P2 - Exercise hour

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Ex. 9 Recap

**Parser**
- Read input, parse movies

**Create Movies**
- A movie class to store all the attributes of the movie
- Use builder pattern to create the movie object
- Movie Builder can validate each movie attribute separately
Builder
- Use builder to create movie objects

```java
public static MovieBuilder builder() {
    return new MovieBuilder();
}

public static class MovieBuilder {
    ...

    public Movie build() {
        return new Movie(title, ..);
    }
}
```
Nullable fields
- A few fields are marked as optional
- You can use @Nullable annotation

```java
public Movie(String title, @Nullable Date date, 
@Nullable Integer boxOffice)
{
    //movie does not exists
    assert (MovieDB.find(title).isEmpty());

    // set all the attributes of the movie
}
```
Search by people
- Search needs to be chained
- First search in producers list

```java
// Chain objects
public class Producer{
    public boolean match(String query) {
        if (super.match(query)) {
            return true;
        }
        return this.director.match(query);
    }
}
```
// Chain objects
public class Director{
    public boolean match(String query) {
        if (super.match(query)) {
            return true;
        }
        return this.actor.match(query);
    }
}
Other patterns
- Iterator
- Visitor
- Singleton
Pharo

- Pharo is a dynamic typed language
- Style matches to the natural language, English
- A live programming environment
- Supports live debugging
- Inspect objects with custom representations
Basic blocks

2 raisedTo: 30
15 / 25
['Hello Smalltalk']
anArray := #(1 2) 

"1073741824- "
"(3/5)- Fraction"
"'Hello Smalltalk' -ByteString"
How do you write Loops?

Java

```java
for(int i = 1; i < 10 ; i++)
    System.out.print(i);
```

Pharo

```pharo
(1 to: 9) do: [:x | Transcript show: x printString]
```
Detect first odd number from the array?

Java

```java
int[] array = {21, 23, 53, 66, 87};
    Integer result = null;
    for (int i = 0; i < array.length; i++) {
        if (array[i] % 2 == 1) {
            result = array[i];
            break;
        }
    }
    if (result == null)
        throw new Exception("Not found");
```

Pharo

```
#(21 23 53 66 87) detect: [ :x | x odd]
```

Note: Note that arrays are 1-based—that is, the first valid index is 1, rather than 0.
Exercise 10

- Revisit Turtle game from exercise 3
- Move turtle using 4 commands
- Commands are already created
- Understand ‘TurtleModel‘ and ‘BoardModel‘ class and document the classes
Document the classes

- Document all the details like purpose of the classes, what they do, instance variables, APIs warnings, observations etc. that you think is important to understand and extend these classes
- Pharo use Class comments as a primary source to document all such details
- Write all the details in comments
- Document ‘TurtleModel‘ and ‘BoardModel‘ class and document the classes
CONFIRM US ABOUT YOUR HANDOVER BEFORE STARTING THE EXERCISE 10

- There are 2 exercise patterns
- We will assign the exercise pattern, you shall do
- Differences in the class comment template
- See `exercise_10.md` for more details