

# **DATES: Design Analysis Tool for Enterprise Systems**

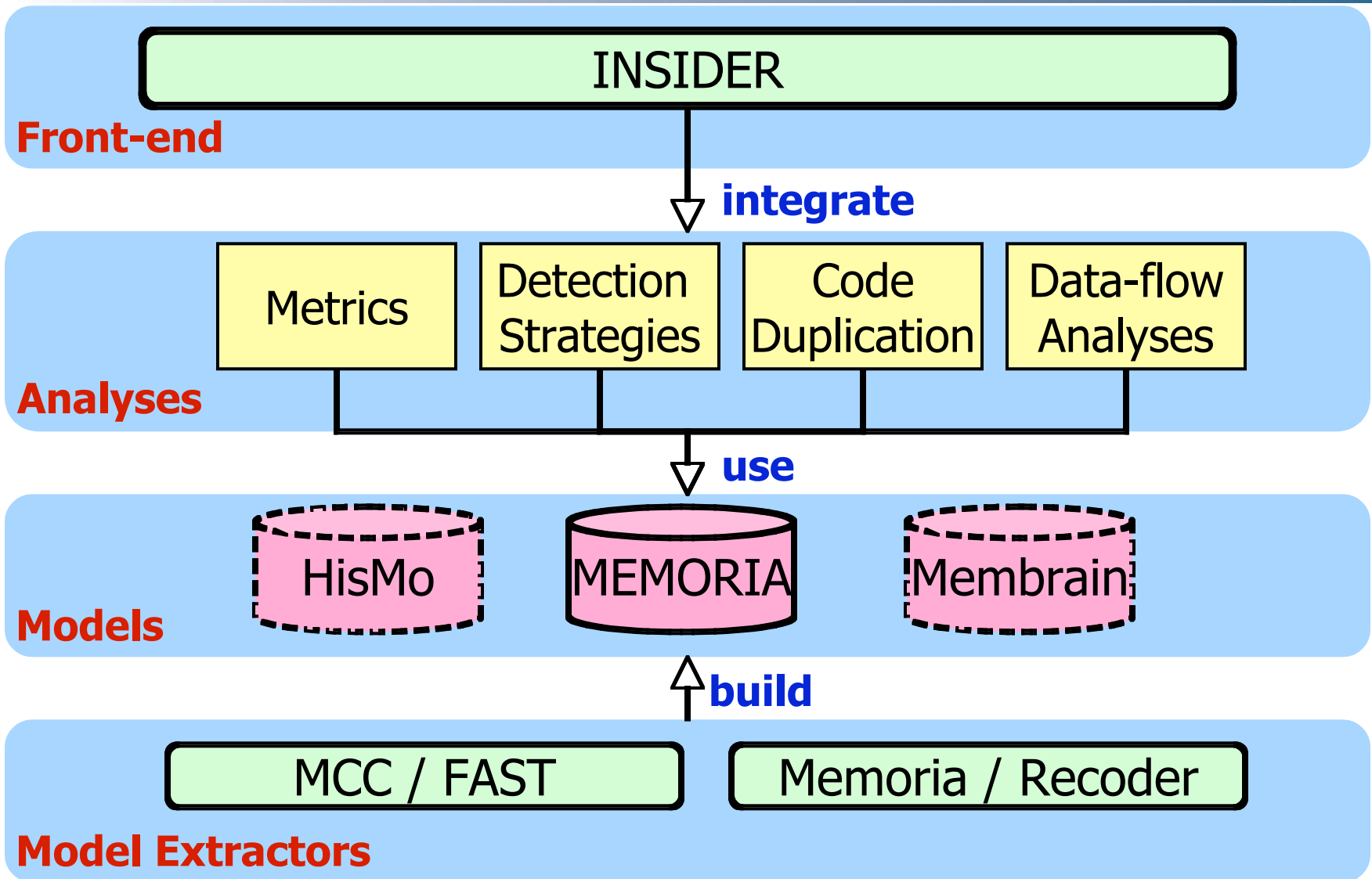
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- ▶ How to **understand and assess the quality of a design** ?
  - ▶ .... using a metrics-based approach
  - ▶ .... navigating through your design entities

# iPlasma - Overview

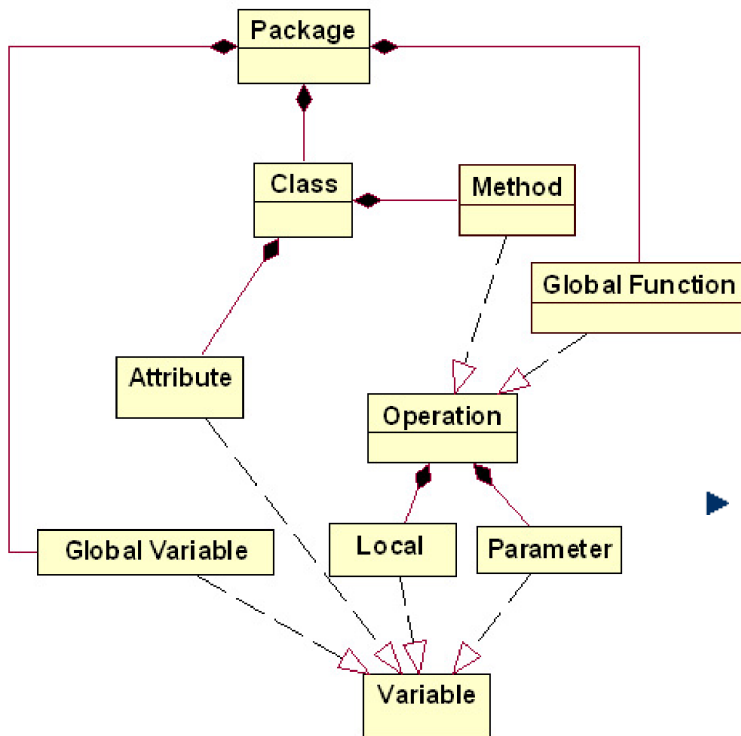


## ► Metamodel

- set of data structures
  - e.g. **Package**, **Class**, **Attribute**
- data structures have fields
  - elementary
    - **Class** has a **name**
  - references to other related data structures
    - **Class** has **attributes**

## ► Examples

- MEMORIA
  - implemented in Java [Rat04]
- FAMIX
  - implemented in Smaltalk [Tic01]



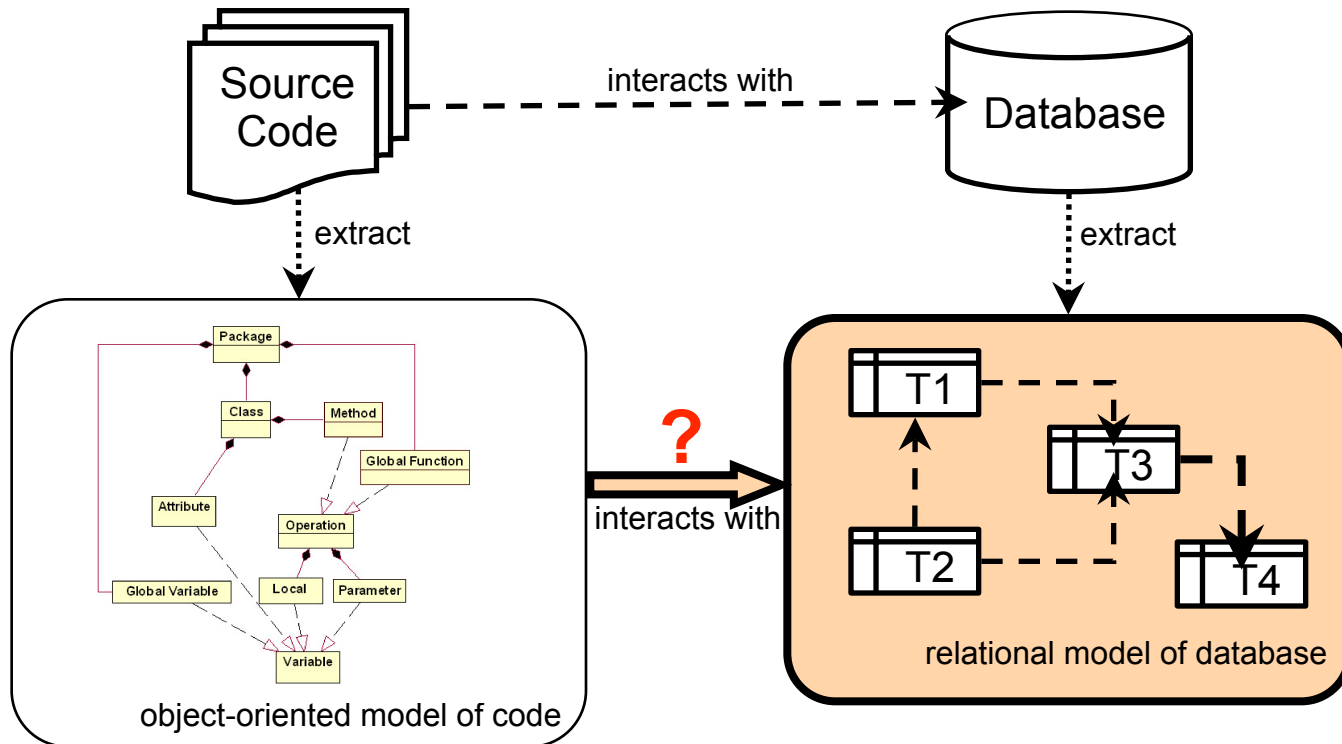
# Example: Model Needs Source-Code and Database

```
class Book {  
    public String update (int id, String title,  
                          String publisher) throws Exception {  
        ...  
  
        Connection con = ... ; //initializations  
        PreparedStatement updateStatement;  
        String update;  
        update = "UPDATE books SET title = ?, " +  
                "publisher = ? WHERE ID = ?";  
  
        updateStatement = con.prepareStatement(update);  
        updateStatement.setString(1, title);  
        updateStatement.setString(2, publisher);  
        updateStatement.setInt(3, id);  
        updateStatement.execute(); }  
}
```

Source Code

```
create table books (  
    ID int primary key, title varchar,  
    author varchar, publisher varchar, year int)
```

Database



Modeling the Structure of an Enterprise Application requires:

1. Object-Oriented Model (for source-code entities)
2. Relational Model (for database entities)
3. Connectors between the two models

- ▶ Finding relational entities (tables, columns)
  - finding unused tables
- ▶ Finding accesses from object-oriented design entities to relational entities
- ▶ Finding entities that break specific enterprise applications design rules
- ▶ Detecting entities that follow specific design patterns (Table Data Gateway[Fow03])
- ▶ Dealing with conflicting design flaws