CAP4LAB

New comers : API Integration exercises with Mule 4

---

1. TLS Integration

Use case

In order to take familiarity with TLS encryption, I would like to create 2 apis, where API-1 calls API-2 using **TLS one-way** encryption.

Specificities

Content of the request and content of the response is not important for this exercise, it can be just "hello world".

Documentation

In order to achieve that you need first basic understanding how public-private key encryption works. This could be a starting point:
https://en.wikipedia.org/wiki/Public-key_cryptography

Then configure the apis as explained here :
https://docs.mulesoft.com/mule-runtime/4.3/tls-configuration

2. API Led Integration

Use case

I would like you to build an API able to calculate the total price of solded seats, grouped by airplane, knowing that as an input you have to pass the “destination” as a queryParameter.

Specificities

Based on the training web-service: http://training4-american-ws.cloudhub.io/api/flights Here is an example (following the information from the web service) :

flights.json


```
[
    {
        "ID": 10,
        "code": "eefd4511",
        "price": 900,
        "departureDate": "2016-01-15T00:00:00",
        "origin": "MUA",
        "destination": "LAX",
        "emptySeats": 100,
        "plane": {
          "type": "Boeing 777",
          "totalSeats": 300
        }
    },
    {
        "ID": 1,
        "code": "rree0001",
        "price": 541,
        "departureDate": "2016-01-20T00:00:00",
        "origin": "MUA",
        "destination": "LAX",
        "emptySeats": 0,
        "plane": {
          "type": "Boeing 787",
          "totalSeats": 200
        }
    }
]
```


For the destination LAX I would like you to calculate the price of all solded seats. Then group them by plane type :

*(totalSeats - emptySeats) * price*

Here is an example of the response :

response.json


```
{
  "destination": "LAX",
  "planes": [
    {
       "type": "Boeing 777",
       "pricePerSeat": "180000$"
    },
    {
       "type": "Boeing 787",
       "pricePerSeat": "108200$"
    }
  ]
}
```

Documentation

Price calculation has to be done using the following service:
http://www.dneonline.com/calculator.asmx

For this implementation you should follow the **API Led principles** (Experience API, Process API and System API), meaning that you should not implement everything into a single application. All APIs have to use **properties files** in order to manage configuration information.

3. MUnit Tests

Once all of this works, in order to ensure the implementation you have developed through your API, the next step would be to build unit tests. Hint : Mule 4 has its own Unit Test framework.