

# Databases epiloog

# Databases & theorie en praktijk

- ▶ Theorie: logica en verzamelingenleer als basis voor datamodel en querytalen (Turing Award, Ted Codd)
- ▶ Praktijk:
  - Eerste commerciële systemen rond 1980, miljardenbusiness anno nu
  - Er bestaat vrijwel geen informatiesysteem zonder database achter de schermen
  - Unificatie: SQL wereldstandaard (maar met dialecten)
  - Relationele model heeft diverse pogingen tot machtswisseling doorstaan: Datalog, OODB, XML

# Databases & wat we *niet* hebben besproken

- ▶ JDBC: Protocol voor verkeer tussen Java client en SQL server

```
// Load the Driver class.  
Class.forName("org.postgresql.Driver");  
  
//Create the connection using the static getConnection method  
Connection con = DriverManager.getConnection (connectionURL);  
  
//Create a Statement object to execute the SQL statement  
Statement stmt = con.createStatement();  
  
//Execute the SQL statement and get the results in a Resultset  
ResultSet rs = stmt.executeQuery(  
    "SELECT moviename, releasedate FROM movies");  
  
// Iterate through the ResultSet, displaying two attribute values  
while (rs.next())  
    System.out.println  
        ("Name= " + rs.getString("moviename") + " Date= " +  
         rs.getString("releasedate"));
```

# Databases & wat we *niet* hebben besproken

- ▶ PHP/SQL web programming

Vak Webtechnologie in keuzeruimte

# Databases & wat we *niet* hebben besproken

- ▶ XML DBMS:
  - XML enabled: accepts XML input and renders XML output, but is a traditional DBMS
  - Native XML: internal data model is XML oriented

# XML-Databases: XQUERY example db

```
<?xml version="1.0" encoding="ISO-8859-1"?>
```

```
<bookstore>
```

```
<book category="COOKING">
```

```
<title lang="en">Everyday  
Italian</title>
```

```
<author>Giada De Laurentiis</author>  
<year>2005</year>  
<price>30.00</price>
```

```
</book>
```

```
<book category="CHILDREN">
```

```
<title lang="en">Harry Potter</title>  
<author>J K. Rowling</author>  
<year>2005</year>  
<price>29.99</price>
```

```
</book>
```

```
<book category="WEB">
```

```
<title lang="en">XQuery Kick Start</title>  
<author>James McGovern</author>  
<author>Per Bothner</author>  
<author>Kurt Cagle</author>  
<author>James Linn</author>  
<author>Vaidyanathan Nagarajan</author>  
<year>2003</year>  
<price>49.99</price>
```

```
</book>
```

```
<book category="WEB">
```

```
<title lang="en">Learning XML</title>  
<author>Erik T. Ray</author>  
<year>2003</year>  
<price>39.95</price>
```

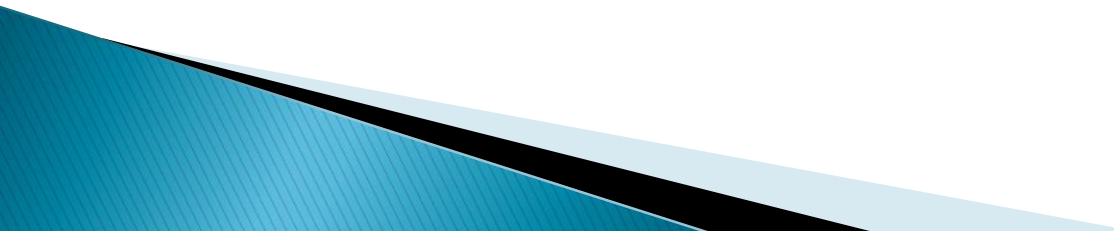
```
</book>
```

```
</bookstore>
```

# XML–Databases: XQUERY example

```
for $x in  
  doc("books.xml")/bookstore/book  
where $x/price>30  
order by $x/title  
return $x/title
```

```
<title lang="en">Learning XML</title>  
<title lang="en">XQuery Kick Start</title>
```



# Dwarsverbanden binnen bachelor ica

- ▶ Logica
  - Querytalen, constraints en normalisatie
  - Soundness & completeness of Armstrong axioms
- ▶ Datastructuren
  - Zoekbomen, sorteren, hashing
  - Graafconcept
- ▶ Modelleren en systeemontwikkeling (2<sup>e</sup> jaar)
  - ER-modellering correspondeert met een subset van UML
- ▶ Concurrency (2<sup>e</sup> jaar)
- ▶ Webtechnologie
  - PHP & SQL
- ▶ Software project
  - In veel projecten wordt db-technologie toegepast
- ▶ Data-analyse en retrieval
  - Information retrieval & text mining