



BetterEstimate™

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Draft User Manual

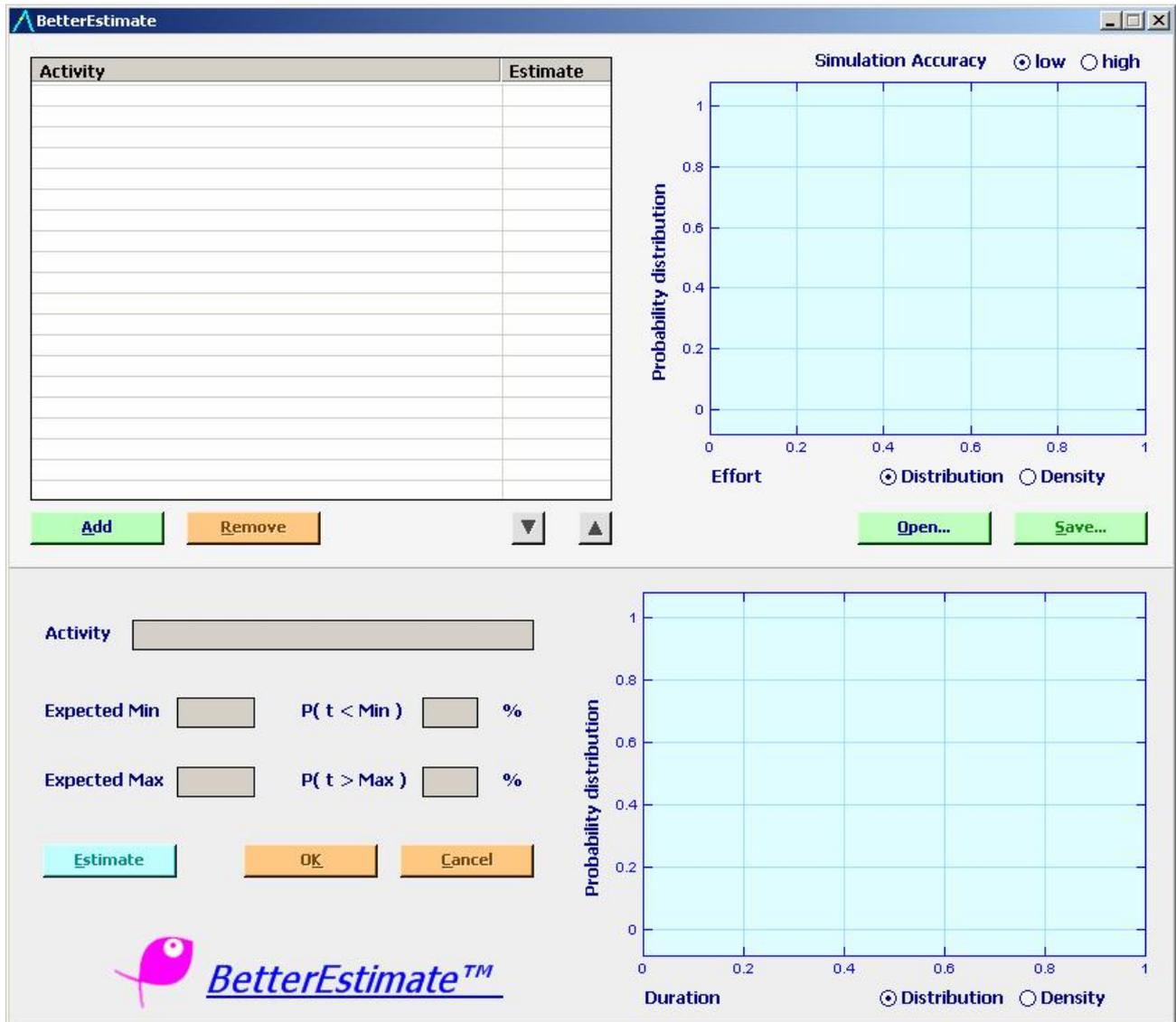
Basic concepts

BetterEstimate is a tool for *probabilistic effort estimation*. It is based on a few simple ideas:

- Estimates have an inherent uncertainty; therefore, they are not properly represented by a single number (as they tend to be in many traditional approaches).
- A better estimate can be given as a range [min..max] to capture uncertainty.
- In practice, people tend to be overly conservative even when they provide ranges. There is usually no 100% confidence on either the min or max value.
- A sensible choice, therefore, is to ask for a range [min..max] and then for a confidence level on min and max (we'll see details later).
- From those data, we can derive a "most likely" duration for the activity, assuming some kind of probability distribution. BetterEstimate currently uses a triangular distribution.
- We can then combine the probability distribution of several *activities* to estimate the most likely effort for a *project*. This can be done through a Montecarlo simulation. The simulation can also give confidence ranges for the effort (we'll see details)

Note that we estimate the *duration* of each activity and the *effort* (not duration) for the project. Estimating duration at project level requires more information (dependency constraints between activities). Currently, there is no support for dependencies in BetterEstimate.

BetterEstimate interface



The interface is visibly split into two halves. In the top half, you work at the project level. In the bottom half, you work at the activity level. In both halves, on the right side you have a distribution or density chart for the project or activity.

There is no menu for the application, as all the functions are accessible through buttons. As a general rule, buttons are disabled when some function can't be accessed. Buttons are green when it's absolutely safe to use the function and orange when you need to pay more attention. For instance, the Open button will be green if the current project has been saved, and there is no risk in opening a new one. It will be orange if there are unsaved changes and you might lose your work if you open a new file (you'll still be prompted: color is just a visual hint).

Estimating effort

Estimating *effort* for a *project* is simple: you just add individual activities, and BetterEstimate will run a Montecarlo simulation in background. You can choose the accuracy of the simulation using the radio buttons in the top right. High accuracy is slower, but still fast enough on most modern machines. The simulation provides (inside the chart itself):

- The *most likely* effort.
- *P(50) range*: a range [T1, T2] such that you have a 50% probability of real effort falling in [T1, T2].
- *P(80) range*: a range [T1, T2] such that you have an 80% probability of real effort falling in [T1, T2].
- *P(90) range*: a range [T1, T2] such that you have a 90% probability of real effort falling in [T1, T2].

In the top-right of the screen you'll also see the probability density (or distribution, depending on your choice) resulting from the simulation.

Estimating the duration of a single activity requires the following data:

- Activity name (it will be used only to identify the activity inside the project).
- Minimum estimated duration.
- Probability of actual duration being less than the minimum. This is, in practice, your uncertainty on the actual minimum.
- Maximum estimated duration..
- Probability of actual duration being more than the maximum. This is, in practice, your uncertainty on the actual maximum.

When you insert all the four values, the Estimate button is activated. Upon successful estimation, you'll get a probability distribution / density chart on the bottom right, together with:

- the most likely effort
- the "absolute minimum" duration
- the "absolute maximum" duration

Common tasks

All common tasks can be performed using buttons. The interface has been design to be stateless whenever possible: for instance, you can look at the details of an activity just by clicking on it. If you change any of the fields in the bottom half for an existing activity, the interface turns into a modal state, from which you can exit either by confirming your editing or with the cancel button.

Quick reference for buttons in the top half:

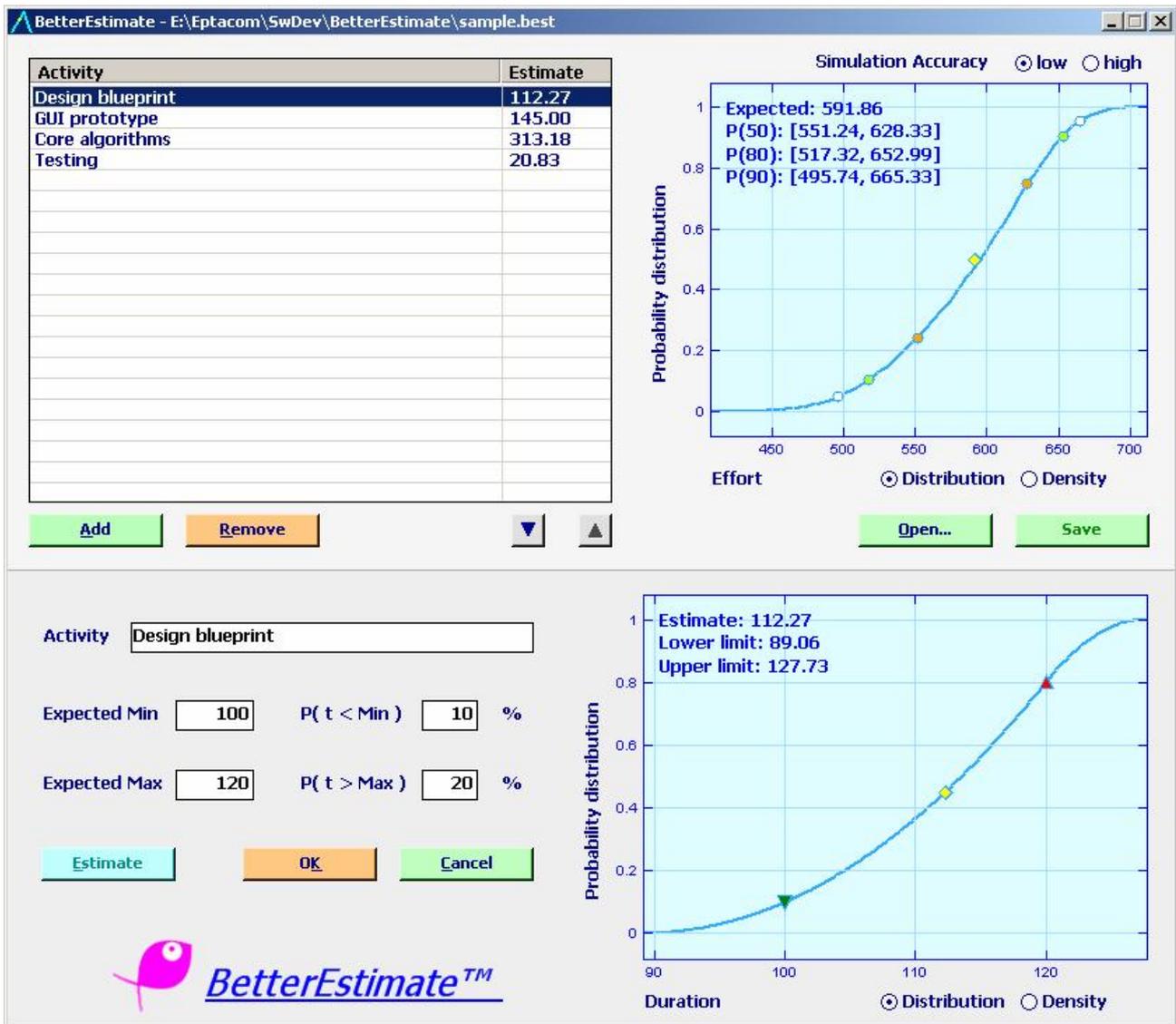
- **Add** allows to create a new activity (using the editor in the bottom half)
- **Remove** will remove the currently selected activity from the project.
- The **Up / Down** arrows will rearrange the order of your activities in the project. This is only useful to give a sensible order to activities. BetterEstimate does not make any use of the ordering, as ordering does not provide full/real precedence constraints.
- **Save** will save your models into a .best file. A filename must be provided when you first save the model; after that, the project will be saved over the same file. There is no “save as” function (you can copy/paste at the file system level: BetterEstimate does not lock the file).
- **Open** will open an existing file.

Quick reference for buttons in the bottom half:

- **Estimate** will estimate the probability distribution (and duration) for your activity. The button is active only when the 4 needed values are present.
- **Ok** will add your activity to the project being estimate, or confirm your editing of an existing activity. *It is fine to save incomplete activities* (without all data), but they won't be considered as part of the effort estimation. *You can't confirm complete activities* (all data present) *that have not been estimated through the estimate button*. This prevents ambiguity, where you would have all data present but no estimated effort. In those cases, Ok will be disabled until you Estimate the activity. Ok requires the activity to be named.
- **Cancel** will discard the activity you're creating, or undo any changes you made to an existing activity (since the last confirmation).

Decorations on the charts

Consider this scenario:



On the project chart (top), the two white bullets identify the P(90) interval, the green bullets the P(80) interval, the orange bullets the P(50) interval and the yellow diamond the expected effort.

On the activity chart (bottom) the green triangle identifies the Expected Min as per your input, the red triangle the Expected Max as per your input, the yellow diamond the Estimate (expected) duration.

System Requirements:

BetterEstimate requires the Microsoft .NET Framework, version 1.1.
Your screen resolution must be at least 1024 x 768 pixels.

Updates:

Please visit www.eptacom.net/betterestimate

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This product includes software developed as part of the NPlot library project, available from: <http://www.nplot.com/> (the component used to draw the charts).

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Known Issues

There are a few known issues with the charts. The component we're using can't handle very small numbers in the axis, so sometimes the density chart (but not the distribution) will not make full use of the available space. For any other issue, please email me at betterestimate@eptacom.net.