Functional Decomposition

The *Functional Decomposition* pattern creates elements and a diagram that arranges a set of Features into a hierarchy allowing a Feature to be decomposed into its constituent parts. An Aggregation relationship is used to show how the Features are related in the hierarchy. This allows complex elements to be broken down into parts until they reach a level where they can be understood or are simple enough to be implemented.

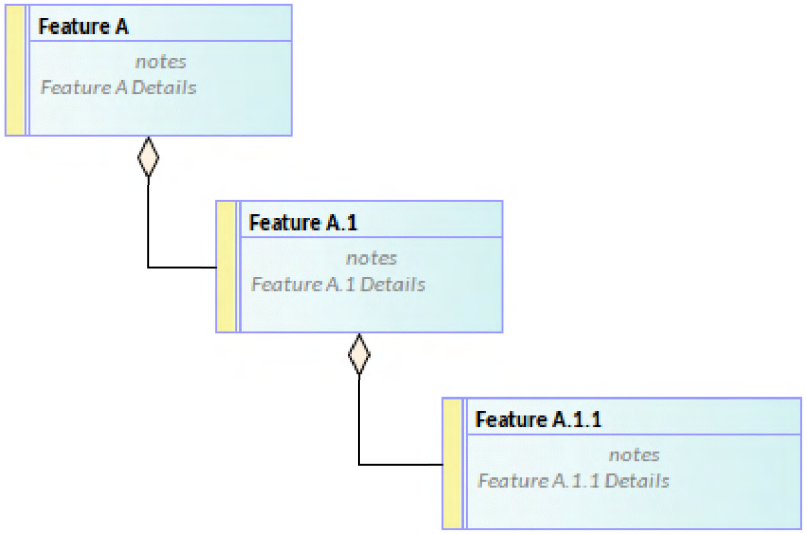

Figure 1. Shows a hierarchy of Features that is the result of Functional Decomposition.

Discussion

The purpose of the pattern is to allow Business Analysts and other stakeholders to break down a Features or other element into a series of parts. This helps manage complexity and allows parts to be tracked, managed and assigned at a granular level.

It is commonly used when complexity needs to be managed and at points in an initiative when specifications or solutions are difficult to understand unless they are broken down into their constituent parts.

The following is a list of some things you may want to do when working with this pattern.

- Change the name of the diagram to suit the initiative.
- Change the names of the Features to suit the initiative.
- Create detailed notes and add other properties to completely describe the Features.
- Create additional Features as required.

The following is a list of some of the next steps available when applying the pattern.

- Restructure the hierarchy to suit the initiative adding additional elements at various levels to suite the processes being described.
- Create Traces to other elements including the Information elements that are consumed or created by Activities in the process, Business Rules.
- Change the display options to make other properties visible in the diagram.

Reference

The following help topics will assist you learn about how to work with this pattern.

Functional Decomposition

Business Analysis Body of Knowledge (BABOK)

Traceability Tools

Documentation

The following are some of the tools that will be helpful when working with this pattern.

Hand Drawn and Whiteboard Diagrams

The Hand Drawn and Whiteboard Mode are display options available for any diagram that changes a system-drawn diagram to appear as though it was drawn by hand and, optionally, hand drawn on a whiteboard. It is a powerful device to engage an audience by presenting the diagram in a rough and more immediate style giving the impression that it is just a sketch that can be changed. For more details see the Hand Drawn and Whiteboard Mode help topic.

Alternate and Images for Diagram Elements

Most standard elements allow an alternate image to be defined for an element that will be used in place of the graphical notation for the element either on a selected diagram or as a default on all diagrams. For more details see the Using the Image Manager help topic.

Diagram Layout

The Diagram Layout tool allows you to layout an entire diagram, selected elements or sections of a diagram to make it more visually appealing or meaningful to a particular audience. There are a wide range of layout types to choose from and some types have filters that can be applied. For more details see the Diagram Layout help topic.

Pan and Zoom

The Pan and Zoom facility is one of the tools that can be used to navigate around a large diagram. Often the resolution of a diagram must be reduced to ensure it is wholly visible but by using the Pan and Zoom window you can leave the diagram at a readable resolution and pan around to areas of interest zooming in when necessary. For more details see the Pan and Zoom help topic.

Diagram Legends

The Diagram Legend facility is useful for manually or automatically changing the appearance of elements and connectors on a diagram. A legend can be added from the Common Toolbox and configured to codify the fill and line color and line thickness. This is a powerful way to add meaning and expression to a diagram and is particularly expressive when applied automatically based on element or connector properties. It can be used with a number of specialized diagrams such as roadmaps to create a powerful visualization. For more details see the Diagram Legends help topic.

Document Generator

The Document Generator is a powerful facility in Enterprise Architect that allows a Database Engineer or other stakeholder to create high quality corporate or technical documentation directly from the model, suitable for internal or external audiences. For more details see the Documentation help topic or the more general topic on Model Publishing.

Element Discussions

The Element Discussion facility is a fully featured collaboration tool allowing modelers and model viewers and reviewers to communicate with each other directly inside the repository. Modelers using the full client or occasional viewers using WebEA can both post and reply to discussions and communicate and engage in chat. For more details see

the Element Discussions help topic.

Specification View

The Specification View can be used as a way of working with any element type in a spreadsheet or word process view. It is particularly useful when there are a large number of elements as is typically the case when describing a system of any appreciable size. For more details see the Specification View help topic.

Relationship Matrix

The Relationship Matrix provides a spreadsheet like view of two groups of elements and the relationships that exist between them. It can be a used as a powerful analysis mechanism to visually indicate how elements are related to each other and to discover which elements are missing relationships. For more details see the Relationship Matrix help topic.

Traceability Window

The Traceability Window automatically displays the relationships that exist between Use Cases and other model elements including up-process and down-process elements. The traceability tree view can be conveniently expanded to see deeper relationships and elements displayed in the window can be located in all diagrams in which they appear. For more details see the Traceability Window help topic.