

MDK: Modern Database Concepts

<http://www.ksi.mff.cuni.cz/~svoboda/courses/192-MDK/>

Practical Class 3

XQuery

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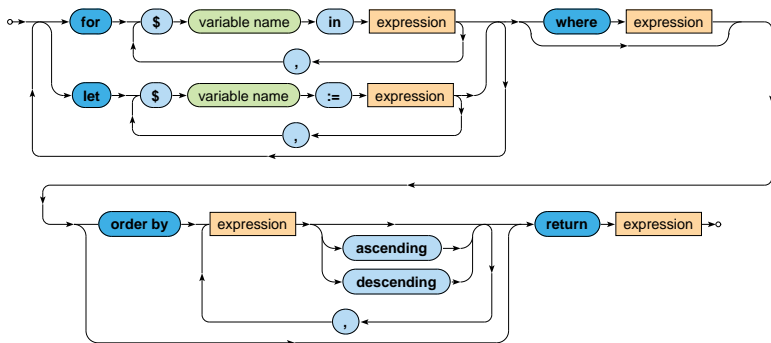
Charles University, Faculty of Mathematics and Physics

OTH Regensburg, Faculty of Computer Science and Mathematics

FLWOR Expressions

FLWOR

- Versatile construct allowing for **iterations over sequences**



Conditional Expressions

Condition

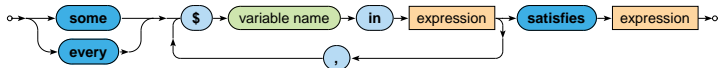
- Note that the else branch is compulsory
 - Empty sequence () can be returned if needed



Quantified Expressions

Quantifier

- Returns true if and only if...
 - in case of some **at least one item**
 - in case of every **all the items**
- ... of a given sequence/s **satisfy the provided condition**



Exercise 1

Express the following XQuery query

- **Flights heading to any airport in Germany (*DEU*) on *2019-10-18***

Exercise 2

Express the following XQuery query

- **Sequence of lines longer than 60 minutes**
- Respect the following output structure

```
<line origin="airport-code" destination="airport-code">  
  <code>line-number</code>  
  <departure>departure-time</departure>  
  <arrival>arrival-time</arrival>  
</line>  
...
```

- Propose two solutions using **direct / computed constructors** respectively

Exercise 3

Express the following XQuery query

- **Names of airline companies such that all their flights are associated with aircrafts**

Exercise 4

Express the following XQuery query

- **Generate an XHTML table with data about flights from PRG**
 - Use `<i>Unknown</i>` when an aircraft is not assigned
 - Sort the flights using dates (descending order) and times of departure (ascending)

```
<table>
  <tr>
    <th>Date</th><th>Time</th><th>Number</th><th>Aircraft</th>
  </tr>
  <tr>
    <td>flight-date</td>
    <td>time-of-departure</td>
    <td>line-number</td>
    <td>aircraft-registration-or-unknown</td>
  </tr>
  ...
</table>
```


Exercise 5

Express the following XQuery query

- **Names of passengers of *EK140* flights with at least average number of sold tickets over all *EK140* flights**
- Respect the following output structure

```
<passengers date="flight-date" tickets="number-of-tickets">  
  comma-separated-list-of-passenger-names  
</passengers>  
...
```