



- Must use Angular **HttpClient** service to load the JSON data remotely. If failed, display the error message to the console.
- Must use Angular **Material** components; Table, Button, Dialog, etc. for user interface (UI)
- Must use **MatTableDataSource** for the MatTable component.
- Must open the dialog window and pass the country data when a user clicks on a table row.
- Define **getFlagImage(code: string)** member function in AppComponent to return the URL to the flag image of each country. The parameter is the 2-character country code. For Canada, the flag file is **ca.jpg**. This function is used for [src] property binding.
- Define **openDialog(country: any)** member function in AppComponent to open a dialog by passing the selected country object. This function is called whenever a row of the table is clicked.
- Must display the country name in <mat-dialog-title> of the dialog.
- Must display the country codes (2 and 3 digits), continent, region, surface area, population, GNP, and map in the dialog.
- Define **getMapImage(code: string)** to generate the URL of the map using 3-character country code (All lowercase)

## OPTION B (MAX 100%)

MatSort    <mat-form-field>    <mat-toolbar>    <mat-paginator>

The screenshot shows a web application titled "World Countries". It features a search bar with the text "can". Below the search bar is a table with columns: Name, Continent, Surface Area (km²), and Population. The table lists several countries, including American Samoa, Azerbaijan, Canada, Central African Republic, and Dominican Republic. A red box highlights the table headers. To the right of the table is a pagination control showing "Items per page: 5" and "1 - 5 of 7". A dialog box is open for the country "Canada", displaying its code (CAN / CA), continent (North America), region (North America), surface area (9970610.00 km²), population (31147000), and GNP (598862.00). The dialog also includes a map of Canada and a "CLOSE" button.

- Must implement Option A first.
- Must add **MatSortModule** to sort the country list by clicking the table headers, sorted by Name initially when the app is launched.
- Must add **MatFormFieldModule** to search (filter) countries by keywords.
- Must add **MatToolbarModule** to display the title.
- Must add **MatPaginatorModule** to limit the number of countries per page, 5, 10, 50, 100, 300.
- HINT: <https://material.angular.io/components/table/overview>  
<https://www.angularjswiki.com/material/mat-table/>

## Deliverables

An archive file, **Assignment4\_<yourname>.zip**, which contains your project distribution folder under **dist** subdirectory. It should be runnable on any system after download it;

**NOTE:** You must build your project with "**ng build --base-href ./ --configuration development**" at the terminal. (An incorrect build/submission will be deducted)

**NOTE:** You must include the file header at the beginning of each file. The header must contain a short description, your name, email, date, etc.

## Submission and Due Date

Submit your deliverables to SLATE/Assignments/Assignment4 by **Friday, Aug. 18, 11:59 PM**.

You may submit multiple versions, but only the latest version will be evaluated.

**NOTE:** Late submission will be deducted 10% per day. (max. 3 days)

**NOTE:** Partial implementation will be accepted.

**NOTE:** This assignment is individual work and subject to Sheridan Academic Integrity Policy.

## Bonus (20 points max)

- Use other Material components such as Icon, Radio Buttons, etc. (10 points)
- Load the list of cities in the dialog to display the capital and other cities of the selected country (5 points)  
<http://ejd.songho.ca/syst24444/city/>
- Add an additional dialog to display the application description and credits (5 points)
- Add additional features to enhance your application (5 points)

**<mat-radio-button>**      **<mat-table>**      **mat-icon-button**

**World Countries**

Continent: ☒ All ☐ Africa ☐ Asia ☐ Europe ☐ North America ☐ South America ☐ Antarctica ☐ Oceania

Q Search Country

can

| Name ↑                        | Code     | Continent     | Surface Area (km2) | Population |
|-------------------------------|----------|---------------|--------------------|------------|
| American Samoa                | ASM / AS | Oceania       | 199.00             | 68000      |
| Azerbaijan                    | AZE / AZ | Asia          | 86600.00           | 7734000    |
| Canada                        | CAN / CA | North America | 9970610.00         | 31147000   |
| Central African Republic      | CAF / CF | Africa        | 622984.00          | 3615000    |
| Dominican Republic            | DOM / DO | North America | 48511.00           | 8495000    |
| Holy See (Vatican City State) | VAT / VA | Europe        | 0.40               | 1000       |
| Slovenia                      | SVN / SI | Europe        | 20256.00           | 1987800    |

Items per page: 10 1 - 7 of 7

**Canada**

Code: CAN / CA  
Continent: North America  
Region: North America  
Surface Area (km<sup>2</sup>): 9970610.00  
Population: 31147000

Capital: Ottawa

Major Cities:

| Name       | District | Population |
|------------|----------|------------|
| Montréal   | Québec   | 1016376    |
| Calgary    | Alberta  | 768082     |
| Toronto    | Ontario  | 688275     |
| North York | Ontario  | 622632     |
| Winnipeg   | Manitoba | 618477     |

**World Countries**

About

This web-based application displays the list of countries around world and the detailed information of the selected country, such as the country code, continent, population and map. It was developed using Angular Framework and Angular Material for the user interfaces.

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Contact

Song Ho Ahn (안성호)  
Email: [song\\_ahn@gmail.com](mailto:song_ahn@gmail.com)  
Web: [www.songho.ca](http://www.songho.ca)

CLOSE

The JSON structure of the cities are below, and linked with the corresponding country by “**CountryCode**” property;

```
{
  "City": [
    {
      "ID": "1",
      "Name": "Kabul",
      "CountryCode": "AFG",
      "District": "Kabol",
      "Population": "1780000"
    },
    ...
  ]
}
```

## Q & A (Extra Notes)

### Q1. How to pass data to a dialog component?

**A1:** Create a **MatDialogConfig** object and attach a custom data to it

```
// in parent component
let config = new MatDialogConfig();
config.data = country; // attach a country object
dialog.open(MyDialogComponent, config);

// inject the data to the dialog component
constructor(@Inject(MAT_DIALOG_DATA) data: any) {
  this.country = data; // receive a country object
}
```

### Q2. How to sort or paginate the data of MatTable?

**A2:** Assign **MatSort** and **MatPaginator** references after the data is loaded

```
// in component
countrySource = new MatTableDataSource();
@ViewChild("sortCountry") sortCountry!: MatSort; // get reference from html
@ViewChild("pageCountry") pageCountry!: MatPaginator; // reference from html
...
// assign objects after the JSON is loaded
this.countrySource.data = json.Country;
this.countrySource.sort = this.sortCountry;
this.countrySource.paginator = this.pageCountry;

// in html (template)
<mat-table [dataSource]="countrySource" matSort #sortCountry="matSort">
...
</mat-table>
<mat-paginator #pageCountry ...>
```

### Q3. How to search/filter the data of MatTable?

**A3:** Convert the string in <input> to all lowercases, then assign it to the filter of **MatDataSource**

```
// in component
filterCountry = ""; // to hold search keyword
...
this.countrySource.filter = this.filterCountry.trim().toLowerCase();
```