Agenda

- Programming paradigms
- What is functional programming
- Why use functional programming
- Workshop

Programming paradigms

- Structured
  - If statements, loops, no more goto
- Procedural
  - Functions and procedures
- Object oriented
  - Everything is an object, with attributes and methods

Programming paradigms

- Imperative

```
for (BettingModel bettingModel : bettingModels) {
        Request request = service.close(bettingModel);
        if (request != null) {
            client.send(request);
        }
    }
```

- Declarative

```
bettingModels.forEach(bettingModel -> service.close(bettingModel).ifPresent(client::send))
```

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What is functional programming

- Avoiding and managing side effects
- And a couple of other things (immutability, laziness, recursion, etc.)
- Often used with category theory
- No need for Java 8, it’s just a style of writing

No need for Java 8

```
forEach(bettingModels, compose(sendUsing(client), closeUsing(service)));


public static <T, U> Collection<U> forEach(Collection<T> items, Command<T, U> command) {
        Collection<U> results = new ArrayList<>();
        for (T item : items) {
                U result = command.execute(item);
                if (result != null) {
                        results.add(result);
                }
        }
        return results;
}
```

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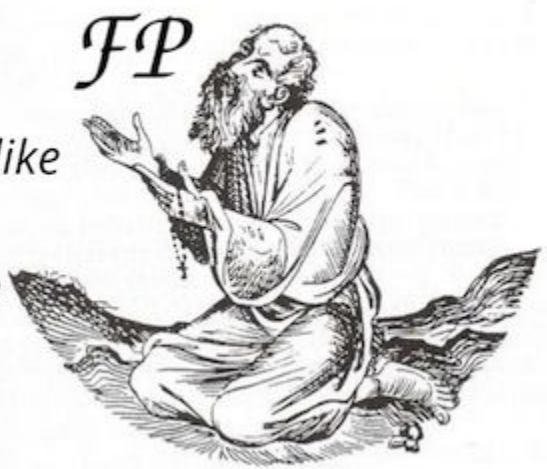
Why use functional programming

"The functional programmer sounds rather like a mediæval monk, denying himself the pleasures of life in the hope that it will make him virtuous."



http://www.rabbitonweb.com/2017/03/16/ascetic-masochism-of-functional-programmers/

Why use functional programming

- More what than how
- Composability
- Easier to reason about
- Testing is easier

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- Programming paradigms
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- **Workshop**

Workshop

- Composing functions
- Managing exceptions
- Validation