

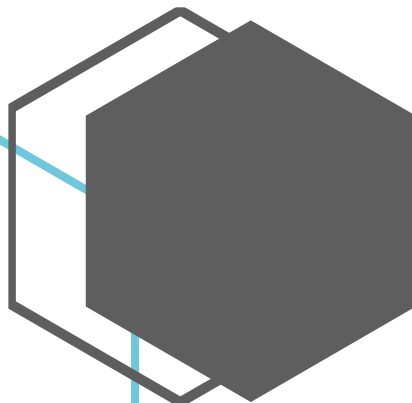


# CSCI 5410

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## Assignment 1 – Part C

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## DynamoDB Operations - Snips

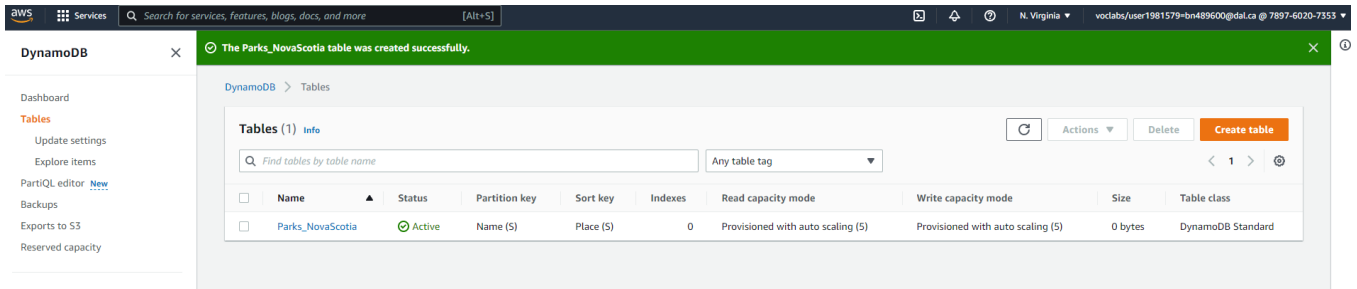


Figure 1: DynamoDB Dashboard with a Table – Parks\_NovaScotia

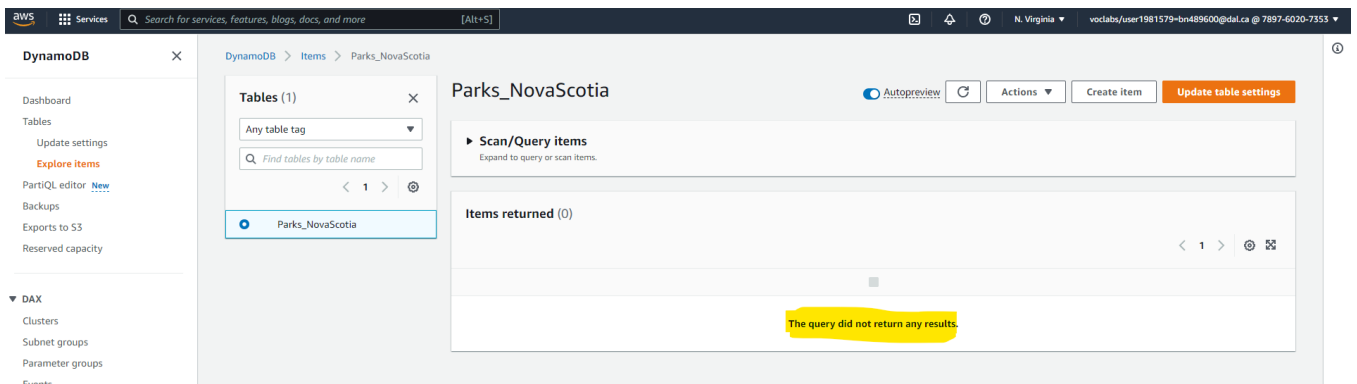


Figure 2: Empty DynamoDB table

```

1 usage
public static void addItem(List<List<String>> items)
{
    DynamoDB dynamoDB = new DynamoDB (client);
    Table table = dynamoDB.getTable( tableName: "Parks_NovaScotia");
    System.out.println(table.describe());
    for(List<String>input:items)
    {
        Item item = new Item()
            .withPrimaryKey( hashCode: "Name",input.get(0))
            .withString( attrName: "Place",input.get(1))
            .withString( attrName: "properties",input.get(2))
            .withString( attrName: "size",input.get(3));
        PutItemOutcome outcome = table.putItem(item);
        System.out.println("Insert Operation Outcome: " + outcome.toString());
    }
}

```

Figure 3: Code to add Items

The screenshot shows the AWS Management Console interface for a DynamoDB table named 'Parks\_NovaScotia'. The left sidebar contains navigation options like Dashboard, Tables, Update settings, Explore Items, PartiQL editor, Backups, Exports to S3, Reserved capacity, DAX, Clusters, Subnet groups, Parameter groups, and Events. The main panel displays the 'Parks\_NovaScotia' table with a 'Scan/Query items' section. Below this, a table titled 'Items returned (10)' lists 10 items with columns for Name, Place, properties, and size. The items are: Amherst Shore, Boylston, Battery, Caribou-Munroes Island, Valleyview, Crystal Crescent Beach, Cape Chignecto, Mira River, Blomidon, and Porters Lake.

Name	Place	properties	size
Amherst Shore	6596 Hwy 366	Park office,...	32 Campsites
Boylston	11131 Hwy 16	Registratio...	34 Campsites
Battery	10110 Hwy 4	Restroom w...	45 Campsites
Caribou-Munroes Island	2119 Three Brooks Ro...	Park office ...	89 Campsites
Valleyview	960 Hampton Mounta...	Park office, ...	31 Campsites
Crystal Crescent Beach	223 Sambro Creek Rd	Campsites ...	44 Campsites
Cape Chignecto	1108 West Advocate ...	Restrooms, ...	47 Campsites
Mira River	439 Brickyard Road	Park office ...	156 Campsites
Blomidon	3138 Pereau Road	Park office, ...	94 Campsites
Porters Lake	1160 West Porters La...	Registratio...	80 Campsites

Figure 4: Items added to the DynamoDB table through Java

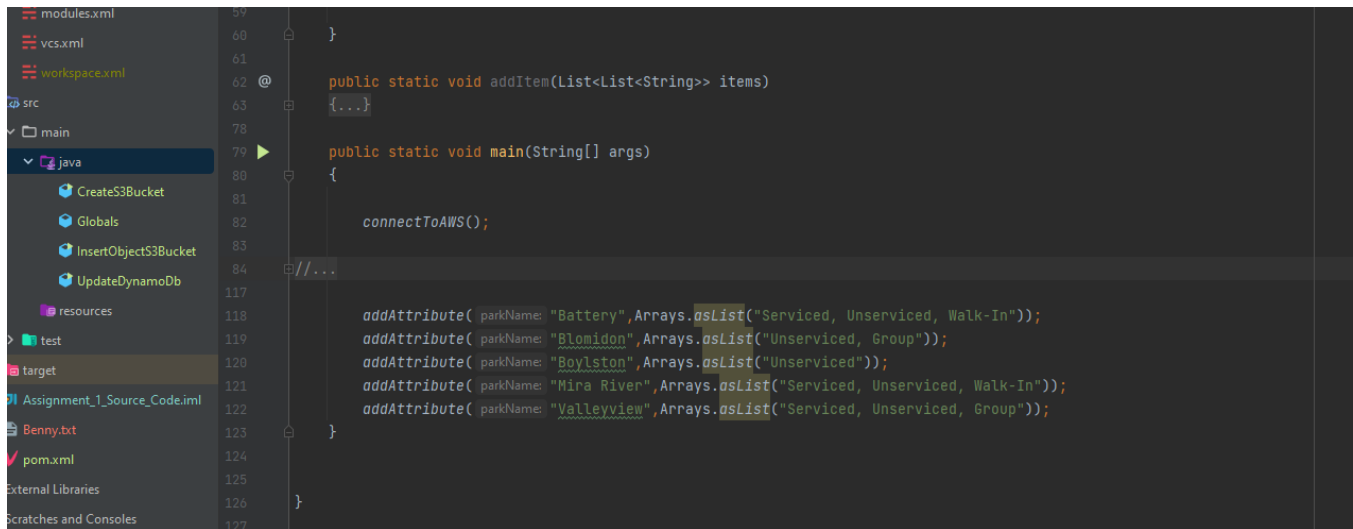


Figure 5: Code to update an Attribute – Types of Campsites

Name	Place	properties	size	types_of_Campsites
Amherst Shore	6596 Hwy 366	Park office, ...	32 Campsites	
Boylston	11131 Hwy 16	Registratio...	34 Campsites	Unserviced
Battery	10110 Hwy 4	Restroom w...	45 Campsites	Serviced, Unserviced, Walk-In
Caribou-Munroes Island	2119 Three Brooks Ro...	Park office ...	89 Campsites	
Valleyview	960 Hampton Mounta...	Park office, ...	31 Campsites	Serviced, Unserviced, Group
Crystal Crescent Beach	223 Sambro Creek Rd	Campsites ...	44 Campsites	
Cape Chignecto	1108 West Advocate ...	Restrooms, ...	47 Campsites	
Mira River	439 Brickyard Road	Park office ...	156 Campsi...	Serviced, Unserviced, Walk-In
Blomidon	3138 Pereau Road	Park office, ...	94 Campsites	Unserviced, Group
Porters Lake	1160 West Porters La...	Registratio...	80 Campsites	

Figure 6: Items updated with an additional attribute

## Code Blocks

### UpdateDynamoDb.java

```

import com.amazonaws.auth.BasicSessionCredentials;
import com.amazonaws.services.dynamodbv2.AmazonDynamoDBClient;
import com.amazonaws.services.dynamodbv2.document.*;

```

```

import java.util.*;

```

```

/*

```

```

***

```

**Structure of DynamoDB Table:**

**\* name:**

**\* place:**

```

* properties:
* size:
* types_of_Campsites:
***
*/

public class UpdateDynamoDb
{
    private static AmazonDynamoDBClient client;
    public static AmazonDynamoDBClient connectToAWS()
    {
        System.out.println("Establishing a connection with AWS...");
        String accessKey = Globals.getAccessKey();
        String secretKey = Globals.getSecretKey();
        String sessionToken = Globals.getSessionToken();
        BasicSessionCredentials awsCred = new BasicSessionCredentials(accessKey, secretKey,
sessionToken);
        client =new AmazonDynamoDBClient(awsCred);
        System.out.println("Connected to AWS DynamoDB...");
        return client;
    }

    public static void addAttribute(String parkName, List<String> input)
    {
        DynamoDB dynamoDB = new DynamoDB (client);
        Table table = dynamoDB.getTable("Parks_NovaScotia");

        Map<String, String> attributes = new HashMap<String, String>();
        attributes.put("#s", "types_of_Campsites");

        Map<String, Object> vals = new HashMap<String, Object>();
        vals.put(":val1",new HashSet<String>(input));

        UpdateItemOutcome outcome = table.updateItem(
            "Name",
            parkName,
            "add #s :val1",
            attributes,
            vals);

        System.out.println("Update Operation Outcome: " + outcome.toString());

        //-----
        //      UpdateItemSpec updateItemSpec2 = new UpdateItemSpec().withPrimaryKey("Name",
parkName)
        //          .withUpdateExpression("add #t :val1")

```

```

//      .withValueMap(new ValueMap().withString(":val1", String.valueOf(new
HashSet<String>(input))))
//      .withNameMap(new NameMap().with("#t","types_of_Campsites"));
//      UpdateItemOutcome updateItemOutcome2 = table.updateItem(updateItemSpec2);

}

public static void addItem(List<List<String>> items)
{
    DynamoDB dynamoDB = new DynamoDB (client);
    Table table = dynamoDB.getTable("Parks_NovaScotia");
    System.out.println(table.describe());
    for(List<String>input:items)
    {
        Item item = new Item()
            .withPrimaryKey("Name",input.get(0))
            .withString("Place",input.get(1))
            .withString("properties",input.get(2))
            .withString("size",input.get(3));
        PutItemOutcome outcome = table.putItem(item);

    }
}

public static void main(String[] args)
{
    connectToAWS();

    List<String> input1 = Arrays.asList("Crystal Crescent Beach","223 Sambro Creek
Rd","Campsites & Camper shelter","44 Campsites");

    List<String> input2 = Arrays.asList("Amherst Shore","6596 Hwy 366","Park office,Vault
toilet,Restroom with shower","32 Campsites");

    List<String> input3 = Arrays.asList("Battery","10110 Hwy 4","Restroom with showers &
Campsites","45 Campsites");

    List<String> input4 = Arrays.asList("Blomidon","3138 Pereau Road","Park office, Restrooms
with showers, Look-off","94 Campsites");

    List<String> input5 = Arrays.asList("Boylston","11131 Hwy 16","Registration kiosk, Restrooms
with showers, Campsites","34 Campsites");

    List<String> input6 = Arrays.asList("Cape Chignecto","1108 West Advocate
Road","Restrooms, BBQ Sites & Kayaking","47 Campsites");

```

```

List<String> input7 = Arrays.asList("Caribou-Munroes Island","2119 Three Brooks Road","Park
office & Restroom with shower","89 Campsites");

List<String> input8 = Arrays.asList("Mira River","439 Brickyard Road","Park office &
Registration kiosk, Restrooms with shower, Beach access","156 Campsites");

List<String> input9 = Arrays.asList("Porters Lake","1160 West Porters Lake Road","Registration
kiosk, Restroom with shower, Campsites","80 Campsites");

List<String> input10 = Arrays.asList("Valleyview","960 Hampton Mountain Road","Park office,
Restroom with shower, Campsites","31 Campsites");

List<List<String>> inputList = new ArrayList<>();
inputList.add(input1);
inputList.add(input2);
inputList.add(input3);
inputList.add(input4);
inputList.add(input5);
inputList.add(input6);
inputList.add(input7);
inputList.add(input8);
inputList.add(input9);
inputList.add(input10);

addItem(inputList);

addAttribute("Battery",Arrays.asList("Serviced, Unserviced, Walk-In"));
addAttribute("Blomidon",Arrays.asList("Unserviced, Group"));
addAttribute("Boylston",Arrays.asList("Unserviced"));
addAttribute("Mira River",Arrays.asList("Serviced, Unserviced, Walk-In"));
addAttribute("Valleyview",Arrays.asList("Serviced, Unserviced, Group"));
}
}

```

## Citations

- [1] "AWS SDK for Java." *Amazon Web Services, Inc.*, 15 Sept. 2012, [aws.amazon.com/sdk-for-java/](https://aws.amazon.com/sdk-for-java/). Accessed 21 May 2022.
- [2] "DynamoDB - Update Items." *www.tutorialspoint.com*, 26 Mar. 2017, [www.tutorialspoint.com/dynamodb/dynamodb\\_update\\_items.htm](https://www.tutorialspoint.com/dynamodb/dynamodb_update_items.htm). Accessed 24 May 2022.

- [3] “Update Item in DynamoDB Using Java.” *Stack Overflow*, 7 Feb. 2017, [stackoverflow.com/questions/37160641/update-item-in-dynamodb-using-java](https://stackoverflow.com/questions/37160641/update-item-in-dynamodb-using-java). Accessed 26 May 2022.