

Builder

Linda Marshall

Department of Computer Science
University of Pretoria

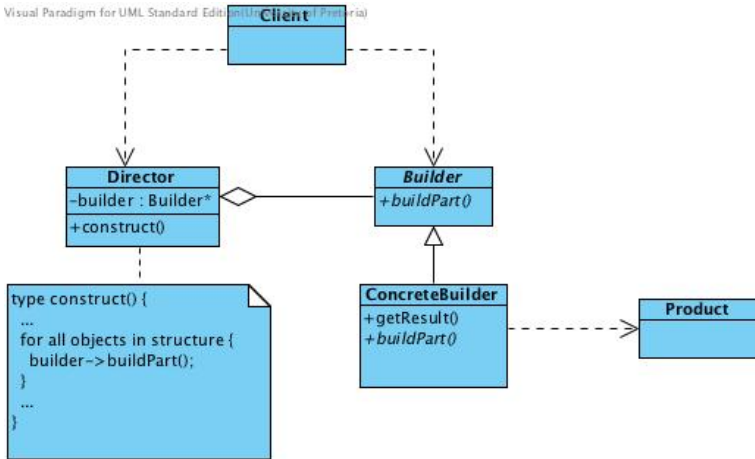
26 October 2021

Name and Classification: Builder (Creational, Delegation)

Intent: “Separate the construction of a complex object from its representation so that the same construction process can create different representations.” (GoF:97)

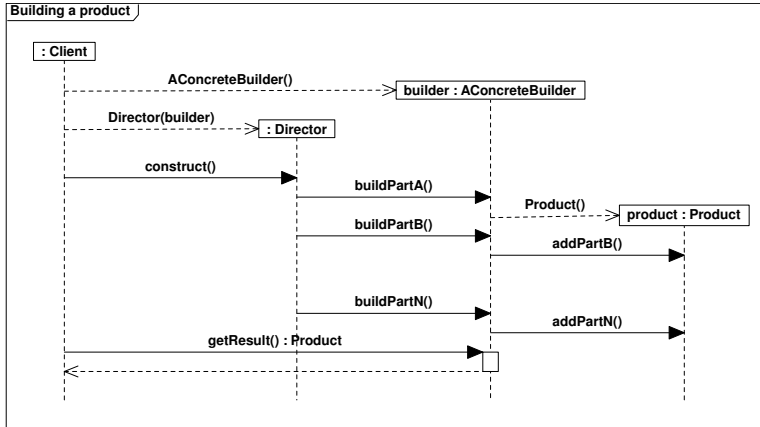
“Separate the construction of a complex object from its representation so that the same construction process can create different representations.” (GoF:97)

Visual Paradigm for UML Standard Edition (UML Standard Edition)



- Builder: Specifies an abstract interface for creating parts of the Product object.
- ConcreteBuilder:
 - builds the product's internal representation and defines the process by which it is assembled.
 - defines and keeps track of the representation it creates
 - provides an interface for retrieving the product

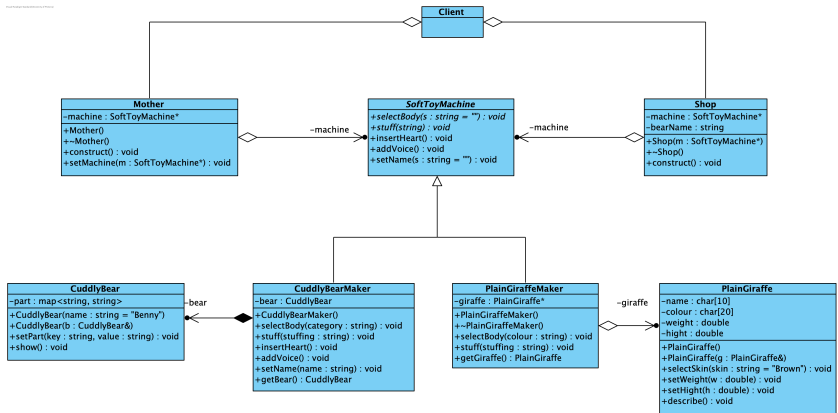
- Director: constructs an object using the Builder interface
- Product:
 - represents the complex object under construction.
 - includes classes that define the constituent parts, including interfaces for assembling the parts into a final result.



- **Abstract Factory** Both do complex construction.
 - Abstract factory - construct families of product objects
 - Builder - constructs one complex object step-by-step
- **Composite** Most often a builder is used to construct a composite object.

Identification Structure Participants Related Patterns Example

Figure 10-10: UML Class Diagram



Participant	Class in application
Director(s)	Mother, Shop
Builder	SoftToyMachine
Concrete Builder(s)	PlainGiraffeMaker, CuddlyBearMaker
Product(s)	PlainGiraffe, CuddlyBear

Function	Corresponding function in application
construct()	construct()
buildPart()	selectBody(), stuff(), insertHeart(), addVoice(), setName()
getResult()	getGirrafe(), getBear()