# Project Plan

## Steps

1. **Quote matching, Constraint CaseDef** : In this part, the aim is to have pattern matching move from reflection to quotes, and restrict the guards to function applications
2. **Implement Simple Algorithm** : The objective is to have a simple algorithm that allows to match the messages/events in the queue against the internal representation of the patterns
3. **Code Generation** : The macro should produce a well-formed function expression, intented to use in an Actor
4. **Implement Complex Algorithm** : Here a more complex matching algorithm, such as Rete, would be implemented, involving a lot more comptime logic and structure, such as trees
5. **Possible Extensions** : [Optional] This allocates time for any extension (for example, message ordering, wildcards) that adds value to the project
6. **Create Samples** : During this step use cases must be written from typical applications, and compare the macro-based approach to ScalaJoins and Akka
7. **Produce results** : Use the a benchmark framework (possibly scalameter) to gather the data, and generate figures for the report
8. **Write paper** : Can start as soon as the simple algorithm is implemented

## Diagram

# Join-Patterns for the Actor Model in Scala 3 using Macros

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| | 15/03 | 01/04 | 15/04 | 01/05 | 15/05 | 01/06 | 15/06 | 01/07 |
|---|---|---|---|---|---|---|---|---|
| ***Quote matching, Constraint CaseDef:***<br>*- matching at comptime*<br>*- guards must be applications* | | | | | | | | |
| ***Implement Simple Algorithm:***<br>*- matches patterns*<br>*- maybe inefficient* | | | | | | | | |
| ***Code Generation:***<br>*- produce receive() method*<br>*- usable in class, function* | | | | | | | | |
| ***Implement Complex Algorithm:***<br>*- Rete ?* | | | | | | | | |
| ***Possible Extensions:***<br>*- message ordering*<br>*- syntactic sugar* | | | | | | | | |
| ***Create Samples:***<br>*- use cases*<br>*- use cases using Akka* | | | | | | | | |
| ***Produce results:***<br>*- run benchmarks*<br>*- aggregate data* | | | | | | | | |
| ***Write report*** | | | | | | | | |