa3n34hwPPa\nI94WmykXAgMBAAECggEABHDOEjDm8L4dba/Xdrl6erZC
Pcv6N4ic9C7RP9RxLTQe\nOj6DOrxdL5knAQTTD04lgbzkzHmryGL9vOVNjRxiHeZBk7Wqb3pXQ
6mrR1cPZfHd\n+ORFSUE2Xwajmslx0roKgWvfJBzJaLTDqTJoJY++lWGdZZD7g8i0h0ZPi4L4fB
Fp\nvcZ3HnBx0PbE5ByGKL0Av2D+PbyTssBN1AKg8kIFB1eA4sh5o3G6QtRyYsnS1niE\n1bcPs
ztpOe5Z9RNFOVP4Be6BXhOKVb+vxVJTgGR0G3tV9uAUXpH49vqAxIxcrjJ5\nw8pujYtj7ImANW
G1ytTrjf0AdQba20mnyz6pu87BIQKBgQDsYTyUV/azK6oo1qen\n4sMua2HwRGgVxCYWxBW1p67
sYt+mzL+Xny1HEbydOpB36IyLicdmKsj/MUttzut5\npBXaxzYv8a/1Clg3Dp16O0awWcyhXHu9
EXFmVNvtNx2HK5yFL2lHls8oul/agxjk\nNOSbg+HAgV4fKFe16DzQiiQ2jQKBgQDjE6S5jr7eV
q7YyL8Z7xpyUNOB6q+On8ex\nUvUvEs96qXfH4Aihs4gOBeTXfeD1DHa+7O2CZ8f1yjMpTqXYvd
Vx3z3IpbXDgswg\nrrcS87UIW8UWQgQcaztdt1fcutLet5WUz7HIOBkZy+0HVujxCXN49cM4AUO
bEyNT\nLHg1q1w3MwKBgFLc612dUHASuH3EcdVams1k+1o8wLgQoMGOT4X0mE9pgbl5QRin\nxj
mJsDL12rsOHGa2D95y1S8QWr7NsKJdsQOWnhpEgUhHLhFu4CmznYroj+FpCD+J\nI9WZndcUYRe
HZEEUE7Xy2gAPBZcWKd2l5RXXL4ZKU3JctBKirN717ifpAoGAL2xv\nz4z/UcH6vC2Ys5rbBBrb
```

```
QVu5FGlMND1mFVGxYSW5bVXdl5+9/2e9tj+E1simmBM1\nOzHfcfarnqndOxnSVPjRl3D8N/u+E
+lJNL0PBtLbo11gLGs8t8LNp7ygw4DFzZFe\nyLjmjRuowgqllYlqw01YWv7wlpd1ni5AYL0MAj
8CgYEA2CxSIFft+8JKYbD6Oow5\nCfaHwo0g406ppWX7TDC3WqPXGPUZVpEaxI1XxFYvmxyzJBh
C1M+kAHetK6rFt9JY\nO/i+cH2x5hzvn5V6H3t+VC/MBGKHzDPe61O0i1LbHz/ENB1b8bO1gt+5
GhxtCshS\nk/mgtF5yOuQjqcdBDP74wa4=\n-----END PRIVATE KEY-----\n",
            "client_email":
"firebase-adminsdk-xskss@digital-walk-around-project.iam.gserviceaccount.co
m",
            "client_id": "112916141397458995638",
            "auth_uri": "https://accounts.google.com/o/oauth2/auth",
            "token_uri": "https://oauth2.googleapis.com/token",
            "auth_provider_x509_cert_url":
"https://www.googleapis.com/oauth2/v1/certs",
            "client_x509_cert_url":
"https://www.googleapis.com/robot/v1/metadata/x509/firebase-adminsdk-xskss%
40digital-walk-around-project.iam.gserviceaccount.com"
        }
```

**NOTIF_EMAIL**

```
fat6hsbc@gmail.com
```

**NOTIF_EMAIL_PASSWORD**

```
aeyrtlhfejriuwze
```

**ZoomAPIKey**

```
UOJJIUk3QGSscl1Lp4M4fQ
```

**ZoomAPISecret**

```
tvgjjmYpP1pnKigEzcd9ojah5xrlXTJ6H0uu
```

## 10.2 Template Users File (users.json)

```
{
    "UserData": [
        {
            "PutRequest": {
                "Item": {
                    "UserID": {
                        "S": "Firebase_UID_Placeholder"
                    },
```

```json
            "imageUrl": {
                "S": "Image_URL_Placeholder"
            },
            "zoomId": {
                "S": "Zoom_Email_Placeholder"
            },
            "name": {
                "S": "Name_Placeholder"
            },
            "rank": {
                "S": "1"
            },
            "favourites": {
                "L": []
            },
            "connectionId": {
                "S": ""
            },
            "groups": {
                "L": []
            },
            "scheduledMeetings": {
                "L": []
            }
        }
      }
    }
  ]
}
```

## 10.3 Mock Users File (users.json)

```json
{
  "UserData": [
    {
      "PutRequest": {
        "Item": {
          "UserID": {
            "S": "testUser"
          },
          "imageUrl": {
            "S": ""
          },
          "zoomId": {
```

```
                    "S": "NULL"
                },
                "name": {
                    "S": "Test User"
                },
                "rank": {
                    "S": "1"
                },
                "favourites": {
                    "L": []
                },
                "connectionId": {
                    "S": ""
                },
                "groups": {
                    "L": []
                },
                "scheduledMeetings": {
                    "L": []
                }
            }
        }
    },
    {
        "PutRequest": {
            "Item": {
                "UserID": {
                    "S": "RcHib39H5xX1qcDB4ou30BEgHZD3"
                },
                "imageUrl": {
                    "S":
"https://i2-prod.chroniclelive.co.uk/incoming/article16687199.ece/ALTERNATES/s615
/2_GettyImages-1136170339.jpg"
                },
                "zoomId": {
                    "S": "fat6hsbc@gmail.com"
                },
                "name": {
                    "S": "Bobby Middlesbrough"
                },
                "rank": {
```

```json
                        "S": "5"
                    },
                    "favourites": {
                        "L": []
                    },
                    "connectionId": {
                        "S": ""
                    },
                    "groups": {
                        "L": []
                    },
                    "scheduledMeetings": {
                        "L": []
                    }
                }
            }
        },
        {
            "PutRequest": {
                "Item": {
                    "UserID": {
                        "S": "3MlZrptpapYOfMPguZQAYCHwG6p1"
                    },
                    "imageUrl": {
                        "S":
"https://images.pexels.com/photos/38554/girl-people-landscape-sun-38554.jpeg"
                    },
                    "zoomId": {
                        "S": "fatsix5@outlook.com"
                    },
                    "name": {
                        "S": "Penelope Hopswitch"
                    },
                    "rank": {
                        "S": "1"
                    },
                    "favourites": {
                        "L": []
                    },
                    "connectionId": {
                        "S": ""
```

```
                },
                "groups": {
                    "L": []
                },
                "scheduledMeetings": {
                    "L": []
                }
            }
        }
    },
    {
        "PutRequest": {
            "Item": {
                "UserID": {
                    "S": "K3WWraln4sNTqQKvNhVbFDptDhd2"
                },
                "imageUrl": {
                    "S":
"https://pausitiveliving.ca/wp-content/uploads/2018/10/Hohenwerfen-Castle-Austria
.jpg"
                },
                "zoomId": {
                    "S": "fatsix6@outlook.com"
                },
                "name": {
                    "S": "Urkel Sprigfreud"
                },
                "rank": {
                    "S": "4"
                },
                "favourites": {
                    "L": []
                },
                "connectionId": {
                    "S": ""
                },
                "groups": {
                    "L": []
                },
                "scheduledMeetings": {
                    "L": []
```

```
                }
            }
        }
    },
    {
        "PutRequest": {
            "Item": {
                "UserID": {
                    "S": "kC1Jr09yehUOLpFEtTWIJ0kmldT2"
                },
                "imageUrl": {
                    "S":
"https://images.pexels.com/photos/220453/pexels-photo-220453.jpeg"
                },
                "zoomId": {
                    "S": "fatsix7@outlook.com"
                },
                "name": {
                    "S": "Albert Napsby"
                },
                "rank": {
                    "S": "1"
                },
                "favourites": {
                    "L": []
                },
                "connectionId": {
                    "S": ""
                },
                "groups": {
                    "L": []
                },
                "scheduledMeetings": {
                    "L": []
                }
            }
        }
    },
    {
        "PutRequest": {
            "Item": {
```

```
                "UserID": {
                    "S": "Y9GjSTdvcgQ5JBtF7UZXEgP62eg2"
                },
                "imageUrl": {
                    "S":
"https://static.wikia.nocookie.net/turn/images/f/fc/John_Andr%C3%A9_in-universe.j
pg"
                },
                "zoomId": {
                    "S": "fatsix1@outlook.com"
                },
                "name": {
                    "S": "John Andre"
                },
                "rank": {
                    "S": "5"
                },
                "favourites": {
                    "L": []
                },
                "connectionId": {
                    "S": ""
                },
                "groups": {
                    "L": []
                },
                "scheduledMeetings": {
                    "L": []
                }
            }
        }
    },
    {
        "PutRequest": {
            "Item": {
                "UserID": {
                    "S": "azdETJac6qMA16KxBEHxNxOEwaF2"
                },
                "imageUrl": {
                    "S":
"https://images.pexels.com/photos/1585634/pexels-photo-1585634.jpeg"
```

```json
                },
                "zoomId": {
                    "S": "fatsix3@outlook.com"
                },
                "name": {
                    "S": "Syed Pasha"
                },
                "rank": {
                    "S": "3"
                },
                "favourites": {
                    "L": []
                },
                "connectionId": {
                    "S": ""
                },
                "groups": {
                    "L": []
                },
                "scheduledMeetings": {
                    "L": []
                }
            }
        }
    },
    {
        "PutRequest": {
            "Item": {
                "UserID": {
                    "S": "3W30cMDsvAVrEmG1EOzWNdoQkE52"
                },
                "imageUrl": {
                    "S": "https://c.stocksy.com/a/OfwD00/z9/3323782.jpg"
                },
                "zoomId": {
                    "S": "fatsix4@outlook.com"
                },
                "name": {
                    "S": "Lavender Whitehorse"
                },
                "rank": {
```

```
                        "S": "2"
                    },
                    "favourites": {
                        "L": []
                    },
                    "connectionId": {
                        "S": ""
                    },
                    "groups": {
                        "L": []
                    },
                    "scheduledMeetings": {
                        "L": []
                    }
                }
            }
        },
        {
            "PutRequest": {
                "Item": {
                    "UserID": {
                        "S": "0dWDpeV3LPUTaslD2Bvz36yoRFD2"
                    },
                    "imageUrl": {
                        "S":
"https://www.thespruceeats.com/thmb/0ImIJS1pBYY3a9Z0noQXJGmV1aw=/450x0/filters:no
_upscale():max_bytes(150000):strip_icc()/dill-pickles-hamburger-slices-3059164-he
ro-01-b950c3f4574d4f74b6102f44b2785387.jpg"
                    },
                    "zoomId": {
                        "S": "fatsix8@outlook.com"
                    },
                    "name": {
                        "S": "Dilbert Pickles"
                    },
                    "rank": {
                        "S": "3"
                    },
                    "favourites": {
                        "L": []
                    },
```

```json
                    "connectionId": {
                        "S": ""
                    },
                    "groups": {
                        "L": []
                    },
                    "scheduledMeetings": {
                        "L": []
                    }
                }
            }
        },
        {
            "PutRequest": {
                "Item": {
                    "UserID": {
                        "S": "LuYHpVf9XqezW72ZVPRrw82Wgej2"
                    },
                    "imageUrl": {
                        "S":
"https://thumbs.dreamstime.com/b/portrait-new-generation-young-business-woman-cha
rming-busine-portrait-new-generation-young-business-woman-charming-124765960.jpg"
                    },
                    "zoomId": {
                        "S": "fatsix9@outlook.com"
                    },
                    "name": {
                        "S": "Velvet McQueen"
                    },
                    "rank": {
                        "S": "2"
                    },
                    "favourites": {
                        "L": []
                    },
                    "connectionId": {
                        "S": ""
                    },
                    "groups": {
                        "L": []
                    },
```

```
                    "scheduledMeetings": {
                        "L": []
                    }
                }
            }
        },
        {
            "PutRequest": {
                "Item": {
                    "UserID": {
                        "S": "1aEVBai2K2OrGCqAnjxOpGDIe2G3"
                    },
                    "imageUrl": {
                        "S":
"https://www.clozemaster.com/blog/wp-content/uploads/2017/11/How-Long-Does-it-Tak
e-to-Learn-French.jpg"
                    },
                    "zoomId": {
                        "S": "fatsix10@outlook.com"
                    },
                    "name": {
                        "S": "Gilbert du Motier"
                    },
                    "rank": {
                        "S": "1"
                    },
                    "favourites": {
                        "L": []
                    },
                    "connectionId": {
                        "S": ""
                    },
                    "groups": {
                        "L": []
                    },
                    "scheduledMeetings": {
                        "L": []
                    }
                }
            }
        },
```

```
    {
        "PutRequest": {
            "Item": {
                "UserID": {
                    "S": "IabrWAkOuRdvE2Darwme3QhRMr52"
                },
                "imageUrl": {
                    "S":
"https://thumbs.dreamstime.com/b/happy-businessman-okay-sign-white-background-sho
wing-31657077.jpg"
                },
                "zoomId": {
                    "S": "fatsix11@outlook.com"
                },
                "name": {
                    "S": "David Sandor"
                },
                "rank": {
                    "S": "1"
                },
                "favourites": {
                    "L": []
                },
                "connectionId": {
                    "S": ""
                },
                "groups": {
                    "L": []
                },
                "scheduledMeetings": {
                    "L": []
                }
            }
        }
    },
    {
        "PutRequest": {
            "Item": {
                "UserID": {
                    "S": "xL2l6CKvYcMXSwcE0vapqoxk9Wh1"
                },
```

```
                    "imageUrl": {
                        "S":
"https://upload.wikimedia.org/wikipedia/commons/3/39/Claude_Dauphin%2C_CEO_Trafig
ura.jpg"
                    },
                    "zoomId": {
                        "S": "fatsix12@outlook.com"
                    },
                    "name": {
                        "S": "Caleb Brewster"
                    },
                    "rank": {
                        "S": "2"
                    },
                    "favourites": {
                        "L": []
                    },
                    "connectionId": {
                        "S": ""
                    },
                    "groups": {
                        "L": []
                    },
                    "scheduledMeetings": {
                        "L": []
                    }
                }
            }
        },
        {
            "PutRequest": {
                "Item": {
                    "UserID": {
                        "S": "U77LP3nchFPY4Hf4mtTIXzwwiH32"
                    },
                    "imageUrl": {
                        "S":
"https://static.wikia.nocookie.net/turn/images/b/bc/Benjamin_Tallmadge_in-univers
e_8.jpg"
                    },
                    "zoomId": {
```

```
                        "S": "fatsix13@outlook.com"
                    },
                    "name": {
                        "S": "Benjamin Tallmadge"
                    },
                    "rank": {
                        "S": "3"
                    },
                    "favourites": {
                        "L": []
                    },
                    "connectionId": {
                        "S": ""
                    },
                    "groups": {
                        "L": []
                    },
                    "scheduledMeetings": {
                        "L": []
                    }
                }
            }
        },
        {
            "PutRequest": {
                "Item": {
                    "UserID": {
                        "S": "ui1AHN6E9jbkAXSLDmoOQCzYL983"
                    },
                    "imageUrl": {
                        "S":
"https://s3.amazonaws.com/arc-authors/tgam/e0e8da97-e603-4137-8eb2-0ec2f0240717.p
ng"
                    },
                    "zoomId": {
                        "S": "fatsix14@outlook.com"
                    },
                    "name": {
                        "S": "Abdu Lada"
                    },
                    "rank": {
```

```
                "S": "2"
            },
            "favourites": {
                "L": []
            },
            "connectionId": {
                "S": ""
            },
            "groups": {
                "L": []
            },
            "scheduledMeetings": {
                "L": []
            }
        }
    }
},
{
    "PutRequest": {
        "Item": {
            "UserID": {
                "S": "zTdunAtRt4O00ikfmyvT7M2sWNY2"
            },
            "imageUrl": {
                "S":
"https://www.iiba.org/contentassets/5fb09f91009640eba14f8d10711d5925/12-tips-for-
balancing-header.png"
            },
            "zoomId": {
                "S": "fatsix15@outlook.com"
            },
            "name": {
                "S": "Amory Sussenstien"
            },
            "rank": {
                "S": "3"
            },
            "favourites": {
                "L": []
            },
            "connectionId": {
```

```
                    "S": ""
                },
                "groups": {
                    "L": []
                },
                "scheduledMeetings": {
                    "L": []
                }
            }
        }
    },
    {
        "PutRequest": {
            "Item": {
                "UserID": {
                    "S": "Q6BkKvhmbQPoJb05aYCTX04f6yp2"
                },
                "imageUrl": {
                    "S":
"https://us.123rf.com/450wm/milkos/milkos1908/milkos190801504/128650374-portrait-
of-successful-black-business-man-smiling-and-looking-at-camera-against-modern-off
ice-buildi.jpg"
                },
                "zoomId": {
                    "S": "fatsix16@outlook.com"
                },
                "name": {
                    "S": "Leonard Gottfried"
                },
                "rank": {
                    "S": "2"
                },
                "favourites": {
                    "L": []
                },
                "connectionId": {
                    "S": ""
                },
                "groups": {
                    "L": []
                },
```

```json
                    "scheduledMeetings": {
                        "L": []
                    }
                }
            }
        },
        {
            "PutRequest": {
                "Item": {
                    "UserID": {
                        "S": "e7kQPwlADQNgVCEsDMjGSG6dD3M2"
                    },
                    "imageUrl": {
                        "S":
"https://t3.ftcdn.net/jpg/02/94/62/14/360_F_294621430_9dwIpCeY1LqefWCcU23pP9i11Bg
zOS0N.jpg"
                    },
                    "zoomId": {
                        "S": "fatsix17@outlook.com"
                    },
                    "name": {
                        "S": "Sprinklebrock Lief"
                    },
                    "rank": {
                        "S": "4"
                    },
                    "favourites": {
                        "L": []
                    },
                    "connectionId": {
                        "S": ""
                    },
                    "groups": {
                        "L": []
                    },
                    "scheduledMeetings": {
                        "L": []
                    }
                }
            }
        },
```

```
    {
        "PutRequest": {
            "Item": {
                "UserID": {
                    "S": "O9Xku8W9ikVC8enkblMYRIqujy23"
                },
                "imageUrl": {
                    "S":
"https://mensline.org.au/wp-content/uploads/2020/05/Excuses-header-1024x683.jpg"
                },
                "zoomId": {
                    "S": "fatsix18@outlook.com"
                },
                "name": {
                    "S": "Chevy Steele"
                },
                "rank": {
                    "S": "2"
                },
                "favourites": {
                    "L": []
                },
                "connectionId": {
                    "S": ""
                },
                "groups": {
                    "L": []
                },
                "scheduledMeetings": {
                    "L": []
                }
            }
        }
    },
    {
        "PutRequest": {
            "Item": {
                "UserID": {
                    "S": "zTXlrobypyWnybGfsTpWJro05IE3"
                },
                "imageUrl": {
```

```
                    "S":
"https://www.mantruckandbus.com/fileadmin/_processed_/7/1/csm_Richard_von_Braunsc
hweig_2a0347f46a.jpeg"
                },
                "zoomId": {
                    "S": "fatsix19@outlook.com"
                },
                "name": {
                    "S": "Spafford Garfinkel"
                },
                "rank": {
                    "S": "1"
                },
                "favourites": {
                    "L": []
                },
                "connectionId": {
                    "S": ""
                },
                "groups": {
                    "L": []
                },
                "scheduledMeetings": {
                    "L": []
                }
            }
        }
    },
    {
        "PutRequest": {
            "Item": {
                "UserID": {
                    "S": "qnWoN8QMcOSY4FSyiVEWTkdEHsv1"
                },
                "imageUrl": {
                    "S":
"https://assets.epicurious.com/photos/57b21a0485f723ce662f7e11/master/pass/jasmin
e-rice-with-garlic-ginger-and-cilantro.jpg"
                },
                "zoomId": {
                    "S": "fatsix20@outlook.com"
```

```
                },
                "name": {
                    "S": "Jasmine Rice"
                },
                "rank": {
                    "S": "2"
                },
                "favourites": {
                    "L": []
                },
                "connectionId": {
                    "S": ""
                },
                "groups": {
                    "L": []
                },
                "scheduledMeetings": {
                    "L": []
                }
            }
        }
    }
]
}
```