# Cost of Delay and how to find the best sequence for feature development

ontheagilepath.net/2017/03/cost-of-delay-and-how-to-find-the-best-sequence-for-feature-development.html

By Sebastian Radics

After reading Principles of Product Development Flow I started implementing a small tool to calculate a proper development sequence for features based on given **cost of delay** and duration for features. This post marks a start in a series of posts regarding cost of delay.

## What can you do with it?

Enter a list of features and calculate the best sequence to develop these features. How can you do that?

1. Enter a list of features and their properties like a short feature name, a cost of delay/week and duration to develop that feature. In case the cost of delay will occur at a later point in time (e.g. due to a seasonal effect or a deadline), you can specify that too.
2. Press **Calculate sequence** and the best sequence is displayed in the sequence field showing the project names in sequence and the total cost of delay for all features developed in that sequence. In comparison you can see the worst sequence too.
3. **Show Chart** displays the sequence and cost of delay distribution

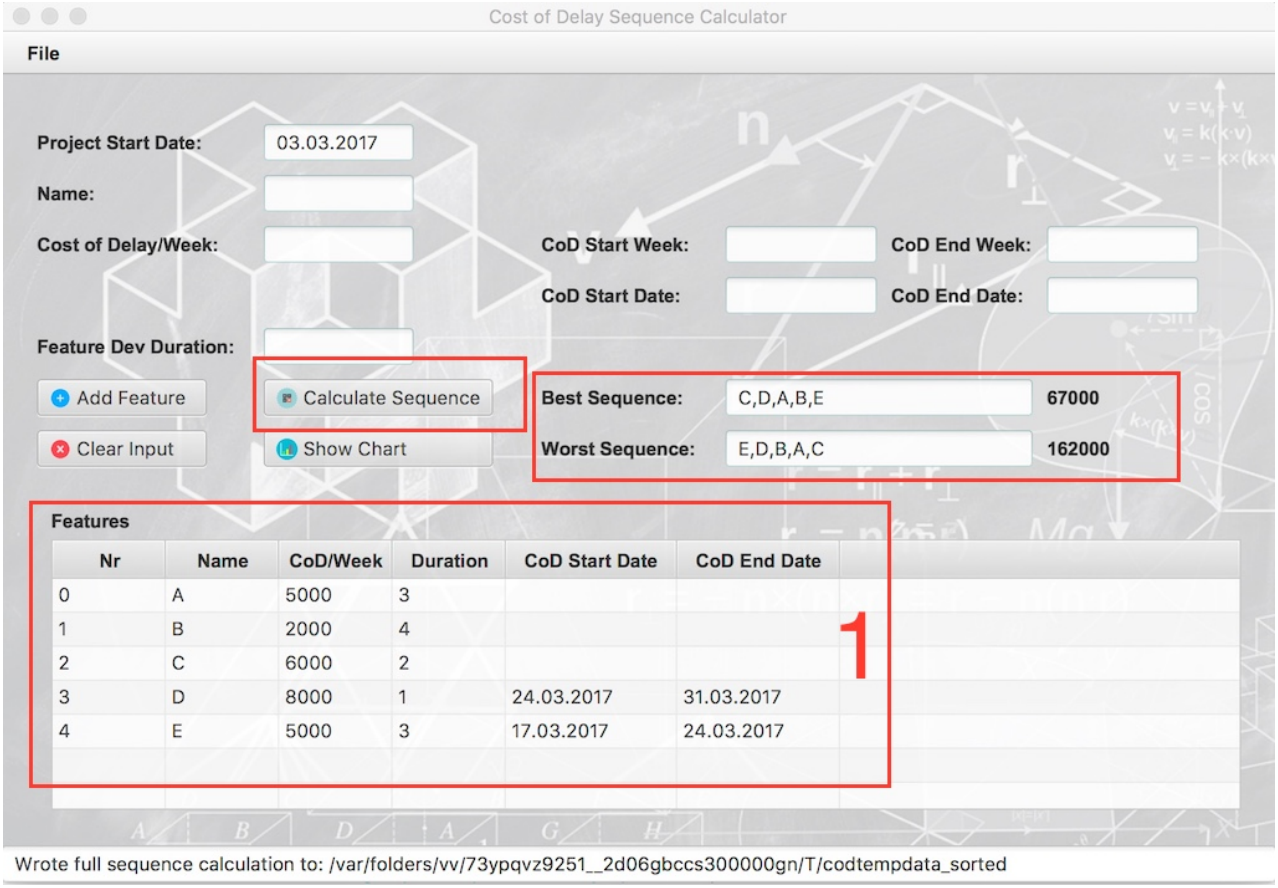
In the screenshot below you can see a list of features – e.g.

- Feature A – that has a cost of delay of 5000 (nuts/€/$) per week and that takes 3 weeks to implement it
- Feature B and C both like A but with different cost of delays and duration
- Feature D with a very short duration to implement it, but with a different cost of delay urgency profile. The cost of delay occurs only between the 24th of march and 31st of march. This could be for instance a seasonal cost of delay urgency profile.

The given project start is set to the 3rd of march.

When calculating the sequence the application concludes with the sequence *C,D,A,B,E* having the lowest total cost of delay of 67.000 (nuts/€/$) in comparison to the worst sequence *E,D,B,A,C* having a total cost of delay of 162.000 (nuts/€/$).

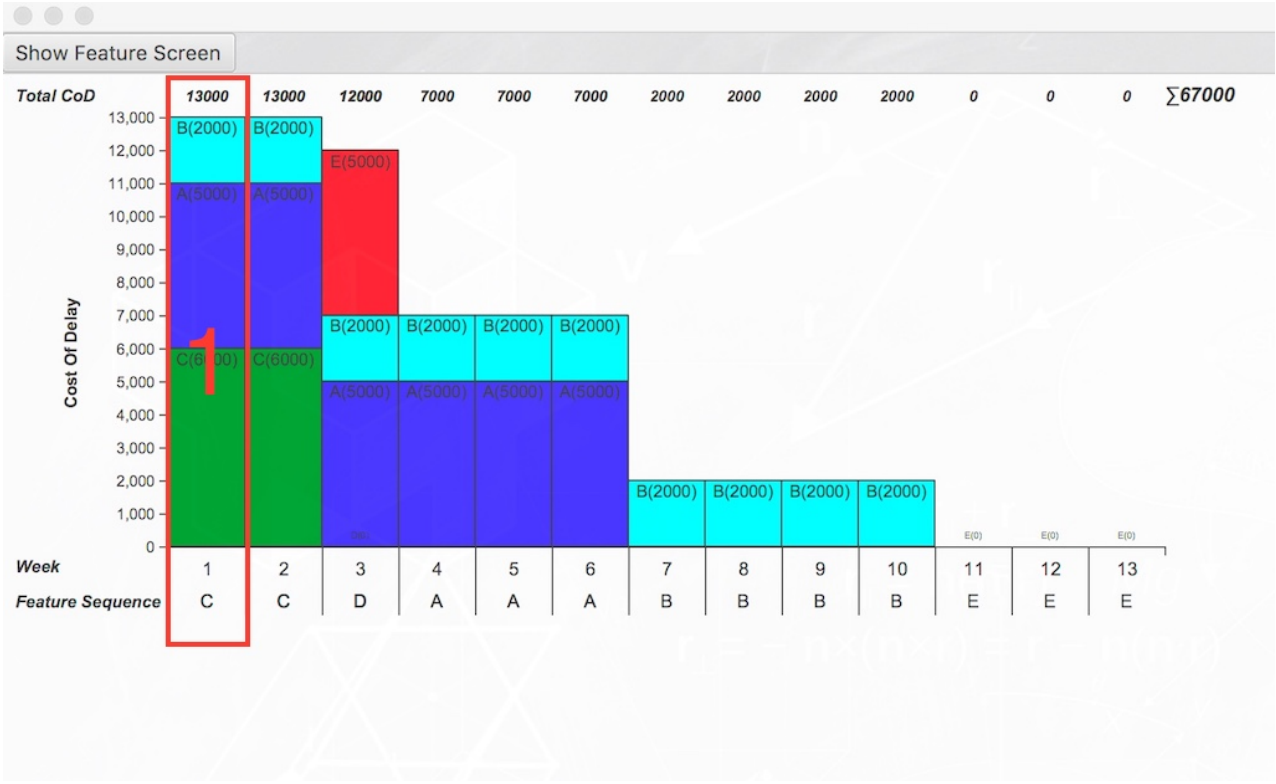
What a difference – just by sequencing the worst sequence has 95.000 (nuts/€/$) higher cost than the best sequence, meaning a 140% increase in costs compared to the best sequence.



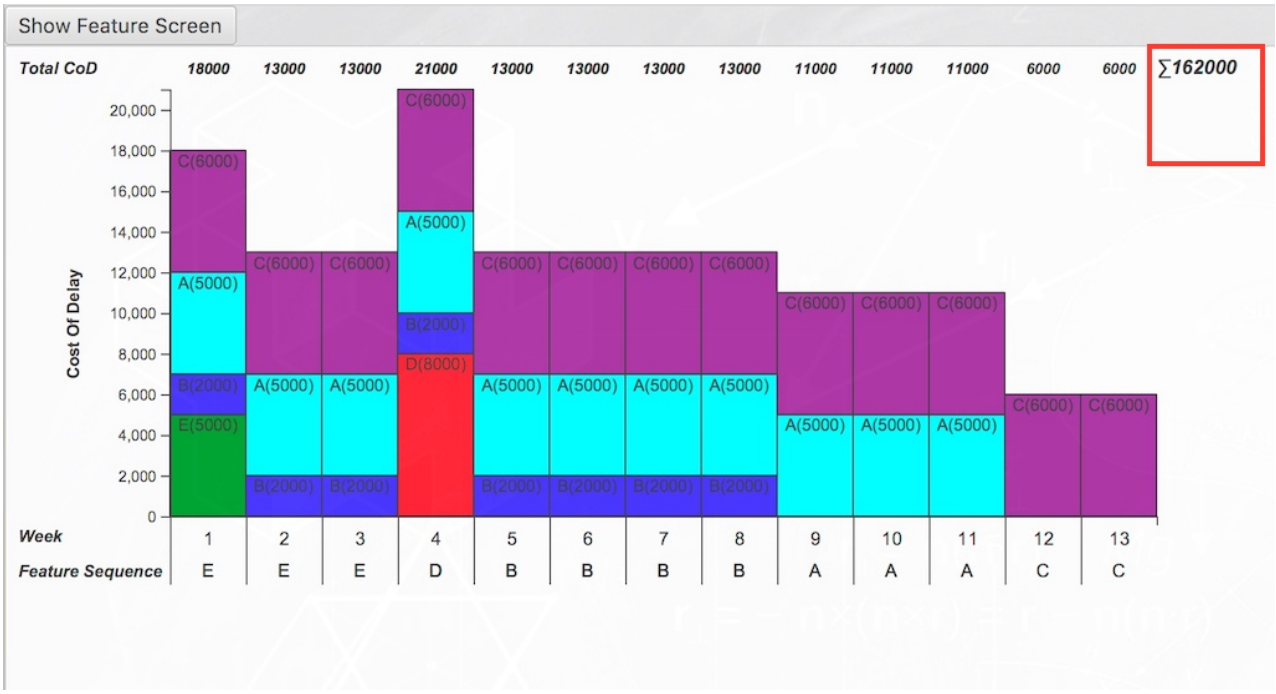

Using **Show Chart** you can display the cost of delay distribution over weeks. It shows:

- the given sequence on the bottom, distributed over all weeks it takes to implement all features
- the stacked cost of delay per week for all features where a cost of delay occurs in that week
- and on top the sum for the cost of delay per week in cost of delay in total.

For example 1 shows a weekly cost of delay of 13.000 (nuts/€/$) in week 1, accumulated by a cost of delay of 6.000 (nuts/€/$) for feature C, 5.000 (nuts/€/$) for feature A and 2.000 for feature B.




It gets interesting when you compare the best sequence with the worst sequence. This can currently be done via copying the worst sequence to the best sequence field and pressing **Show chart** again. (btw – you can also manually change sequences and even remove features from the sequence and that will be reflected in the chart).




## Download and check it out (for free)

You're welcome to use the application. It's open source and available for download at Github.

Download the application binaries at: https://github.com/sradics/cod/releases/tag/v0.1.1 . When you have Java 8 installed on your machine it should be as easy as downloading the jar and running **java -jar cod-0.1.1.RELEASE.jar**

A small description how to start and use it is available at: https://github.com/sradics/cod

Some sample data is included and can be loaded via the application menu *File – Load Input Sample*

Have fun playing with it. Feedback is highly welcome.

## Further readings

> Key take aways from The Principles of Product Development Flow