W3C
(World Wide Web Consortium)

• What is W3C?
  – An industry consortium, best known for standardizing HTML and XML.
  – Working Groups create or adopt new “recommendations”
• www.w3.org

XML
(eXtensible Markup Language)

<bib>
  <book year="1994">
    <title>TCP/IP Illustrated</title>
    <author>
      <last>Stevens</last>
      <first>W.</first>
    </author>
    <publisher>Addison Wesley</publisher>
    <price>65.95</price>
  </book>

  ... 
</bib>
XQuery – Example 1


FOR $b$ IN document("bib.xml")/bib/book
WHERE $b$/publisher = "Addison-Wesley"
   AND $b$/@year = "1994"
RETURN $b$/title

<title>TCP/IP Illustrated</title>

FLWR Expressions

- Basic FLWR Expression:
  - For -- consider (introduce a variable)
  - Let -- introduce additional variables
  - Where -- filter by conditions
  - Return -- build results
- Xquery is *compositional*: any place data can go, another { FLWR } expression can go.
XQuery – Example 2


```xml
FOR $b IN document("bib.xml")/bib/book
LET $c := $b/publisher
WHERE $c = "Addison-Wesley"
    AND $b/@year = "1994"
RETURN $b/title

<title>TCP/IP Illustrated</title>
</title>
```

XQuery – Example 3

Join <bib> and <reviews> on <title> and print the title and price.

```xml
FOR $b IN document("bib.xml")/bib/book
    FOR $e IN document("reviews.xml")/reviews/entry
        WHERE $e/title = $b/title
RETURN
    <titlelist>
        { $b/title, $e/price }
    </titlelist>

...<titlelist>
    <title>Data on the Web</title>
    <price>34.95</price>
</titlelist>
```
XQuery – Example 4

Get the average price of the books.

```xml
<results>
LET $prices := document("bib.xml")/bib/book/price
RETURN
<avgprice>{ avg($prices) } </avgprice>
</results>

<results>
<avgprice>75.45</avgprice>
</results>
```

XQuery – Example 5

Get year (as an attribute) and title of book.  (Use a predicate to Limit the books to those published by Addison-Wesley.)

```xml
FOR $b IN document("bib.xml")/bib/book
FOR $c IN $b[publisher = "Addison-Wesley"]
RETURN
<book>
{ $c/@year }
{ $c/title }
</book>

<book year="1994">
<title>TCP/IP Illustrated</title>
</book>

<book year="1992">
<title>Advanced Programming in the Unix environment</title>
</book>
```