

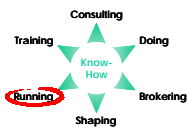
CASSANDRA/Estimator

Effort Estimation based on UML-Specifications

Effort Estimation

Today, costs and human effort are a major factor in IT systems development, which gives reliable effort estimation a crucial role. When an IT specification is formulated using UML®, we already have a substantial base to estimate the development effort to be expected. However, some important factors may not be stated in UML: for example the intended technology for the target platform, the stability and quality of the requirements, the size and experience of the development team, and many other factors.

CASSANDRA/ Estimator



The costs for your project are bigger than you think!



Based on our software engineering platform CASSANDRA, we developed an application to support **effort estimation for IT projects**. By using more than 150 rules, not only the total effort for an IT project is estimated, but also a detailed list of activities is produced (each with an individual effort estimation) as well as the overall costs for the project are predicted. Furthermore, a simple project plan suggesting milestones and iterations is generated.

It is our belief that it is absolutely essential that such estimation tools produce **results that are understandable by its users**. For that reason, we have chosen a different approach than the commonly well known COCOMO or Function Point Analysis (FPA):

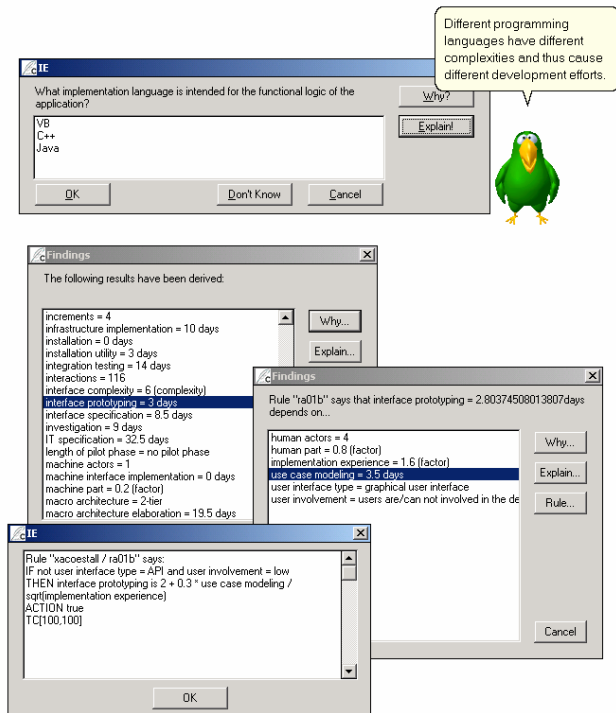
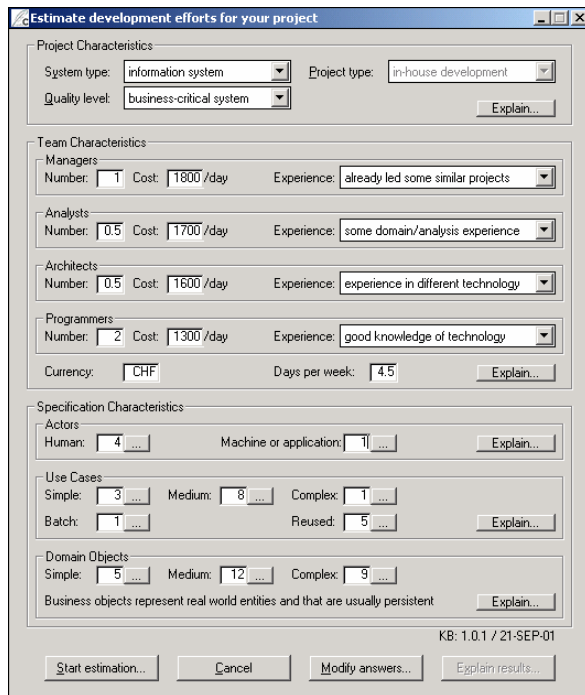
1. At the beginning of a session, CASSANDRA gathers some general and technical information about the project.
2. Based on this information, a project-specific, structured list of activities is produced.
3. By inspecting the UML-based specification (typically in a CASE tool) and the given information, the effort for each individual activity is estimated.
4. Corresponding to the team size and the daily rates of the team members, the overall costs for the project are calculated.
5. Based on the team size and the estimated effort, a simple project plan suggesting milestones and iterations is generated.

Rule-based Approach

By using a rule-based approach and CASSANDRA's extensive interactive capabilities it becomes possible **to explain the delivered results in detail**. The following influencing factors are considered and thus asked by CASSANDRA for estimation:

- Team size, experience and organization
- Project culture (stability, standards, etc.)
- Product requirements such as reliability, lifetime, etc.
- Intended technical architecture
- Intended middleware and programming language(s)
- Interfaces to other applications
- Special project tasks such as authoring and translation of manuals, user training, etc.

Due to the holistic approach of CASSANDRA/Estimator, the generated activity list may also be used as a **project-specific check-list**.



Functionality

The following features are provided by CASSANDRA/Estimator:

- Suitable for **informations systems** as well as for **technical systems**.
- Project-specific inquiry of relevant information with the possibility to **explain the questions asked**.
- **Storage of the given answers within the CASE tool**, so that there is no need to re-answer the same questions in a later session.
- **Automatic transfer of information from a CASE tool** and classification of use cases and classes according to their complexity.
- **Automatic production of a comprehensive report** (selectable in ASCII, HTML or XML format) containing the following information:
 - Complexity measures for the project
 - Project-specific structured activity list with individual efforts
 - Overall effort and costs for the project
 - Simple project plan suggesting milestones and iterations
 - Summary of assumptions and given answers.
- **Explanation facility with detailed reasoning** for each individual effort.
- **"What if" Analysis** for convenient exploration of the most influencing factors and cost drivers.

Requirements

To run CASSANDRA/Estimator the following technical requirements must be fulfilled:

- CASSANDRA, V1.4 or higher
- Recommended: a CASE tool supported by CASSANDRA (ARTISAN RTS >=V4, Select Enterprise V5.x or V6.x, Rational Rose 98 or 2000)

If no CASE tool is used, the required information may also be entered manually.

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