# ASP.Net Exercise

A new web application is needed where maintenance engineers can track the maintenance done on the various machines used in production. Create the necessary back-end as a RESTful ASP.Net web service to support this application.

## Data Description

In order to support the maintenance data, several other data is also needed:

|  |  |  |
| --- | --- | --- |
| Data | Description | CRUD |
| Countries | Used to track and group geographically the various factories. | Read |
| Factories | The various factories owned by the enterprise. | Create, Read, Update, Delete |
| Machines | The machines owned by each factory, which are the subject of the maintenance records. | Create, Read, Update, Delete |
| Maintenance Chore | The different maintenance chores that have been done or will be done on a particular machine. | Create, Read, Update |

### Core Requirements

1. The ASP.Net web service should proxy a public RESTful country service, such as [REST Countries](https://restcountries.com). Basic information should be included in the internal Country model, such as ISO country code and name.
2. Factories should specify their country.
3. Machines should specify their factory.
4. Maintenance chores should specify their machine. The minimum expected data is scheduled date (if it is scheduled ahead of time, but not mandatory), execution date, status and result.

### Bonus Requirements

1. Cache country data somehow in order to minimize external service consumption.
2. Also track factory users: There are engineers who own the machine, and there are operators, who perform the maintenance chore.

## Assignment

Deliver a RESTful web service backed by a data store (RDBMS or NoSQL storage) that can serve, track and maintain the list of countries, factories, machines and maintenance chores.

The web service must provide endpoints to query by primary key, query for all data, or query by a list of primary keys.

Maintenance chores can be created ahead of time, in which case the new record must carry a scheduled date, or it can be created the same day it is being performed, in which case the execution date is forced to the day’s date and its status is forced to **In Progress**. Additionally, maintenance chores can only have their status updated, and when the status is set to **Complete**, the record can never be edited again.

### Technical Must-Do’s

* Use ASP.Net controllers, meaning don’t use minimal API’s.
* All endpoints must be asynchronous.
* All endpoints must use the **IActionResult** return data type.
* HTTP response codes of the various operations are consistent with RESTful conventions.
* All endpoints should be capable of service the responses in XML or JSON.

## Bonus Features

* Add OpenAPI to the web service.
* Add data compression to all responses.