

Scala in Practice

lab 07

Acceptance criteria:

Create DSL in Scala for non-programmers - financiers & accountants.
Your language-extensions should model *cash operations* between currencies: dollar (USD, \$), euro (EUR, €) & złoty (PLN, zł):

- Addition between different currencies:

```
val sum1: Money = 100.01(USD) + 200(EUR) //result in dollars  
(most left type)
```

```
val sum2: Money = 100.01(zł) + 200($) //result in złoty (most  
left type)
```

```
val sum3: Money = 5(zł) + 3(PLN) + 20.5(USD) //result in złoty  
(most left type)
```

- Subtraction between different currencies

```
val sub: Money = 300.01(USD) - 200(EUR) //result in dollars  
(most left type)
```

- Multiplication

```
val mult1: Money = 30(zł) * 20 //result in złoty  
val mult2: Money = 20($) * 11 //result in dollars
```

- Conversion

```
val conv1: Money = 150.01(USD) as PLN // converts to złoty  
val conv2: Money = 120.01(USD) as € // converts to euro
```

- Comparison between currencies

```
val compare1: Bool = 300.30(USD) > 200(€)  
val compare2: Bool = 300.30($) < 200(EUR)
```

- Create package *money* with above logic:

```
trait Currency = ???
```

```
...
```

```
val conversion: Map[(Currency, Currency), BigDecimal] = ??? //map  
with constants (EUR => PLN, PLN => USD, USD => EUR) representing  
conversion rates between currencies. Put any values or use real  
ones from the past1.
```

1 <https://www.xe.com/currencyconverter/convert/?Amount=1&From=EUR&To=USD>

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```
case class CurrencyConverter(  
  conversion: Map[(Currency, Currency), BigDecimal]) {  
  def convert(from: Currency, to: Currency): BigDecimal = ???  
}  
  
case class Money(amount: BigDecimal, currency: Currency)(implicit  
  currencyConverter: CurrencyConverter)  
  
...
```

- Create *application entry-point* object with some example tests for the above implementation

Note: Dont use any **nulls** & **vars**

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