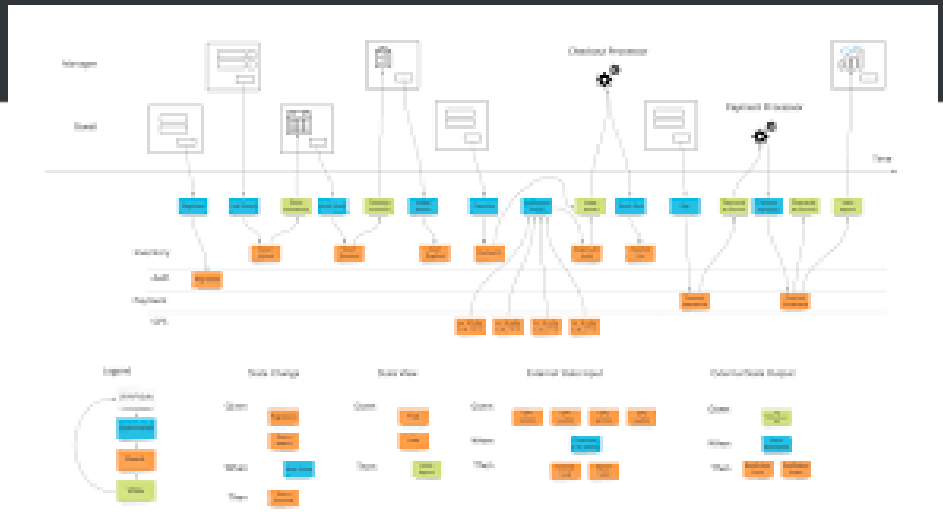
Implementing a functional Event Sourced aggregate with Event Modeling



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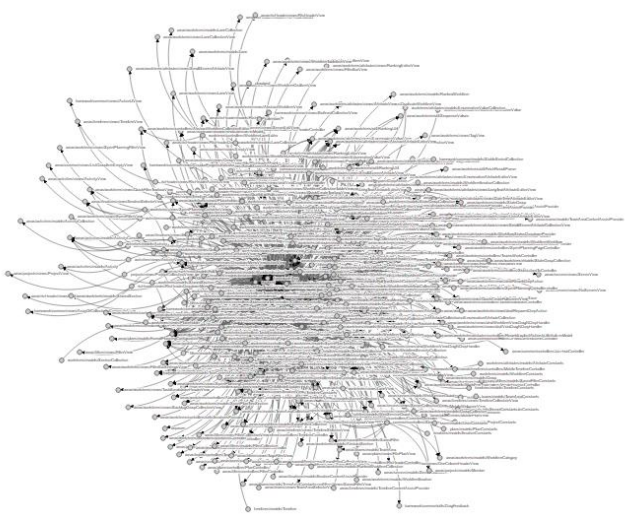
Domain Driven Design

« Tackling complexity in the Heart of Software »



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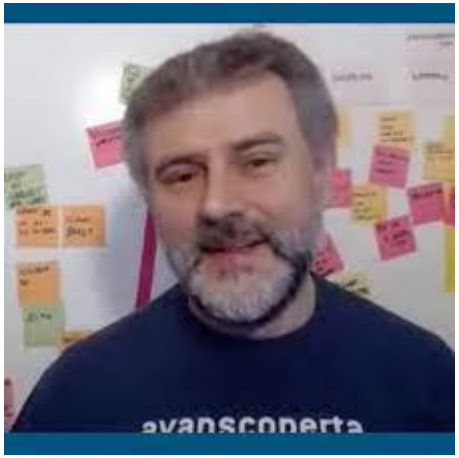
Event Storming

A tool for the problem space



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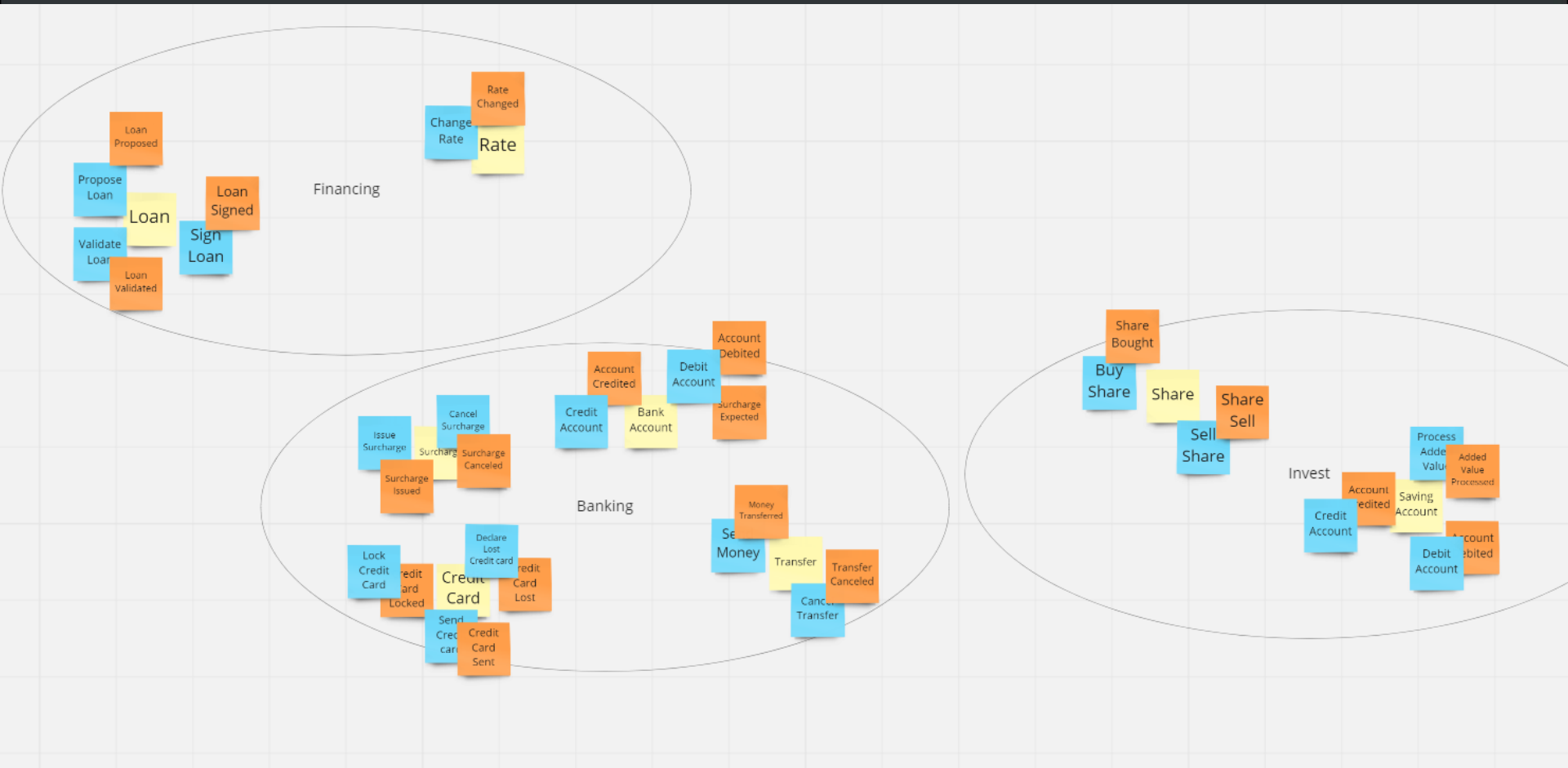
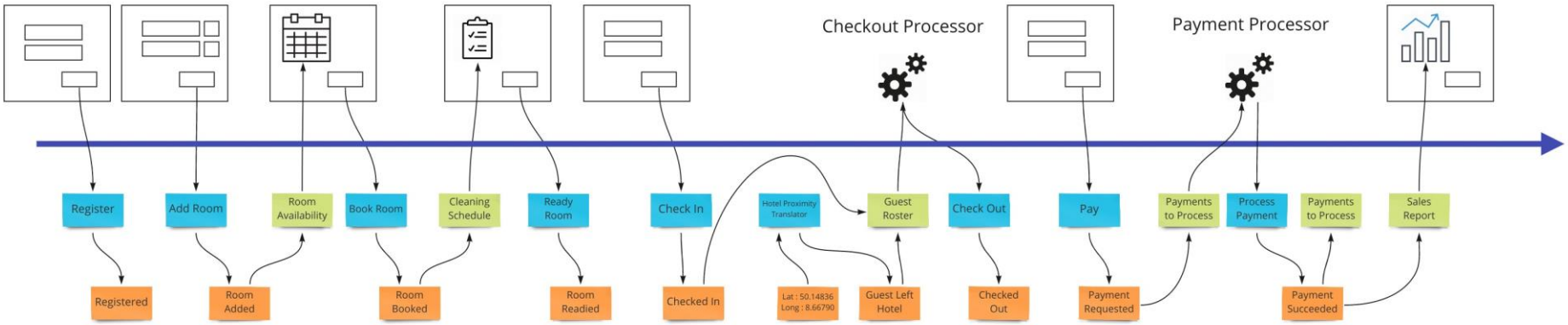
Exemple d'Event Storming



Event Modeling

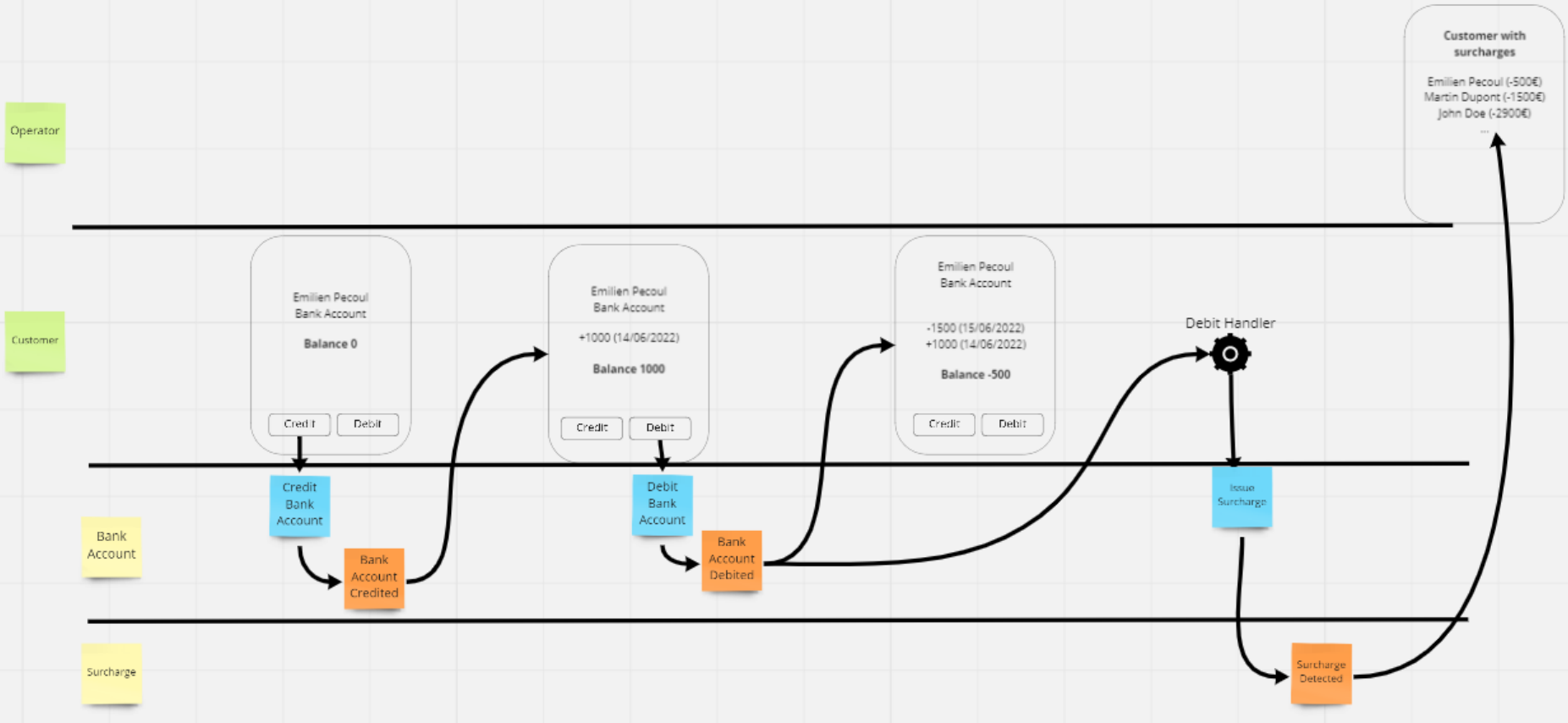
A tool for the solution space

1- Focus an epic
2- Start from the view
3- Use aggregate, commands and events from Event Storming

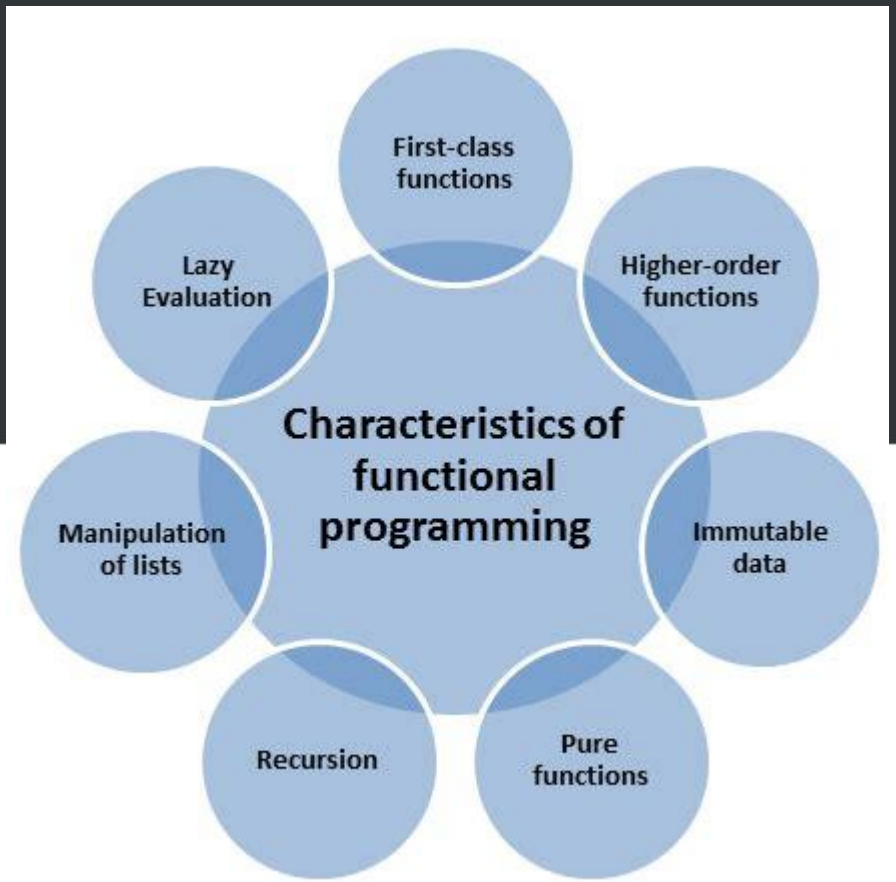


Event Modeling

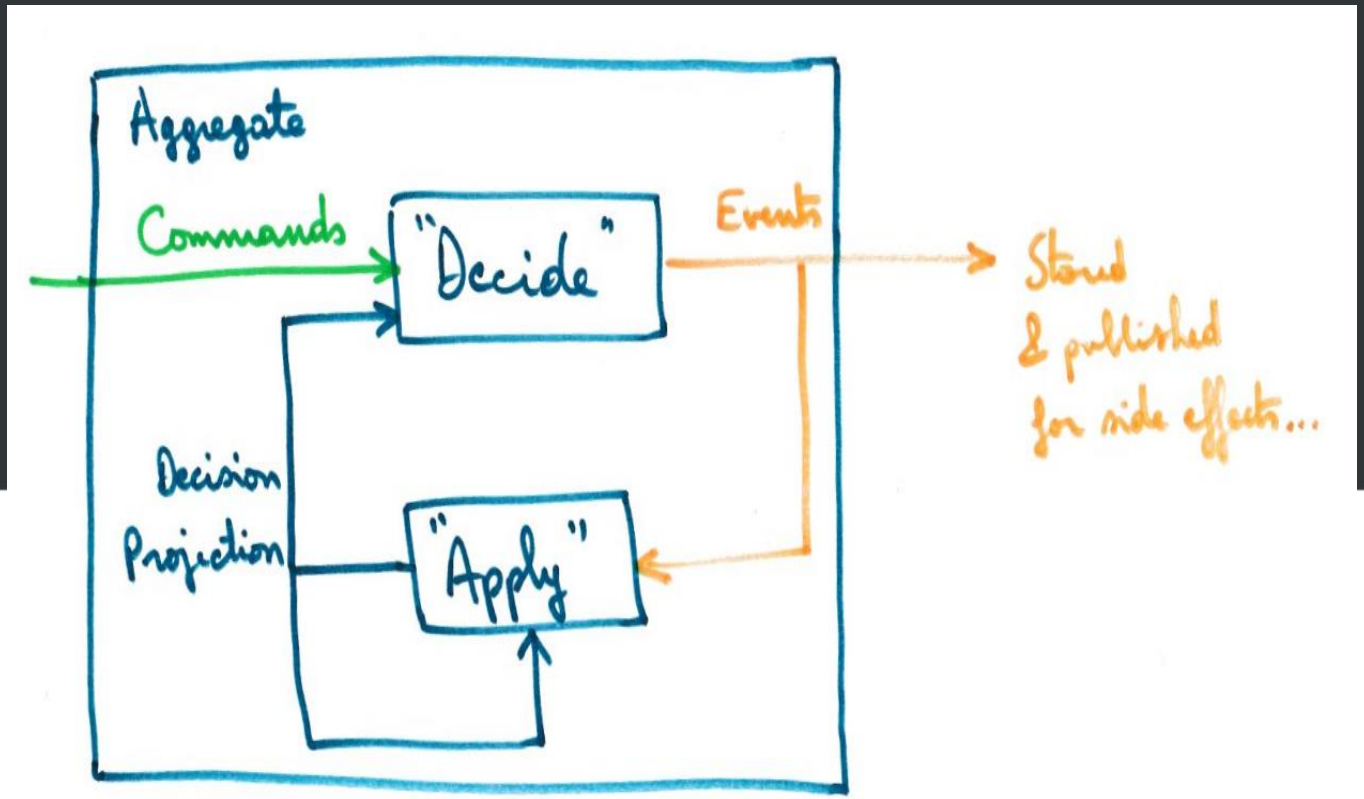
Credit and debit bank account (surcharge)



Functional ?


First-class functions
Higher-order functions
Immutable data
Pure functions
Recursion
Manipulation of lists
Lazy Evaluation
Characteristics of functional programming

Event Sourcing ?



Source: Jérémy Chassaing

Functional Event Sourcing ?

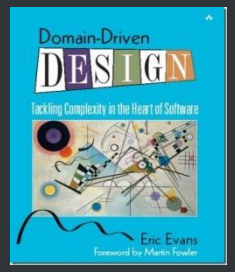
```
type State =
    { Solde: Euro }

let initial = { Solde = 0m }

let private apply (state: State) = function
    | AccountCredited event -> { Solde = state.Solde + event.Amount }
    | AccountDebited event -> { Solde = state.Solde - event.Amount }
    | _ -> state

let private applyAll history =
    history |> Seq.fold apply initial

let credit date amount history =
    let state = applyAll history
    [ AccountCredited
        { Date = date
          Amount = amount
          Solde = amount + state.Solde} ]

let debit date amount history =
    let state = applyAll history
    let transaction = {Date = date; Amount = amount; Solde = state.Solde - amount}
    if state.Solde - amount > 0m then
       [ AccountDebited transaction ]
    else [ AccountDebited transaction; SurchargeExpected transaction ]
```


https://github.com/Ouarzy/EventModelingByExample

References

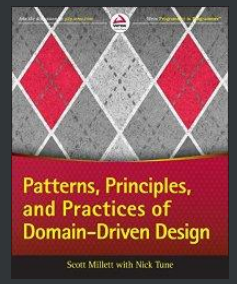
@ericevans0

Domain Driven Design:Tackling Complexity In The Heart of Software



@ScottMillett

Patterns, Principles and Practices of DDD



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Event Storming https://leanpub.com/introducing_eventstorming

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Merci !

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