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)

```xml
<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>
  <book year="1992">
    <title>...</title>
  </book>
</bib>
```

XQuery – Example 1


```xquery
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


```xquery
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>
```

XQuery – Example 3

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

```xquery
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>
```

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>
```

```xml
<book year="1994">
  <title>TCP/IP Illustrated</title>
</book>
<book year="1992">
  <title>Advanced Programming in the Unix environment</title>
</book>
```