

Given one DataDescriptor Map and a JSON payload you should be able to transform the JSON payload

to the object described in the DataDescriptor Object, the result of said transformation should be another JSON object.

For this exercise I strongly recommend the use of the Newtonsoft JSON library as it contains a classes and helper methods that can help you with the deserialization of the data descriptor jsons in this document and the result of the mapping method to implement (to convert the result to instances of the business classes).

You are not limited in any way, you can make research online, consult online documentation.

Let's imagine that one of our carriers creates an shipment order JSON object and transfers it to our services, this is how the information is received, we receive infomation from various sources and structure may differs from our native classes, take this as your payload for the exercise:

EXAMPLE PAYLOAD

```
{
    "FedexGuide": "ORDER_USMX00001",
    "InvoiceNumber": "INVOICE_G20230107USMX00001",
    "ShippedAt": "2023-01-07T22:00:00",
    "GoesFromAddress": {
        "Id": "ADDRESS_MX4982178",
        "Strt": "P.zo de la Constitución S/N, Centro Histórico de la Cdad. de México",
        "PC": "06066",
        "Localization": "Ciudad de México",
        "PoliticalZone": "CDMX",
        "Country": "México",
        "CountryCode": "MX"
    },
    "GoesToAddress": {
        "Id": "ADDRESS_USS3218793",
        "Strt": "1600 Pennsylvania Avenue NW, Washington",
        "PC": "20500",
        "Localization": "Washington",
        "PoliticalZone": "DC",
        "Country": "United States",
        "CountryCode": "US"
    }
}
```

```

    "Items": [
        {
            "Length": 15,
            "Width": 15,
            "Height": 15,
            "Weight": 400,
            "WUnit": "GRAM",
            "WLHUnit": "CENTIMETER" ,
            "PackageType": "BOX",
            "Qty": 1,
            "Product": {
                "Id": "P_0232121",
                "Name": "MONTBLANC 1858 POCKET WATCH EDICIÓN",
                "Sku": "118486"
            }
        },
        {
            "Length": 1.25,
            "Width": 1.25,
            "Height": 1.25,
            "Weight": 1000,
            "WUnit": "KILOGRAM",
            "WHLUnit": "METER" ,
            "PackageType": "PALLET",
            "Qty": 2,
            "Product": {
                "Id": "PF_43428",
                "Name": "VERO PICA FRESA 8/100ct",
                "Sku": "43428"
            }
        }
    ]
}

```

Define Classes The following classes:

Business Classes:

```

Class ShipmentOrder
    Property: CarrierShipmentId    Type: String
    Property: ReceiverReference    Type: String

```

```
    Property: ShippingStartDate ..... Type: Datetime  
    Property: FromAddress ..... Type: Address  
    Property: ToAddress ..... Type: Address  
    Property: Packages ..... Type: Package
```

Class Address

```
    Property: Id ..... Type: String  
    Property: Street ..... Type: String  
    Property: PostalCode ..... Type: String  
    Property: City ..... Type: String  
    Property: RegionStateProvidence ..... Type: String  
    Property: Country ..... Type: String  
    Property: CountryCode ..... Type: String
```

Class Package

```
    Property: Weight ..... Type: Double  
    Property: Height ..... Type: Double  
    Property: Length ..... Type: Double  
    Property: Width ..... Type: Double  
    Property: DimenstionsUnit ..... Type: String  
    Property: WeightUnit ..... Type: String  
    Property: Packaging ..... Type: String  
    Property: Quantity ..... Type: Int
```

Class Product

```
    Property: Id ..... Type: String  
    Property: Description ..... Type: String  
    Property: ProductCode ..... Type: String
```

Mapper classes:

Class DataDescriptor

```
    Property: Name ..... Type: String  
    Property Description: Name of the Map or field (If this data descriptor is  
  
    Property: Alias ..... Type: String  
    Property Description: Name of the field or Type that this DataDescriptor points to  
  
    Property: MapDescription ..... Type: String  
    Property Description: Describes this field or Type defined in this data descriptor  
  
    Property: Primitive ..... Type: Bool  
    Property Description: Flag that says if the data type describes in this DataDescriptor is primitive
```

```
Property: Multiple: ..... Type: Bool
Property Description: Flag that indicates if Field described in this DataDescriptor is multiple or not

Property: Fields ..... Type: DataDescriptor[] (Array or Collection)
PropertyDescription: Fields (if needed) of the object type described in this DataDescriptor
```

Data Descriptors for this exercise (import these jsons to your project and deserialize them to DataDescriptor objects):

Use these map descriptors and create a method that takes the EXAMPLE PAYLOAD json and transform it to a ShipmentOrder instance, the method should read the DataDescriptors to know how to map the data in the payload, the resulting JSON as described at the beginning of this document should be then deserialized to the ShipmentOrder class,

The JSON deserialization can be done with the:

```
Newtonsoft.Json.JsonConvert.DeserializeObject()
```

method

Fedex Shipment Order DataDescriptor for Fedex shipment orders

```
{
    "Name": "FedexShipment",
    "Alias": "ShipmentOrder",
    "MapDescription": "This is a Fedex data descriptor that can be converted to a ShipmentOrder object",
    "Primitive": false,
    "Multiple": false,
    "Fields": [
        {
            "Name": "FedexGuide",
            "Alias": "CarrierShipmentId",
            "Type": "String",
            "Primitive": true,
            "Multiple": false,
        },
        {
            "Name": "ShipmentLabelImage",
            "Alias": "Image",
            "Type": "Image",
            "Primitive": false,
            "Multiple": false
        }
    ]
}
```

```
        "Name": "InvoiceNumber",
        "Alias": "ReceiverReference",
        "Type": "String",
        "Primitive": true,
        "Multiple": false,
    },
    {
        "Name": "ShippedAt",
        "Alias": "ShippingStartDate",
        "Type": "Datetime",
        "Primitive": true,
        "Multiple": false,
    },
    {
        "Name": "GoesFromAddress",
        "Alias": "FromAddress",
        "Type": "FedexAddress",
        "Primitive": false,
        "Multiple": false,
    },
    {
        "Name": "GoesToAddress",
        "Alias": "ToAddress",
        "Type": "FedexAddress",
        "Primitive": false,
        "Multiple": false,
    }
}
{
    "Name": "Items",
    "Alias": "Packages",
    "Type": "FedexItem",
    "Primitive": false,
    "Multiple": true,
}
]
```

Fedex Address data descriptor for Fedex addresses

```
{
    "Name": "FedexAddress",
```

```
        "Alias": "Address",
        "MapDescription": "This is a Fedex data descriptor that can be converted to an
        "Primitive": false,
        "Multiple": false,
        "Fields": [
            {
                "Name": "Id",
                "Alias": "Id",
                "Type": "String",
                "Primitive": true,
                "Multiple": false
            },
            {
                "Name": "Strt",
                "Alias": "Street",
                "Type": "String",
                "Primitive": true,
                "Multiple": false
            },
            {
                "Name": "PC",
                "Alias": "PostalCode",
                "Type": "String",
                "Primitive": true,
                "Multiple": false
            },
            {
                "Name": "Localization",
                "Alias": "City",
                "Type": "String",
                "Primitive": true,
                "Multiple": false
            },
            {
                "Name": "PoliticalZone",
                "Alias": "RegionStateProvidence",
                "Type": "String",
                "Primitive": true,
                "Multiple": false
            },
            {
                "Name": "Country",
                "Alias": "Country",
```

```
        "Type": "String",
        "Primitive": true,
        "Multiple": false
    },
    {
        "Name": "CountryCode",
        "Alias": "CountryCodeee",
        "Type": "String",
        "Primitive": true,
        "Multiple": false
    }
]
}
```

Fedex Item data descriptor for Fedex Shipment Item (a package)

```
{
    "Name": "FedexItem",
    "Alias": "Package",
    "MapDescription": "This is a FedEx data descriptor that can be converted to an
    "Primitive": false,
    "Multiple": false,
    "Fields": [
        {
            "Name": "Length",
            "Alias": "Length",
            "Type": "Double",
            "Primitive": true,
            "Multiple": false
        },
        {
            "Name": "Width",
            "Alias": "Width",
            "Type": "Double",
            "Primitive": true,
            "Multiple": false
        },
        {
            "Name": "Height",
            "Alias": "Height",
            "Type": "Double",
            "Primitive": true,
            "Multiple": false
        }
    ]
}
```

```
        "Primitive": true,
        "Multiple": false
    },
    {
        "Name": "Weight",
        "Alias": "Weight",
        "Type": "Double",
        "Primitive": true,
        "Multiple": false
    },
    {
        "Name": "WUnit",
        "Alias": "WeightUnit",
        "Type": "String",
        "Primitive": true,
        "Multiple": false
    },
    {
        "Name": "WLHUnit",
        "Alias": "DimensionsUnit",
        "Type": "String",
        "Primitive": true,
        "Multiple": false
    },
    {
        "Name": "PackageType",
        "Alias": "Packaging",
        "Type": "String",
        "Primitive": true,
        "Multiple": false
    },
    {
        "Name": "Qty",
        "Alias": "Quantity",
        "Type": "Int",
        "Primitive": true,
        "Multiple": false
    }
]
```

Product data descriptor from fedex

```
{  
    "Name": "FedexProduct",  
    "Alias": "Product",  
    "MapDescription": "This is a FedEx data descriptor that can be converted to an  
    "Primitive": false,  
    "Multiple": false,  
    "Fields": [  
        {  
            "Name": "Id",  
            "Alias": "Id",  
            "Type": "String",  
            "Primitive": true,  
            "Multiple": false  
        },  
        {  
            "Name": "Name",  
            "Alias": "Description",  
            "Type": "String",  
            "Primitive": true,  
            "Multiple": false  
        },  
        {  
            "Name": "Sku",  
            "Alias": "ProductCode",  
            "Type": "String",  
            "Primitive": true,  
            "Multiple": false  
        }  
    ]  
}
```

You have one week after this exercise has been sent to you.

Best regards.

