


# Java Session

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# External vs Internal Iteration

# External vs Internal Iteration

- External iteration (for/while loops)

```
List<Item> items = ...;
```

```
for (int i = 0; i < items.size(); ++i) {  
    Item item = items.get(i);
```

```
}
```

# External vs Internal Iteration

- External iteration (for/while loops)

```
List<Item> items = ...;
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```
for (int i = 0; i < items.size(); ++i) {  
    Item item = items.get(i);
```

```
    Object transformed = transform(item);
```

```
}
```

# External vs Internal Iteration

- External iteration (for/while loops)

```
List<Item> items = ...;
```

```
List<Object> results = new ArrayList();  
for (int i = 0; i < items.size(); ++i) {  
    Item item = items.get(i);  
  
    Object transformed = transform(item);  
  
    results.add(transformed);  
}  
System.out.println(transformed);
```

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    Object transformed = transform(item);
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    results.add(transformed);
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}  
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    results.add(transformed);  
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System.out.println(transformed);
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- External iteration (for/while loops)
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- External iteration (for/while loops)
- 👎 Concerns not grouped together
- 👎 Cannot be parallelized

# External vs Internal Iteration

- Internal Iteration
- What we will do?
  - Brainstorming
  - Problem solving
  - Object-oriented programming
  - A bit of functional programming

# External vs Internal Iteration

- Internal iteration: separation of concerns

```
List<Item> items = ...;
```

```
List<Object> results = items.stream()  
    .map(person -> toFullName(item))  
    .map(fullName -> reverse(fullName))  
    .collect(Collectors.toList());
```

```
System.out.println(results);
```

# External vs Internal Iteration

- Internal iteration: parallelism

```
List<Item> items = ...;
```

```
List<Object> results = items.stream()  
    .parallel()  
    .map(person -> toFullName(item))  
    .map(fullName -> reverse(fullName))  
    .collect(Collectors.toList());
```

```
System.out.println(results);
```

# Questions?