



Engenharia de Dados e Conhecimento

USER DEFINED FUNCTIONS
AND
LIBRARY MODULES



W3C Recommendation 21 March 2017

<http://www.w3.org/TR/xquery-31/>

XQUERY 3.1: AN XML QUERY LANGUAGE



- User-defined functions are a way to write our own functions to encapsulates behavior and allow code reuse.
- User-defined functions can be defined in the query or in a separate library.
- Guidelines to write a user defined function:
 - Use the declare function keyword;
 - The name of the function must be prefixed;
 - The data type of the parameters are mostly the same as the data types defined in XML Schema;
 - The body of the function must be surrounded by curly braces.



Syntax:

```
declare function prefix:function_name($parameter as datatype)
as returnDatatype
{
    ...function code here...
};
```



Xquery:

```
declare function local:books-by-author($aname) as element()*
{
  for $b in doc("books")//book
  where contains($b/author[1], $aname)
  order by $b/title
  return $b/title
};
```

```
<book>
{ local:books-by-author("Rowling") }
</book>
```

Result:

```
<book>
  <title lang="en">Harry Potter</title>
</book>
```



- In addition to the standard XQuery Functions, the database can provide additional functions, which are packaged in various modules.
- To use them, it's necessary to import the module namespace.
- User defined functions can also be stored in a specific module and then they can be reused in any query.



- Creation of a user module:

```
module namespace funcs = "com.funcs.my.index";

declare function funcs:books-by-author($aname) as element()*
{
  for $b in doc("books")//book
  where contains($b/author[1], $aname)
  order by $b/title
  return $b/title
};
```

- Using the module:

```
import module namespace funcs = 'com.funcs.my.index';
<book>
{ funcs:books-by-author("Rowling") }
</book>
```