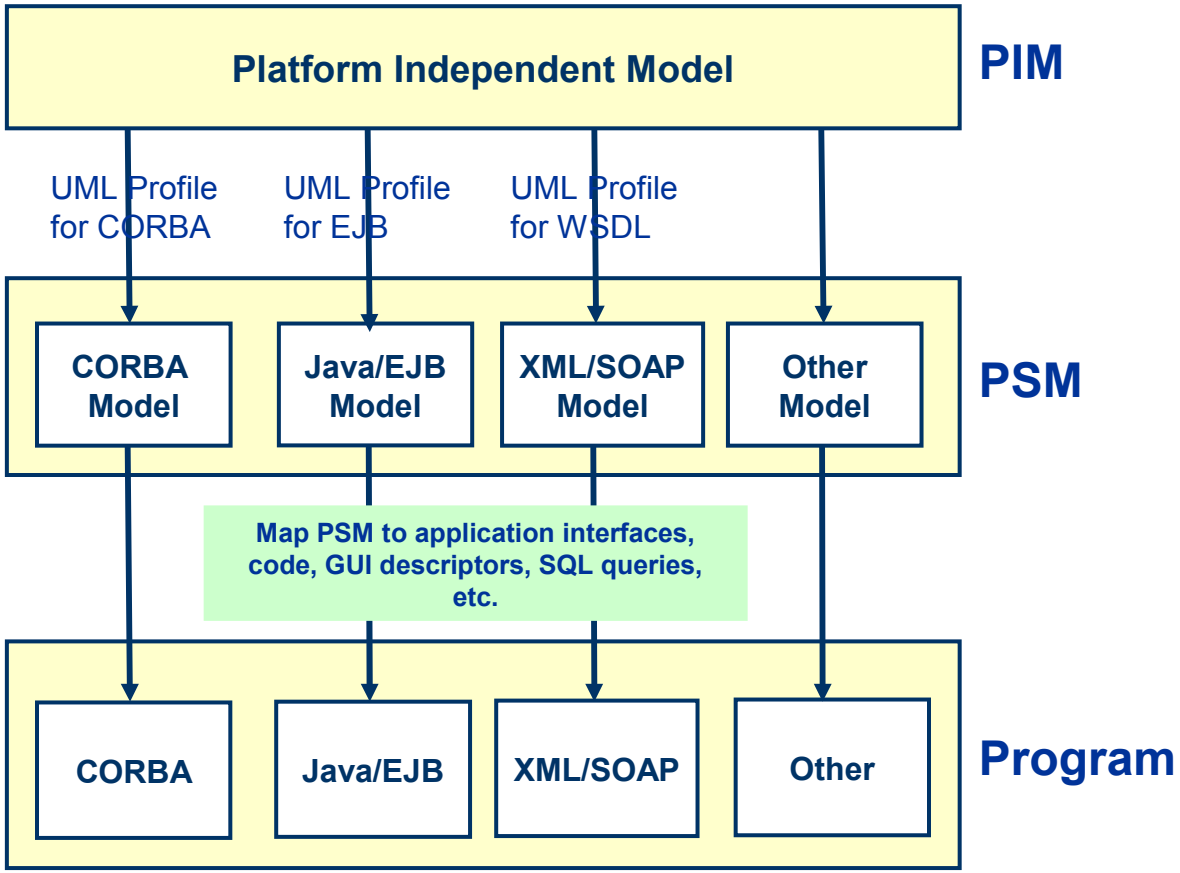
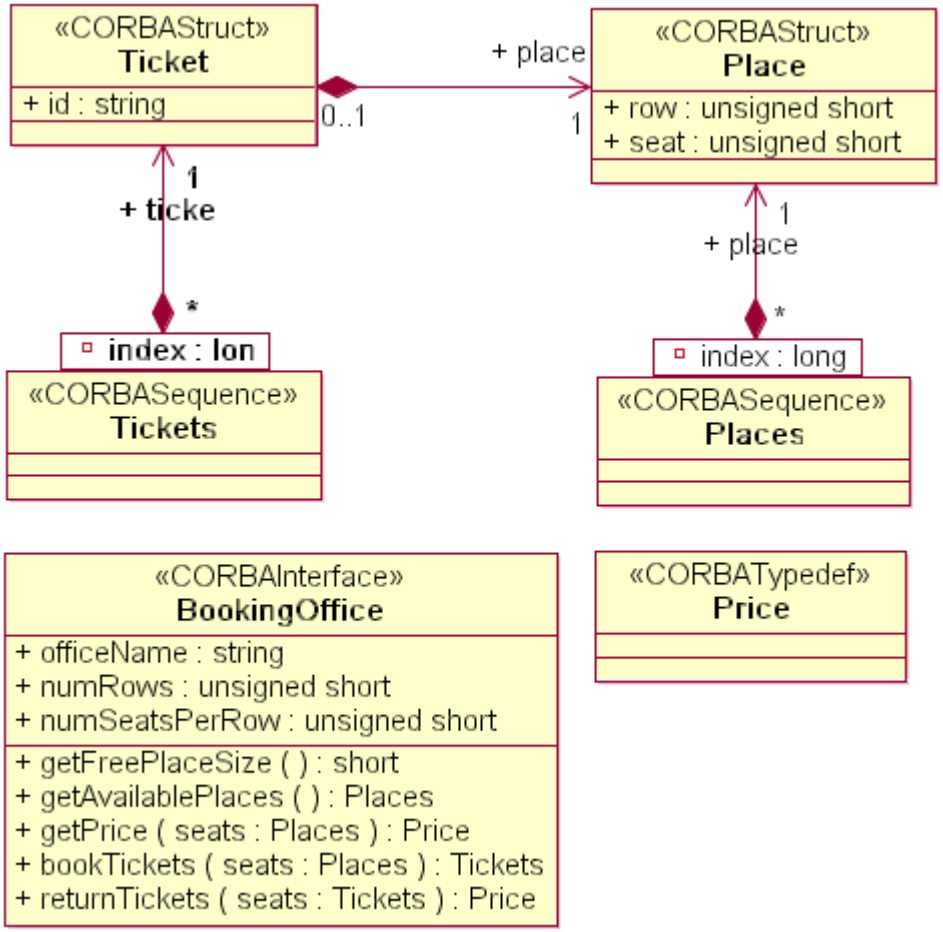
Modeling with openMDX
Part 1

Quick Introduction to MDA

MDA – PIM-to-PSM Mappings

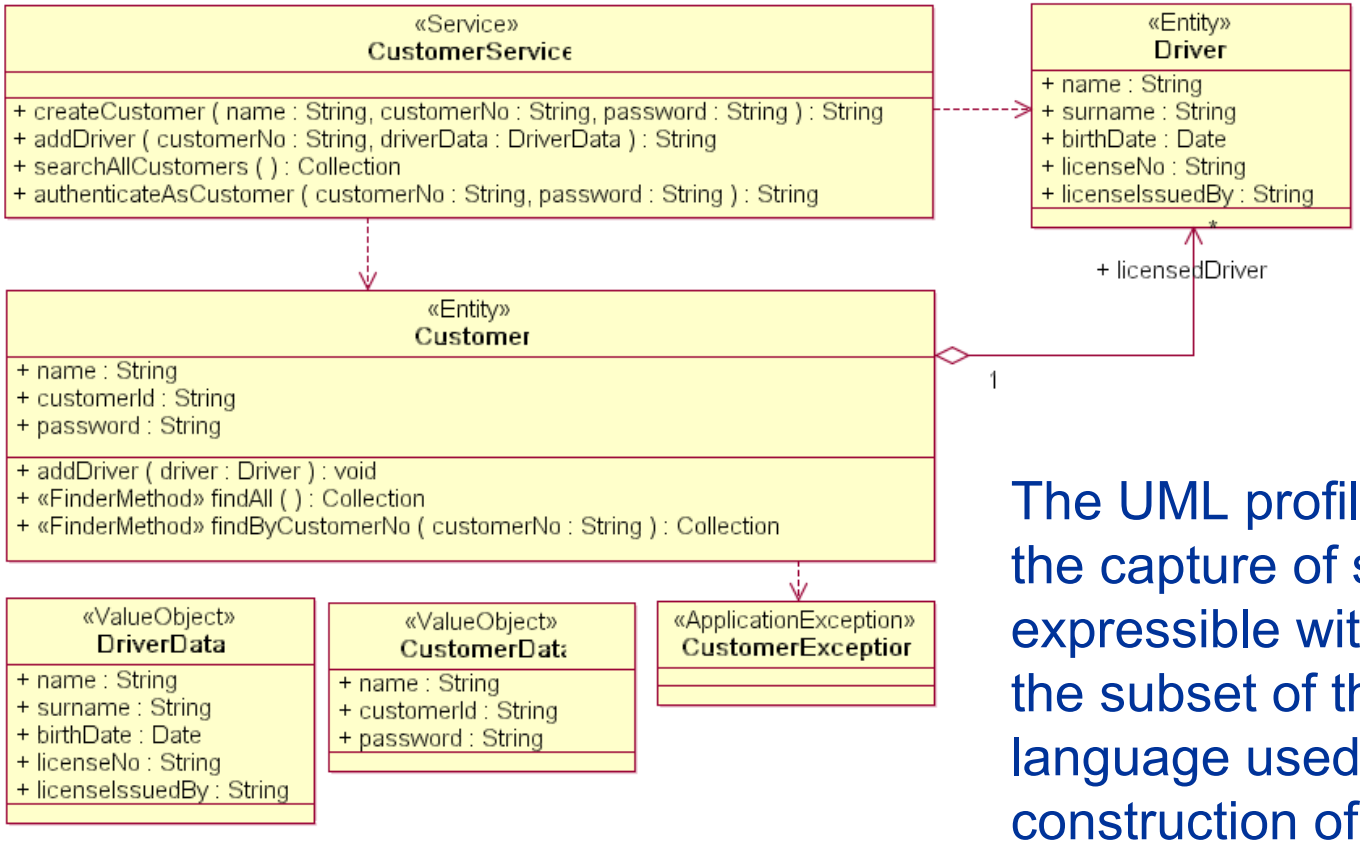


PSM – UML Profile for CORBA



The UML Profile for CORBA specification was designed to provide a standard means for expressing the semantics of CORBA IDL using UML notation (omg/02-04-01).

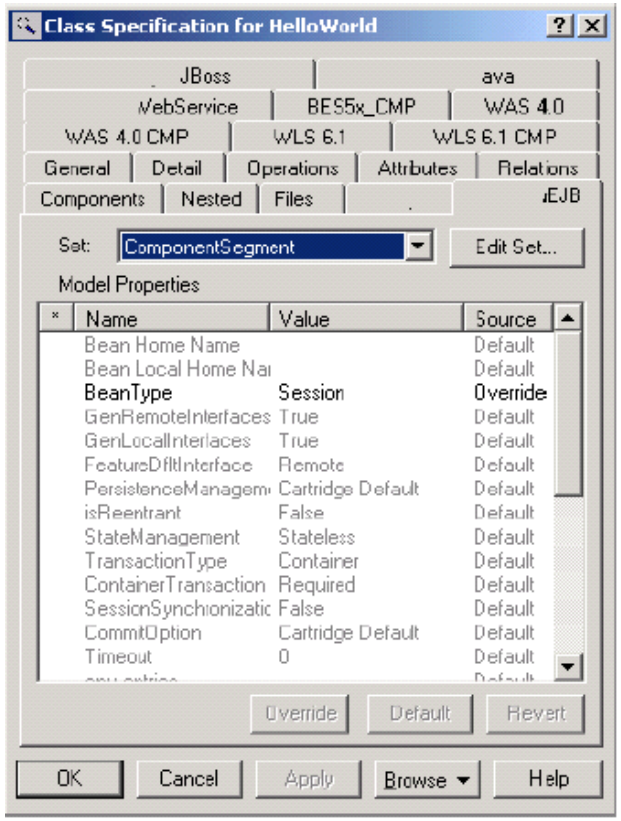
PSM – UML Profile for EJB [1]



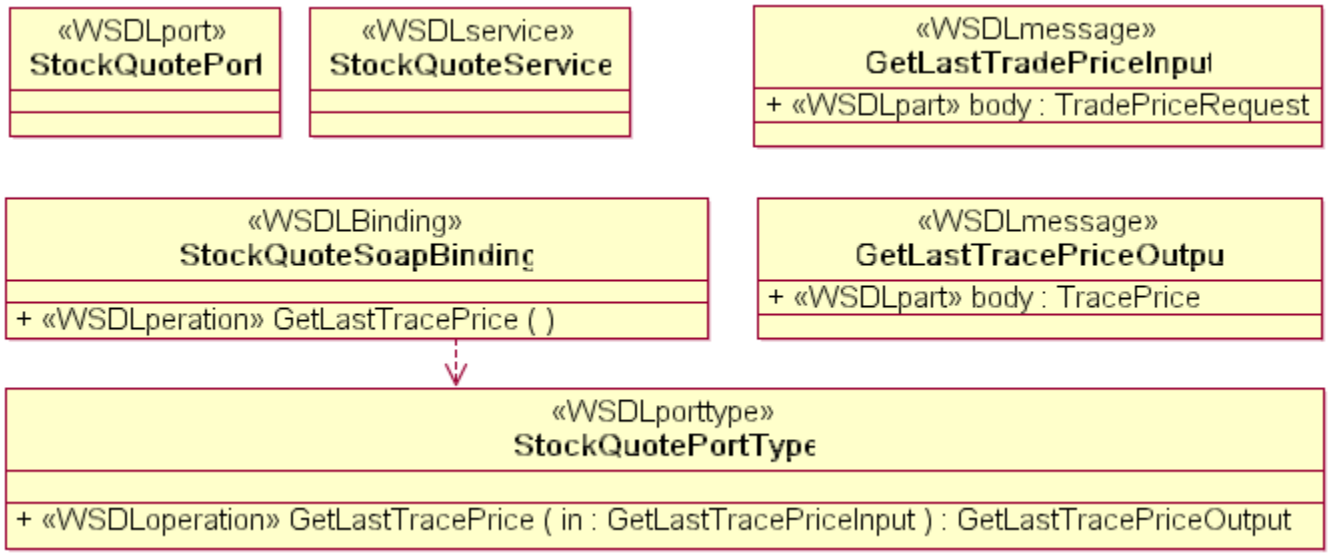
The UML profile supports the capture of semantics expressible with EJB and the subset of the Java language used in the construction of EJBs.

PSM – UML Profile for EJB [2]

Defined Stereotypes
«JavaInterface»
«EJBCreateMethod»
«EJBFinderMethod»
«EJBRemoteMethod»
«EJBRemoteInterface»
«EJBHomeInterface»
«EJBSessionHomeInterface»
«EJBEntityHomeInterface»
«EJBPrimaryKey»
«EJBCmpField»
«EJBPrimaryKeyField»
«EJBRealizeHome»
+ ~ 40 more
+ many more for AppServers



PSM – UML Profile for WSDL



There does not exist a UML profile for WSDL yet. However, the *CORBA to WSDL Mapping Specification* (omg/05-02-01) allows to define a profile implicitely (also see omg/02-01-06).

UML Profiles and Business Object Modeling *[1]*

+ UML Profiles allow to automate the mapping of UML models to platform and language specific artefacts (e.g. application interfaces, code, GUI descriptors, SQL queries).
- The original platform-independent business object model is contaminated by platform-specific tags and model elements.

UML Profiles and Business Object Modeling *[2]*

- What we want to do is:
  - Create reusable, platform-independent business object models
  - Implement platform-independent business logic
  - Automate the software development process
- At least 1) and 2) does not seem to be achievable with the MDA PIM-to-PSM-mapping approach.

PIM-only Approach *[1]*

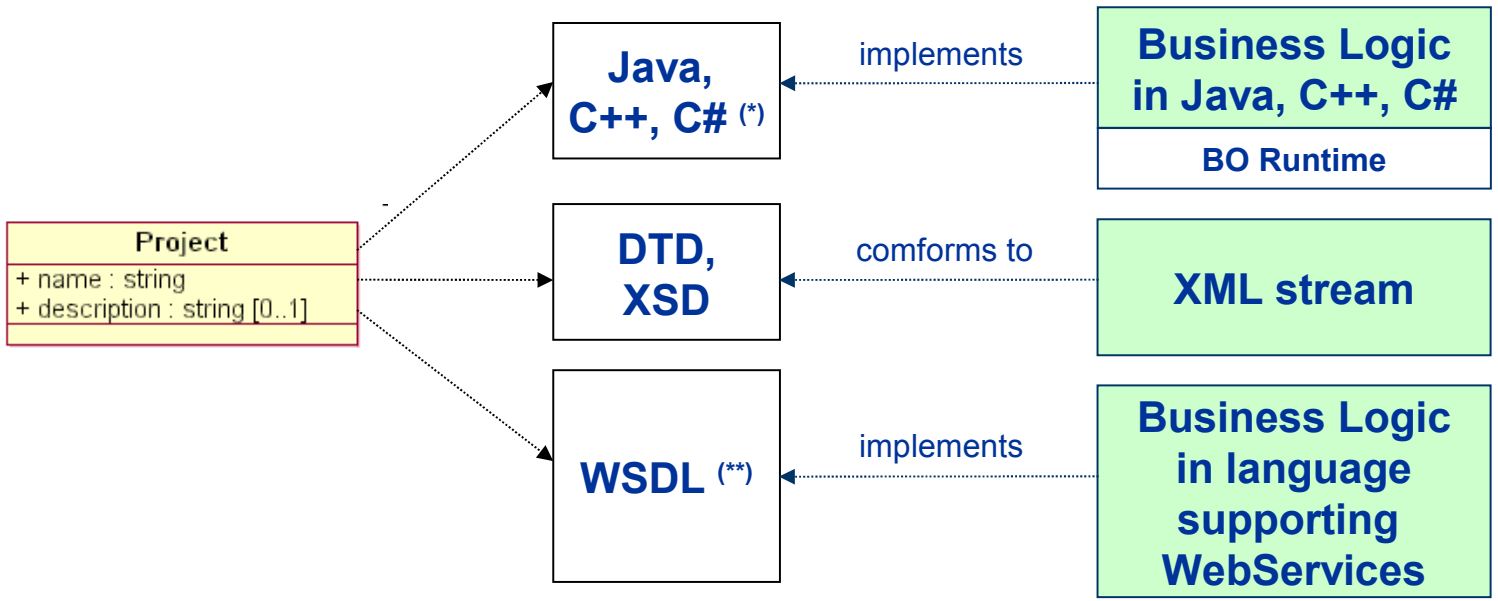
- The MOF standard provides an approach to implement MDA without the need for PSM modeling:
  - Define the business object models (BOM) as PIMs.
  - Map the PIMs to language objects / interfaces. This generates a language-specific business object model which is platform independent.
  - Add the business logic, i.e. implement the interfaces as platform-independent language objects (POJOs = plain old Java objects if implemented in Java).
  - Deploy the application to a platform. This step requires a runtime framework which allows to run language objects on the target platform (i.e. a CORBA ORB, J2EE container).

PIM-only Approach *[2]*

Step 1: BOM

Step 2: Language-specific BOM

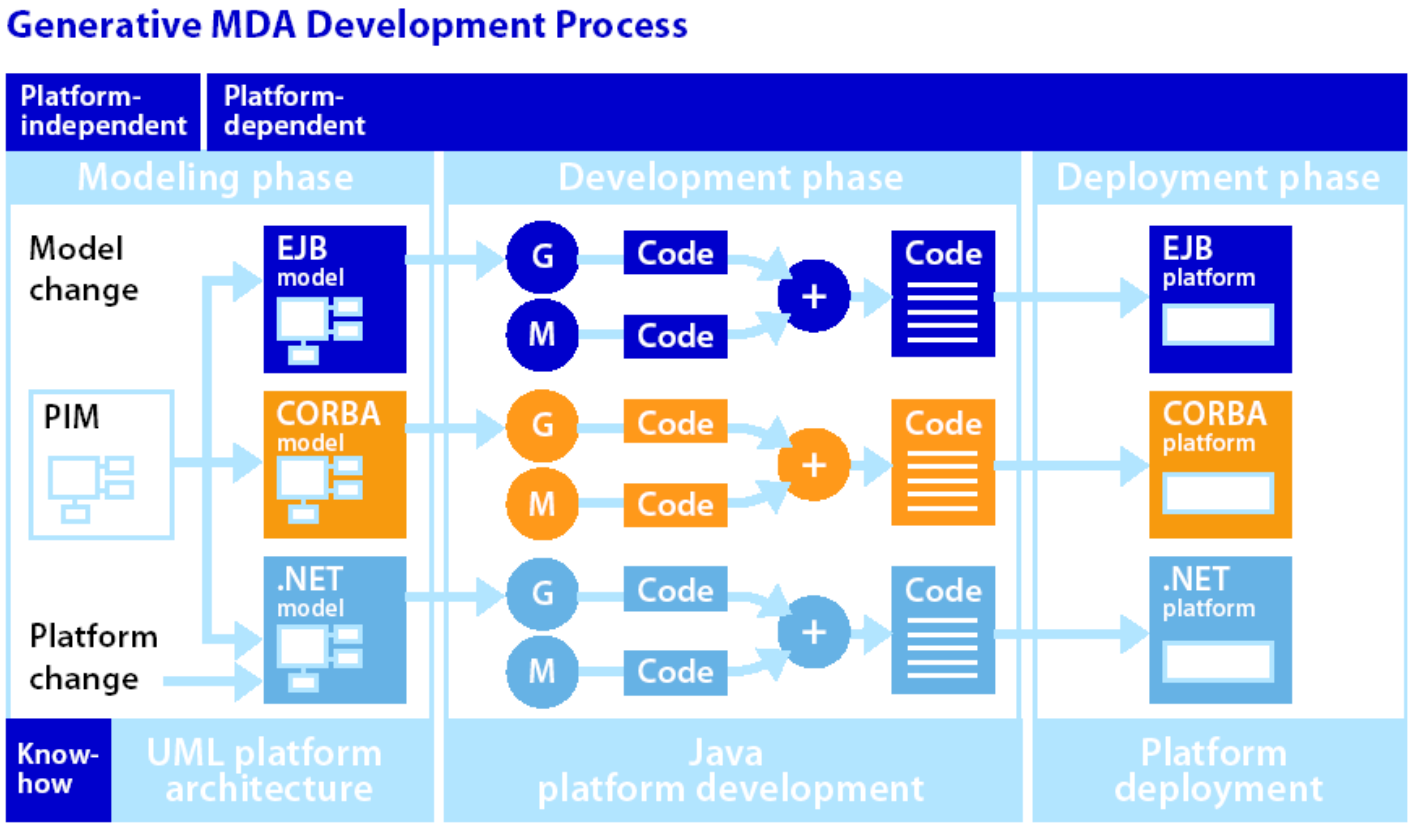
Step 3: Business Logic



PIM-to-PSM vs. PIM-only Approach *[1]*

	PIM-to-PSM	**PIM-only**
PSM modeling required	YES	NO
Supports platform-independent business logic by design	NO	YES
Standard mappings	YES - UML Profile for EJB - UML Profile for CORBA - UML Profile for WSDL - http://www.uml.org/#UMLProfiles	YES - **for MOF compliant models only** - not defined for UML
Implementations	MDA Tools: ArcStyler, AndroMDA, UMLMDA, open ArchitectureWare, ...	MDA Tools: **openMDX**, Kennedy Carter xUML, ...

PIM-to-PSM vs. PIM-only Approach *[2]*



PIM-to-PSM vs. PIM-only Approach *[3]*