

Modeling historical evaluations with power of DL

.NET Chapter Meetup

The Speaker

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Tax Calculator

TaxCalculator.Seed 1.0 OAS3

<https://localhost:7271/swagger/v1/swagger.json>

TaxCalculator

GET /api/TaxCalculator/Calculate

Parameters

Name	Description
------	-------------

income	<input type="text" value="5000000"/>
number(\$double)	
(query)	

year	<input type="text" value="2022"/>
integer(\$int32)	
(query)	

Responses

Curl

```
curl -X 'GET' \
  'https://localhost:7271/api/TaxCalculator/Calculate?income=5000000&year=2022' \
  -H 'accept: */*'
```

Request URL

```
https://localhost:7271/api/TaxCalculator/Calculate?income=5000000&year=2022
```

Server response

Code	Details
------	---------

200	
-----	--

Response body

```
551500
```

New Requirements

now the customer wants us to have historical simulations based on specific inputs

```
{
  "incomeByYear": {"2021": 1 500 000, "2022": 1 000 000, "2023": 2 000 000},
  "rulesByYear": {
    "2021": [
      { "upperBound": 1 000 000, "rate": 3, "fixedPayment": 750 },
      { "upperBound": 2 000 000, "rate": 4, "fixedPayment": 1500 },
    ]
  }
}
```

they want to be able to customize taxation rules per specific years on a given run

Historical Evaluations

TaxCalculator.App ^{1.0} ^{OAS3}

<https://localhost:7271/swagger/v1/swagger.json>

TaxCalculator

GET

/api/TaxCalculator/Calculate

POST

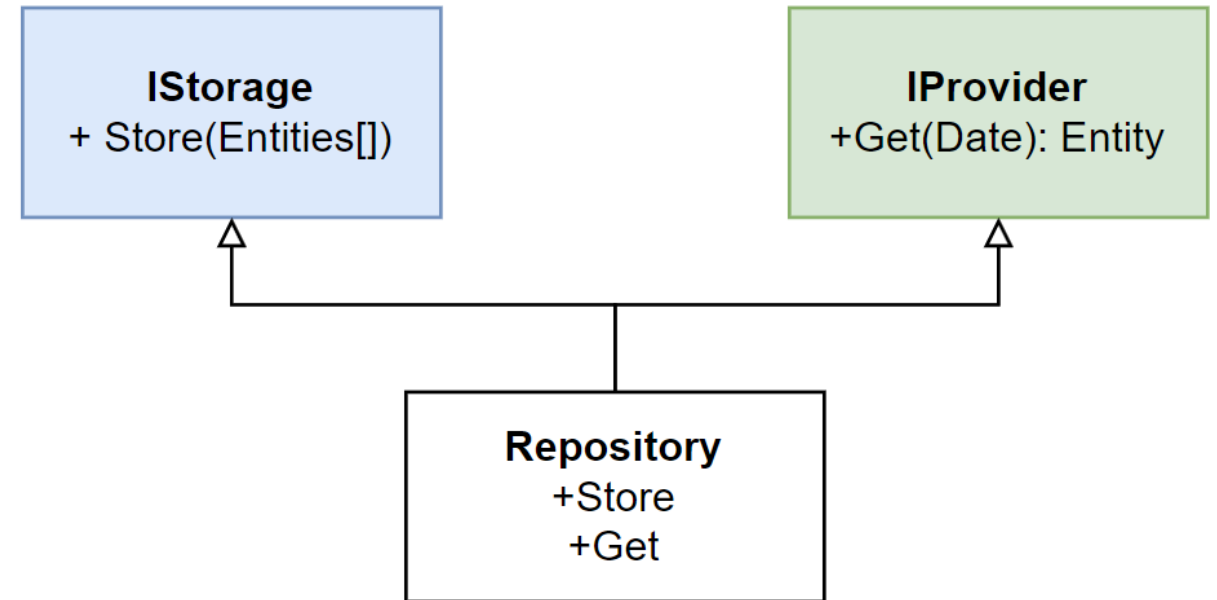
/api/TaxCalculator/CalculateForRange

How can we reuse existing code?

The Triade Pattern

A suggestion is to introduce a triade: storage, repository and provider

- **Storage** interface to store user input (parameters customization).
- **Repository** class to keep these values.
- **Provider** interface to consume these values in previously existing service.

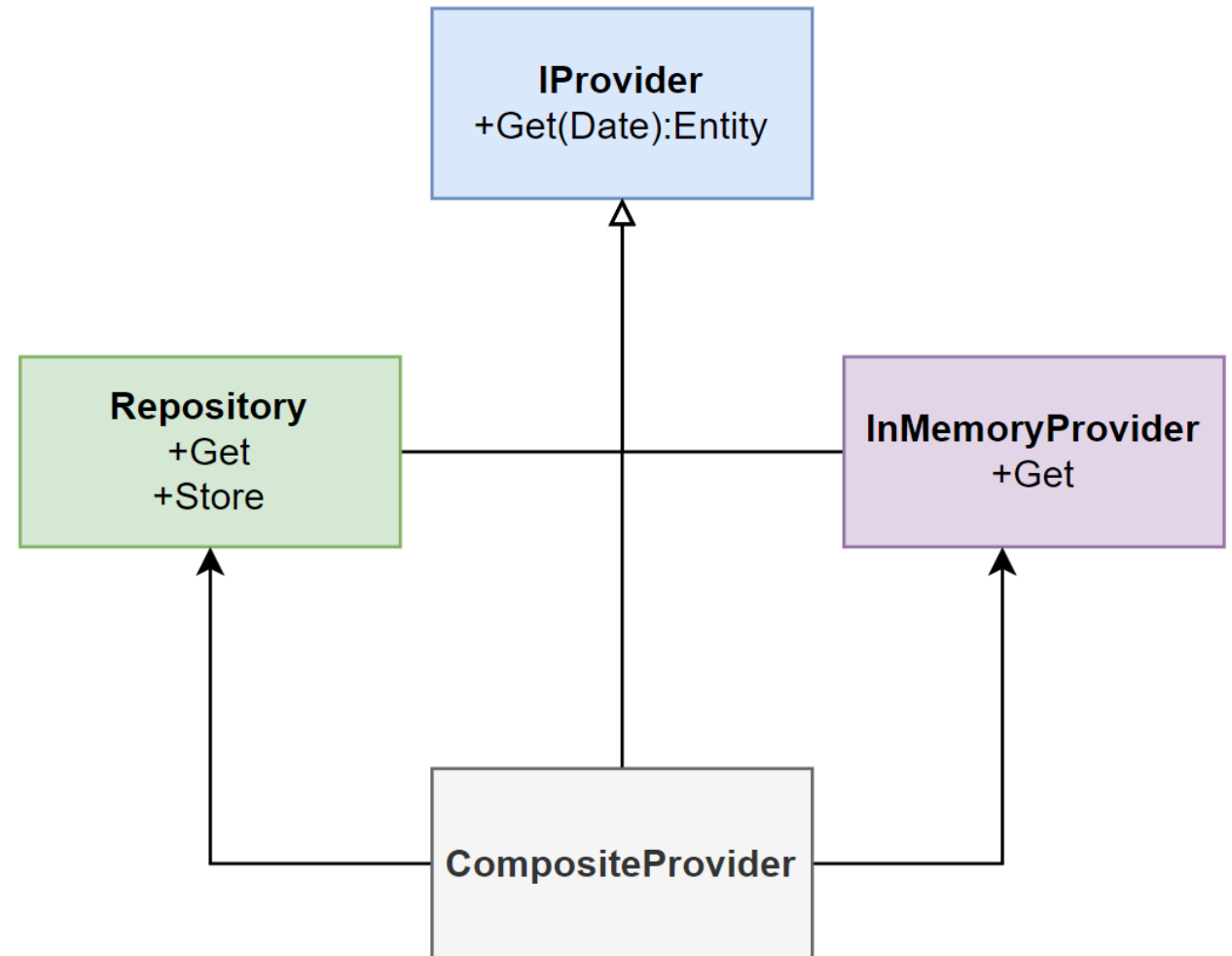


Merging options

The Provider might be used together with composite or decorator patterns.

It opens a room for different options:

- merge
- override
- substitute



Summary

We've reused existing code

ISP enables us to clearly define components roles per context

Composite design pattern allows us
to combine different sources of data in a controlled manner

DI's composition root clearly shows
whether we instantiate the triade pattern properly:

the same instance of the repository is registered
as the provider
as the storage

The Challenge

Allow user to control taxation rules merging options.

- Deadline 1 week.
- The best solution gets 15 loyalty points (in case of a tie the earlier is the winner).
- Please send the link to your solution exposed on github in an email to me.
- The results will be provided as a workplace post.

