GEP Programming Contest: Object Oriented Programming

ING

Goals

Have fun

-

Learn Something Outside Of Your Comfort Zone

-

Have Fun

-

Never Ending Fame

-

Have Fun

-

Encourage a Learning Culture

-

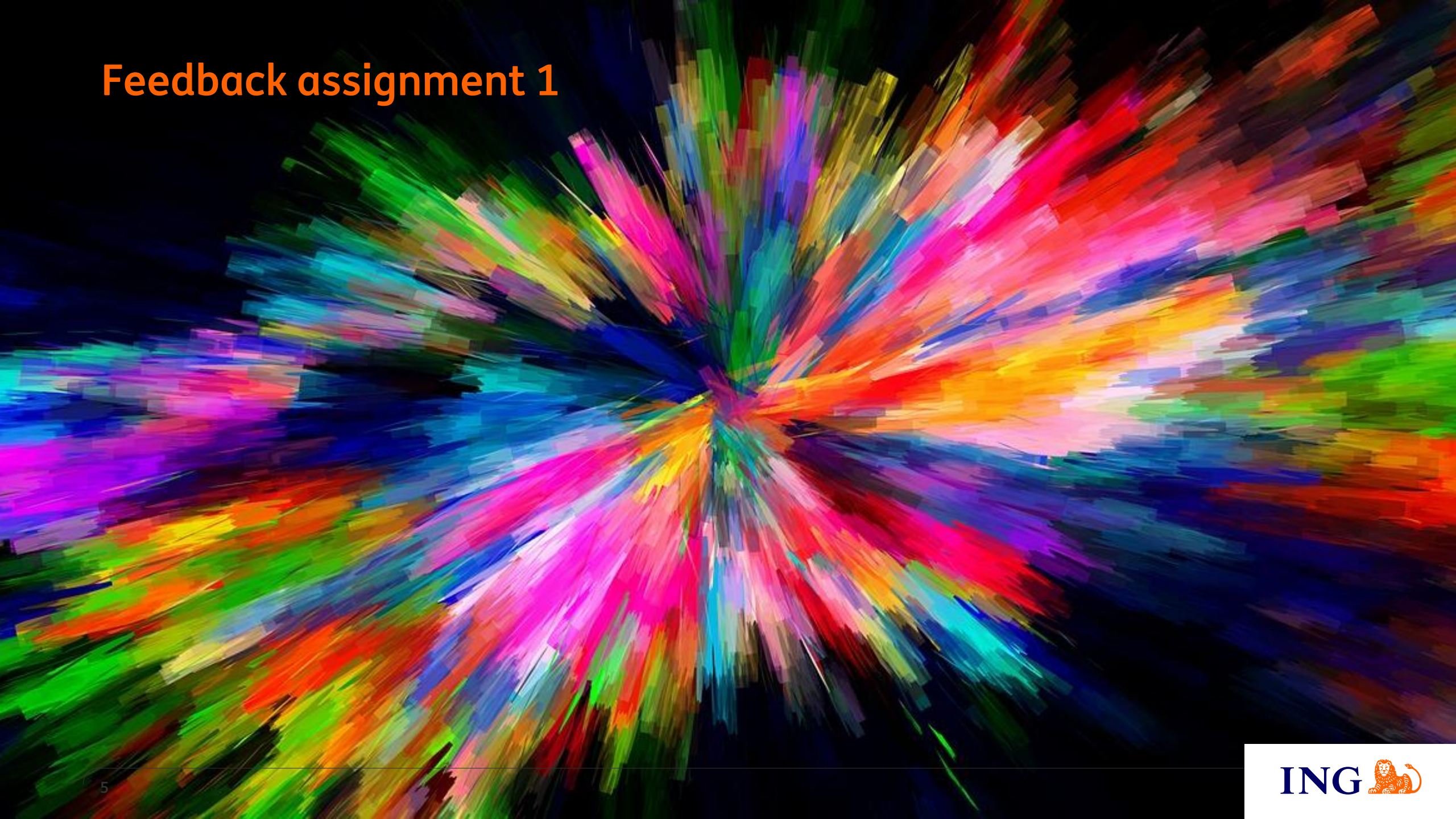
Have Fun

Planning (remaining)

Today	Discussion of assignment 1 && Release of assignment 3
2020-11-8 23:59:59	Deadline for handing in assignment 2
2020-11-17 12:00:00	Discussion of assignment 2
2020-11-22 23:59:59	Deadline for handing in assignment 2
2020-12-01 12:00:00	Discussion of assignment 3 & announcing the winners

Feedback assignment 1

Feedback assignment 1



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Feedback assignment 1

We have no beginner submissions at all ☹

Submissions were immensely diverse, making them hard to judge

Preliminary rankings:

C#:

1. Mark (6/9)
2. Gaurav (5.9/9)
3. Allen (5/9)

Java

1. Vincent (8/9)
2. Floor (6/9)
3. David (6/9)

Feedback assignment 1

General observations:

- A lot of interfaces declared and implemented, but rarely any used
- Single responsibility is hard, especially when you get into operations on a collection
- Hardly any constructors used (for ensuring objects are in a valid state)

```
public class CurrencyConverter {
    private Float conversionRate;

    CurrencyConverter(float conversionRate) {
        this.conversionRate = conversionRate;
    }

    public BigDecimal convert(BigDecimal baseCurrencyValue) {
        if (conversionRate == null) {
            throw new IllegalStateException("Conversion rate wasn't defined.");
        }
        return baseCurrencyValue.multiply(new BigDecimal(conversionRate));
    }
}
```

Feedback assignment 1: Almost everyone had a “model”

```
public class Product: Base
{
    8 references | 0/4 passing | Taco Bakker, 5 days ago | 1 author, 1 change
    public int Id { get; set; }
    10 references | 0/4 passing | Taco Bakker, 5 days ago | 1 author, 1 change
    public string Name { get; set; }
    8 references | 0/4 passing | Taco Bakker, 5 days ago | 1 author, 1 change
    public string Description { get; set; }
    23 references | 0/5 passing | Taco Bakker, 5 days ago | 1 author, 1 change
    public ProductPrice Price { get; set; }
    9 references | 0/5 passing | Taco Bakker, 5 days ago | 1 author, 1 change
    public ProductCategory Category { get; set; }

    4 references | Taco Bakker, 5 days ago | 1 author, 1 change
    public override Base Clone()
    {
        return new Product()
        {
            Id = Id,
            Name = Name,
            Description = Description,
            Price = (Price == null)? null : Price.Clone() as ProductPrice,
            Category = Category
        };
    }
}
```

```
public class ProductEntity
{
    8 references | 0/3 passing | Taco Bakker, 15 days ago | 1 author, 1 change
    public int productId { get; set; }

    8 references | 0/3 passing | Taco Bakker, 15 days ago | 1 author, 1 change
    public string name { get; set; }

    8 references | 0/3 passing | Taco Bakker, 15 days ago | 1 author, 1 change
    public string description { get; set; }

    9 references | 0/3 passing | Taco Bakker, 15 days ago | 1 author, 1 change
    public int price { get; set; }

    8 references | 0/3 passing | Taco Bakker, 15 days ago | 1 author, 1 change
    public string category { get; set; }
}
```


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Feedback assignment 1: But how to encode the “algorithm” ?

```
0 references | Taco Bakker, 17 days ago | 1 author, 1 change
public static void Main(string[] args)
{
    int max_dollar_price = 10;
    string outputfile = "outputs.csv";
    string inputfile = "inputs.csv";
    string inputpath = $"{inputfile}";
    string outputpath = $"{outputfile}
    string[] input_lines = System.IO.F

    // store headers for later
    string headers = input_lines[0];

    // remove headers from array.
    input_lines = input_lines.Skip(1).
    List<Clothing> clothingRecords = (from string input_line in input_lines
                                      select ClothingFactory(input_line.Split(","))).ToList();
    using (System.IO.StreamWriter file =
    new System.IO.StreamWriter(path: outputpath))
    {
        file.WriteLine(headers);
        foreach (Clothing clothing in clothingRecords)
        {
            if (clothing.GetDollarPrice() >= max_dollar_price)
            {
                file.WriteLine(clothing.ToString());
            }
        }
    }
}
```

```
static void Main(string[] args)
{
    var serviceProvider = new ServiceCollection()
    .AddSingleton<IDataFilter<ProductEntity>>(x => new PriceFilter<ProductEntity>(AppConstants.PRICE_THRESHOLD))
    .AddSingleton<IFileProcessor<ProductEntity, IList<ProductEntity>>>(x => new ProcessCsv<ProductEntity, IList<ProductEntity>>())
    .BuildServiceProvider();

    var fileHandler = serviceProvider.GetService<IFileProcessor<ProductEntity, IList<ProductEntity>>>();
    var priceFilterHandler = serviceProvider.GetService<IDataFilter<ProductEntity>>();

    Console.WriteLine(AppConstants.MESSAGE_READ_INPUT);
    var intialProdcuts = fileHandler.ProcessFile(new StreamReader(AppConstants.CSV_INPUT_PATH));

    Console.WriteLine(AppConstants.MESSAGE_PROCESSING_INPUT);
    var filteredProducts = priceFilterHandler.Operation(intialProdcuts);


    fileHandler.OutputFile(filteredProducts, AppConstants.OUTPUT_FILE_PATH);
    Console.WriteLine(AppConstants.MESSAGE_OUTPUT_GENERATED);
}
```


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Feedback assignment 1: How to get rid of that ‘main’

```
public static void main(String[] args) throws URISyntaxException, IOException {
        Path source = pathToOutputFile("999-test.csv");

        Parser<Product> csvParser = new CsvProductParser();
        Converter<Product> converter = new ProductConverter();

        List<Product> products = csvParser.read(getFile("001-experts-inputs.csv"));
        var text = new StringBuilder();
        text.append("Output:\nCurrent products in US dollars: [\n");
        products.forEach(product -> text.append("        ").append(product.toString()).append("\n"));
        text.append("]\n\n");

        List<Product> filteredProducts = products.stream().filter(p -> converter.filterPrice(p,10.0))
                .map(p -> converter.convertCurrency(p,0.85))
                .collect(Collectors.toList());

        text.append("Filtered products in Euros: [\n");
        filteredProducts.forEach(product -> text.append("        ").append(product.toString()).append("\n"));
        text.append("]");
        logger.info(() -> text);

        File f = Files.createFile(source).toFile();
        csvParser.write(f, filteredProducts);
    }
```


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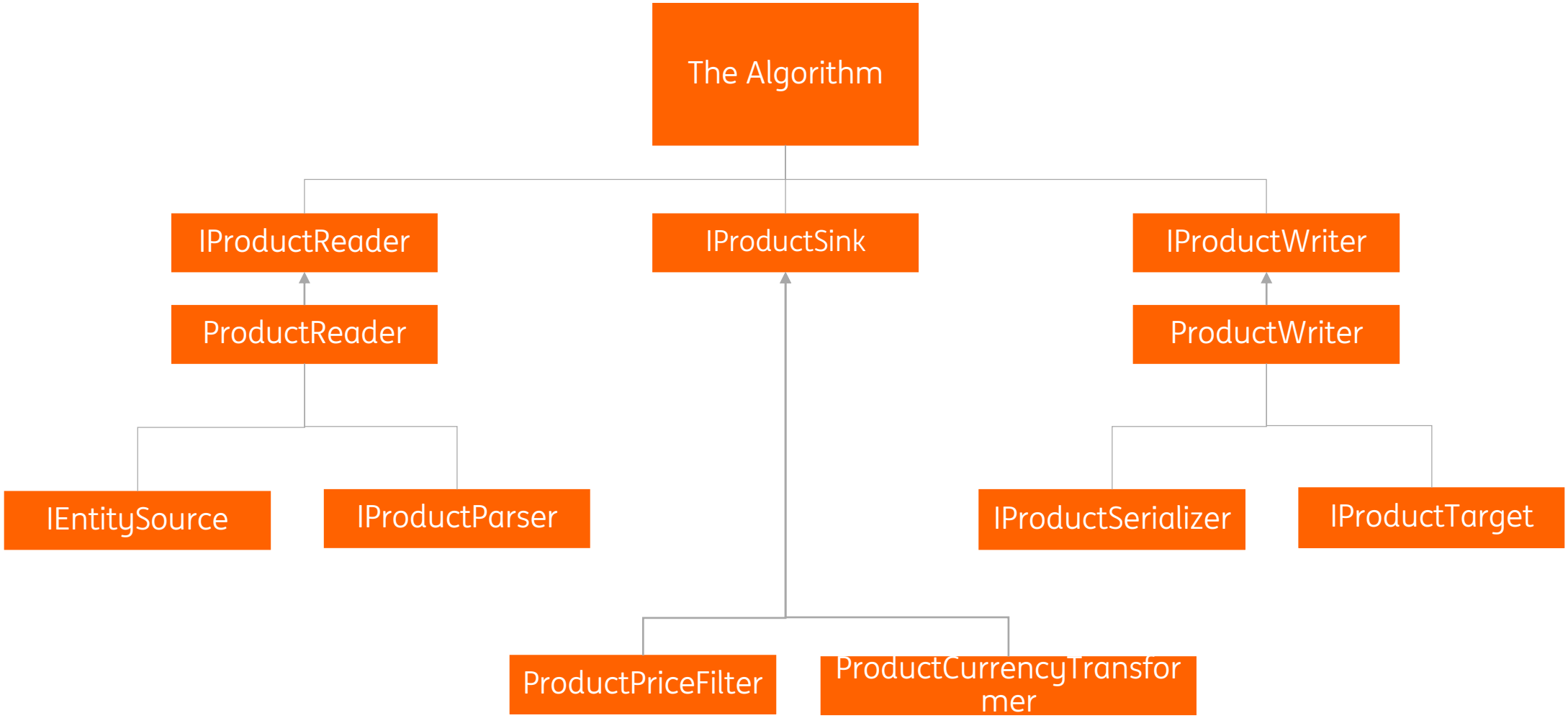
Feedback assignment 1

Most of the submissions recognized the following responsibilities quite well:

- Orchestration / “The algorithm”
- The model
- Reading from file
- Writing to file
- Parsing from CSV to model
- Serializing the model to CSV
- Filtering on price > 10
- Converting from dollars to euros

But for some reason the last six were often mixed into one or two classes

Feedback assignment 1: An alternative design



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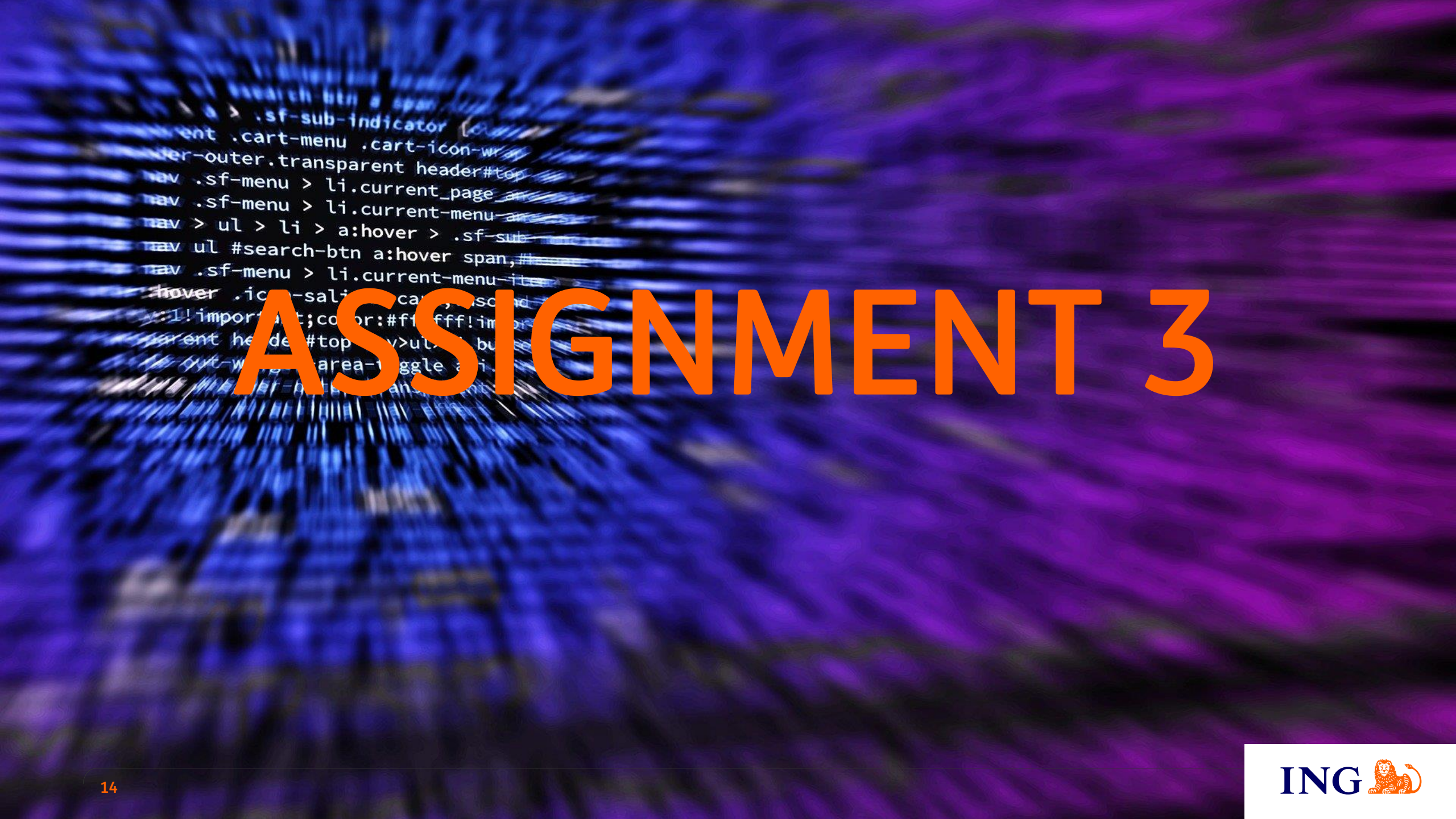
Feedback assignment 1: Top-down programming



ASSIGNMENT 3

Assignment 3: Experts

1. Before you start download the file inputs.csv from https://www.henrybeen.nl/wp-content/uploads/2020/11/003-experts-inputs.csv
2. Write a program that:
    1. Reads all orders inputs.csv
    2. Writes a file outputs.csv that prints the shipping information **per customer** using the following rules:
        1. Country = Netherlands and Weight < 10 Shipper PostNL, cost are 6,95
        2. Country = Belgium Shipper is BelgioPosto and cost are 1,95 + (1 * weight)
        3. All other cases Shipper is DHL and cost are 12,95 + (1.5 * weight)
        4. Duration for PostNL = 1, for BelgioPosto = 2
        5. Duration for DHL (weight < 10) = 4, DHL (weight >= 10) = 8

Remember, the goal of the assignment: *write an OO implementation that solves the problem, not*

Assignment 3: Experts – example inputs and outputs

Input file:

CustomerId, Name, Product, Price, Weight, Country

16, Henry Been, Pepernoten, 3.23, 0.5, Netherlands

21, Pietje de Boer, Monitor, 466.19,2.5, Belgium

16, Henry Been, Jas, 128.12, 2.2, Netherlands

Output file:

CustomerId, Name, Shipper, Duration, ShippingCost

16, Henry Been, PostNL 1 6.95

21, Pietje de Boer, BelgioPosto 3 5.7


LET'S GO