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const AWS = require("aws-sdk");
const express = require("express");
const path = require("path");

const app = express();
const PORT = 3000;

AWS.config.update({
  region: "us-east-1"
});

var dynamodb = new AWS.DynamoDB({
  region: "us-east-1",
  endpoint: 'https://dynamodb.us-east-1.amazonaws.com'
});

var docClient = new AWS.DynamoDB.DocumentClient();
var s3 = new AWS.S3({ region: "us-east-1" });

let publicPath = path.resolve(__dirname, "public");
app.use(express.static(publicPath));

app.get("/", (req, res) => {
  res.sendFile(path.join(__dirname + "/index.html"))
});

// Create the Movies table
app.post('/createDB', async (req, res) => {
  // don't create a table if one exists
  const tableExists = await doesTableExist();
  if(!tableExists){
    console.log("Creating a table in DB")
    var params = {
      TableName: "Movies",
      KeySchema: [
        { AttributeName: "year", KeyType: "HASH" }, //Partition key
        { AttributeName: "title", KeyType: "RANGE" } //Sort key
      ],
      AttributeDefinitions: [
        { AttributeName: "year", AttributeType: "N" },
        { AttributeName: "title", AttributeType: "S" }
      ],
      ProvisionedThroughput: {
        ReadCapacityUnits: 50,
        WriteCapacityUnits: 50
      }
    };
    dynamodb.createTable(params, function (err, data) {
      if (err) {
        console.error("Unable to create table. Error JSON:",
          JSON.stringify(err, null, 2));
      } else {
        console.log("Created table. Table description JSON:",
          JSON.stringify(data, null, 2));
      }
    });

    // wait a while for Table to finish getting created
  }
});
```

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59     await sleep(10000);
60     // get movie data from s3 bucket and put into the table
61     var bucketParams = {
62         Bucket: 'csu44000assign2useast20',
63         Key: 'moviedata.json'
64     }
65     var s3 = new AWS.S3();
66     s3.getObject(bucketParams, function (err, data) {
67         if (err) {
68             console.log(err);
69         } else {
70             var allMovies = JSON.parse(data.Body.toString());
71             allMovies.forEach(function (movie) {
72                 var params = {
73                     TableName: "Movies",
74                     Item: {
75                         "title": movie.title,
76                         "year": movie.year,
77                         "director": movie.info.directors,
78                         "rating": movie.info.rating,
79                         "rank": movie.info.rank,
80                     }
81                 };
82                 docClient.put(params, function (err, data) {
83                     if (err) {
84                         console.error("Unable to add movie", movie.title, ". Error
JSON:", JSON.stringify(err, null, 2));
85                     } else {
86                         console.log("PutItem succeeded:", movie.title);
87                     }
88                 });
89             });
90             console.log("Table created successfully and filled with movie data.");
91         }
92     })
93 }
94 else{
95     console.log(`The table 'Movies' already exists.`)
96 }
97 });
98
99
100 // Query - Movies released in a given year, which begin with given string
101 app.get('/query/:title/:year', (req, res) => {
102     console.log("Making query")
103     var year = parseInt(req.params.year)
104     var title = req.params.title
105     var moviesList = [];
106     var params = {
107         TableName : "Movies",
108         ProjectionExpression:"#yr, title, director, rating, #r",
109         KeyConditionExpression: "#yr = :yyyy and begins_with (title, :movieTitle)",
110         ExpressionAttributeNames:{
111             "#yr": "year",
112             "#r": "rank"
113         },
114         ExpressionAttributeValues: {
115             ":yyyy": year,
116             ":movieTitle": title
117     }
```

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118     };
119
120     docClient.query(params, function(err, data) {
121         if (err) {
122             console.log("Unable to query. Error:", JSON.stringify(err, null, 2));
123         } else {
124             data.Items.forEach(function(item) {
125                 console.log(item.year + ' ' + item.title);
126                 moviesList.push(
127                     {
128                         Title: item.title,
129                         Year : item.year,
130                         Director: item.director,
131                         Rating: item.rating,
132                         Rank: item.rank,
133                     }
134                 )
135             });
136             res.json(moviesList)
137             console.log("Query succeeded.");
138         }
139     });
140 });
141
142
143 // Delete the Movies table
144 app.post('/destroyDB', async (req, res) => {
145     // only delete table if it exists
146     const tableExists = await doesTableExist();
147     if(tableExists){
148         console.log("Destroying the table.");
149         var params = {
150             TableName : "Movies",
151         };
152         dynamodb.deleteTable(params, function(err, data) {
153             if (err) {
154                 console.error("Unable to delete table. Error JSON:",
155                     JSON.stringify(err, null, 2));
156             } else {
157                 console.log("Deleted table. Table description JSON:",
158                     JSON.stringify(data, null, 2));
159             }
160         });
161     }
162     else{
163         console.log(`The table 'Movies' doesn't exist.`);
164     }
165 });
166
167 // helper function to verify if Movie table exists or not
168 const doesTableExist = async () => {
169     const exists = await new Promise(resolve => {
170         dynamodb.describeTable({ TableName: "Movies" }, (err, data) => {
171             if (err) {
172                 resolve(false);
173             } else {
174                 resolve(true);
175             }
176         });
177     });
178 }
```

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176     });
177     return exists;
178 };
179
180
181 // helper function to allow time for table to be created before putting data into it
182 function sleep(ms) {
183     return new Promise(resolve => setTimeout(resolve, ms));
184 }
185
186
187 app.listen(PORT, () => {console.log(`Listening on ${PORT}`)});
188
```