# Beagle

Implementation Plan

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# Implementation Plan

Each task will be assigned to one person and another person will write tests for it. Except for the prototypes: they do not need automated tests.

## Preparation (2015-12-24 – 2016-01-10)

For the parts of our project depending on the Eclipse API we decided to create prototypes to learn how to use the API. As knowledge about used APIs is essential for a software's design, we decided to already create prototypes in the design phase.

| Task: | Prototype for Context Menus |
|---|---|
| Nr: | #010 |
| Description/Classes: | Write a simple Eclipse plugin that adds all context menus specified in the SRS GUI model to Eclipse by using Eclipse extension points. Show a sample dialog when the user clicks on a context menu. |
| Depends on: | – |

| Task: | Prototype for Eclipse Extension Points |
|---|---|
| Nr: | #020 |
| Description/Classes: | Write a simple Eclipse plugin that offers an extension point for measurement tools and allows other plugins to offer a measurement tool. The plugin should display the available measurement tools. Create a plugin with a measurement tool stub that uses the extension point. |
| Depends on: | – |

| Task: | Prototype for GUI |
|---|---|
| Nr: | #030 |
| Description/Classes: | Create an Eclipse plugin that shows a wizard as described in the SRS GUI model. The wizard should show some demonstration content. |
| Depends on: | – |

## Week 1 (2016-01-11 – 2016-01-17)

| Task: | SEFF classes |
|---|---|
| Nr: | #040 |
| Description/Classes: | Implement `SEFFLoop`, `SEFFBranch`, `ResourceDemandingInternalAction` `ExternalCallParameter`. |
| Depends on: | – |

| Task: | PCM Repository loader |
|---|---|
| Nr: | #050 |
| Description/Classes: | Create a class that provides all information from the PCM which are relevant for Beagle and a factory that uses these information to create the `SEFFLoops`, `SEFFBranches`, `ResourceDemandingInternalActions` and `ExternalCallParameters`. |
| Depends on: | #040 (SEFF classes) |

| Task: | Blackboard |
|---|---|
| Nr: | #060 |
| Description/Classes: | Implement `Blackboard`. |
| Depends on: | –<br>(Not depending on #050, as the `Blackboard` only needs the class stubs for `SEFFLoop`, `SEFFBranch`, `ResourceDemandingInternalAction`, `ExternalCallParameter` and the `ParameterisationDependentMeasurementResult` subclasses and not their functionality). |

| Task: | Blackboard Views |
|---|---|
| Nr: | #070 |
| Description/Classes: | Implement `Read-Only Measurement Controller Blackboard View`, `Measurement Controller Blackboard View`, `Read-Only Measurement Result Analyser Blackboard View`, `Measurement Result Analyser Blackboard View`, `Read-Only Proposed Expression Analyser Blackboard View`, `Proposed Expression Analyser Blackboard View`. |
| Depends on: | –<br>(Not depending on #060, as the Blackboard Views only need the blackboards method stubs.) |

| Task: | Integrate prototype for Context Menus |
|---|---|
| Nr: | #080 |
| Description/Classes: | Integrate the prototype for Context Menus into Beagle. |
| Depends on: | #010 |

| Task: | Integrate prototype for Eclipse Extension Points |
|---|---|
| Nr: | #090 |
| Description/Classes: | Integrate the prototype for Eclipse Extension Points into Beagle. |
| Depends on: | #020 |

| Task: | Prototype for GUI |
|---|---|
| Nr: | #100 |
| Description/Classes: | Integrate the prototype for Context Menus into Beagle. |
| Depends on: | #030 |

## Week 2 (2016-01-18 – 2016-01-24)

| Task: | Implement Evaluable Expressions |
|---|---|
| Nr: | #110 |
| Description/Classes: | Implement all subclasses of the interface `EvaluableExpression`. (Package “Evaluable Expressions”) |
| Depends on: | – |

| Task: | Implement Measurement Results |
|---|---|
| Nr: | #120 |
| Description/Classes: | Implement `ParameterisationDependentMeasurementResult` and all of its subclasses. (Package “Measurement”) |
| Depends on: | – |

| Task: | Implement Measurement Order |
|---|---|
| Nr: | #125 |
| Description/Classes: | Implement `MeasurementOrder` and `CodeSection`. |
| Depends on: | #040 (SEFF Classes) |

| Task: | Implement Blackboard Controllers |
|---|---|
| Nr: | #130 |
| Description/Classes: | Implement `BeagleController` and `MeasurementController`. |
| Depends on: | #060 (`Blackboard`) and #070 (Blackboard Views) |

| Task: | Implement tool helper classes. |
|---|---|
| Nr: | #133 |
| Description/Classes: | Implement `Abstract Measurement Tool`,<br>`Abstract Proposed Expression Analyser`,<br>`Abstract Measurement Result Analyser`. |
| Depends on: | – |

| Task: | Implement Final Judge |
|---|---|
| Nr: | #137 |
| Description/Classes: | Implement `Final Judge`. |
| Depends on: | #060 (`Blackboard`) and #120 (Measurement Results)<br>(Not depending on #160 (Fitness Function), because only method stubs are needed here.) |

## Week 3 (2016-01-25 – 2016-01-31)

| Task: | Kieker measurement tool |
|---|---|
| Nr: | #140 |
| Description/Classes: | Build a `MeasurementTool` executing Kieker. |
| Depends on: | #120 (Measurement Results), #060 (`Blackboard`), #070 (Blackboard Views), #040 (SEFF classes) and #125 (Measurement Order) |

| Task: | Averaging Measurement Result Analyser |
|---|---|
| Nr: | #150 |
| Description/Classes: | Build a `Measurement Result Analyser`, which takes as final `EvaluableExpression` a `ConstantExpression` for all `MeasurableSeffElements` with the average of all available measurement results. |
| Depends on: | #120 (Measurement Results), #060 (`Blackboard`), #070 (Blackboard Views), #040 (SEFF classes) and #133 (tool helper classes). |

| Task: | Implement Evaluable Expression Fitness Function |
|---|---|
| Nr: | #160 |
| Description/Classes: | Implement a `EvaluableExpessionFitnessFunction`. |
| Depends on: | #120 (Measurement Results) and #040 (SEFF classes) |

Optional: Build more, better `MeasurementTools`, `MeasurementResultAnalysers` and `ProposedExpressionAnalysers`.

## Week 4 (2016-02-08 – 2016-02-14)

Reserved for tasks that take longer than expected.

Optional: Build more, better `MeasurementTools`, `MeasurementResultAnalysers` and `ProposedExpressionAnalysers`.