UML Profile

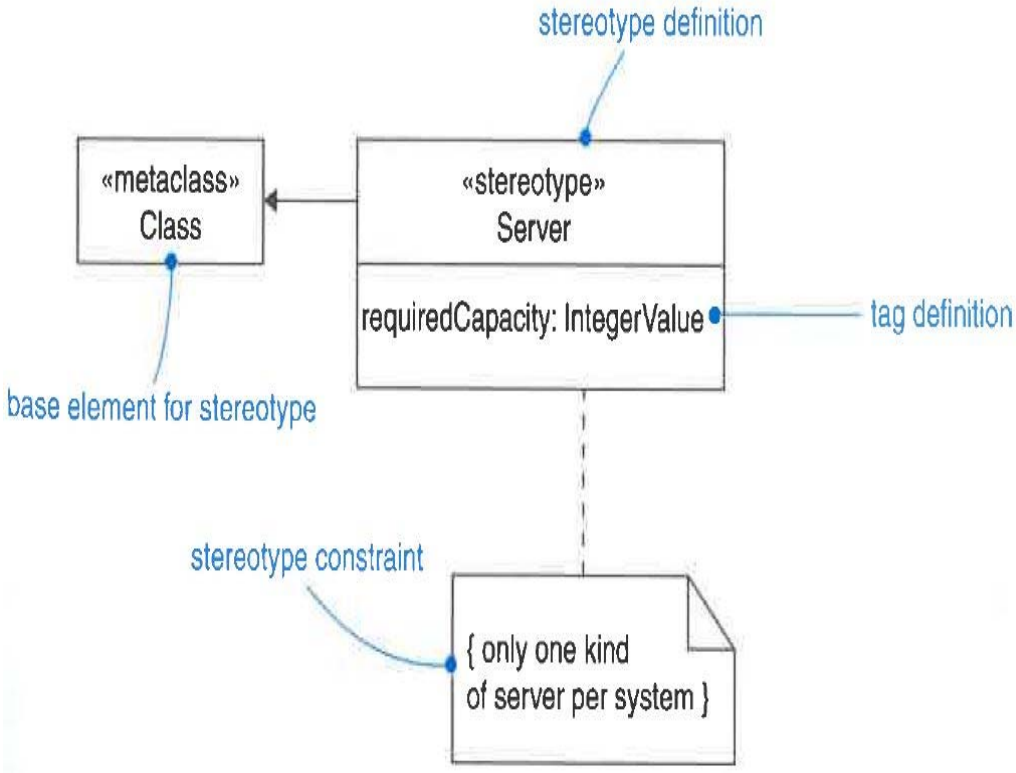
- A UML profile provides a generic extension mechanism for building UML models in particular domains platforms;
- A collection of such extensions that together describe some particular modeling problem and facilitate modeling constructs in that domain;
- SysML -- an Object Management Group (OMG)-standardized profiles of UML which is used for system engineering applications;
- MARTE – OMG standard for modeling real-time and embedded applications with UML2;

UML extensibility mechanism (UML-EM)

- UML provides a language for structural, behavioral, grouping and notational things;
- UML-EM Permits you to extend the language in controlled ways;
- Stereotype, Tagged value, and Constraint;
- Stereotype: an extension of vocabulary of the UML, allowing you to create new kinds of building blocks similar to existing ones but specific to your problem;

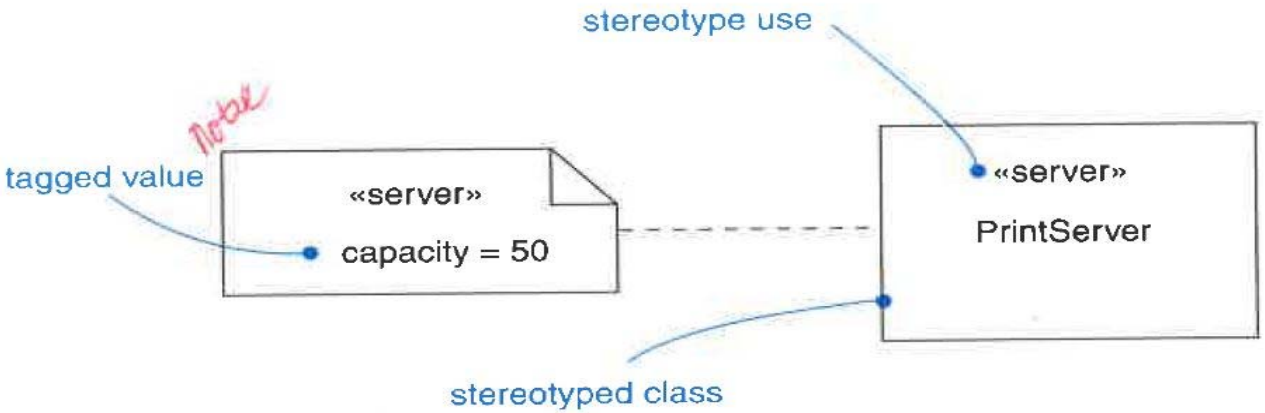
UML-EM: Stereotype

- Not as a parent class in a parent/child generalization relationship;
- Think of a stereotype as a metatype (a type that defines other types);
- When you stereotype an element, e.g., a node or a class, you extend the UML by creating a new building block like an existing one but with its own special modeling properties (stereotype provides its own set of tagged values), semantics (own constraints), and notation (own icons);



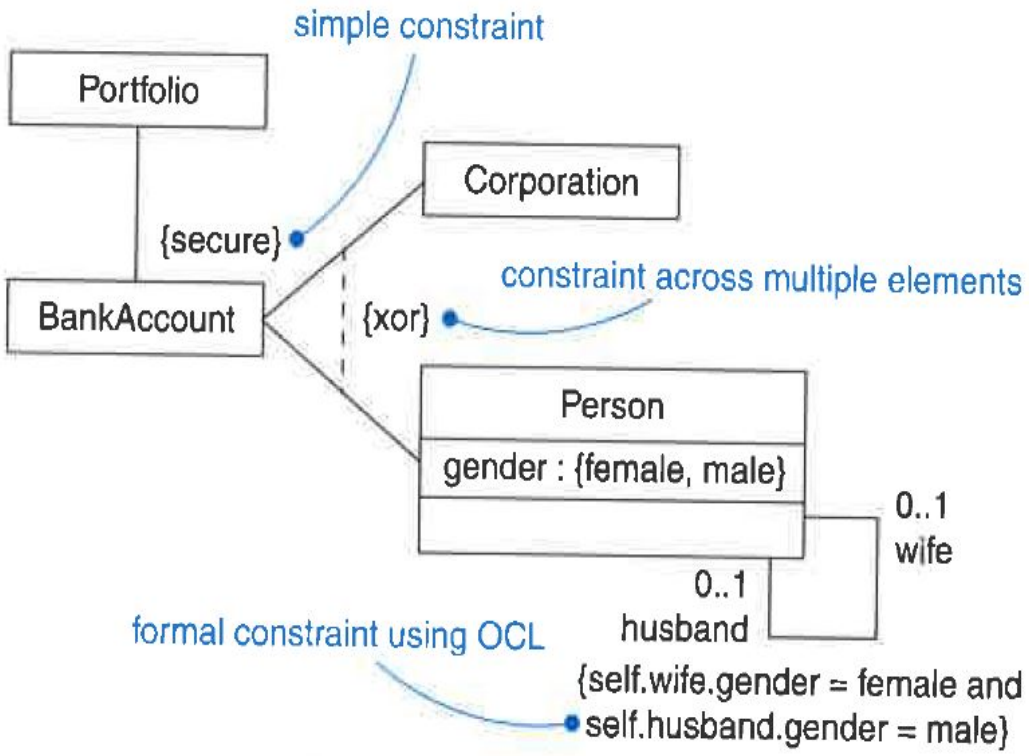
A name enclosed by guillemets, e.g., <<name>>

UML-EM: Tagged Values



- A property of a stereotype, allowing you to create new information in an element bearing that stereotype;
- With stereotype, you can add new things to the UML; with tagged values you can add new properties to a stereotype;
- A string of the form name = value within a note attached to the object;

UML-EM: Constraints



- A textual specification of the semantics of a UML element, allowing you to add new rules or to modify existing one;
- A string enclosed by brackets and placed near the associated element;
- Written as free-form text, in case specify your semantics mode precisely, use the UML's object constraint language (OCL), described further in the UML reference manual;

UML Profiles

- A profile is a UML model with a set of predefined stereotypes, tagged values, constraints, and base classes;
- Tailor UML using profiles – to define a version of UML tailored to a particular purpose or domain area;
- It selects a subset of the UML element kinds for use → a modeler is not confused by element kinds that are not needed for the particular application area;
- It's built on ordinary UML elements → it doesn't represent a new language, and it can be supported by ordinary UML tools;