

# CS 345B Homework 3 Solutions

## COMMENTS

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For each of the questions, multiple solutions are possible. All correct (or almost correct) solutions will get full points. Many students mentioned that it's hard for them to verify their solutions; anyway, minor syntax errors are okay. Here are sample solutions, and in fact, I've not tested them either!

Maximum points for HW-3 are 11 (10 points + 1 extra credit). Each subpart of each exercise is 1 point, and the last XSLT exercise is 2 points.

## EXERCISE 1: XQUERY FULLTEXT (3 POINTS)

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1(a)

```
let $doc := doc('books.xml')
for $elem in $doc//(chapter|section)
where contains($elem/title, 'Web')
return $elem/title
```

1(b)

```
for $book in doc('books.xml')/book
[./chapter/title ftcontains ``database`` or ./editor ftcontains ``bob`]
return $book/title
```

1(c)

```
FOR $s SCORE $sc in FUZZY doc('books.xml')/
    section[.ftcontains ``XML`` && ``Databases``]
order by $sc
return <section score={ $sc }> $s/title </section>
```

## EXERCISE 2: XQUERY UPDATE (4 POINTS)

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2(a)

```
for $ch in doc('books.xml')/book/chapter
transform copy $chnew := $ch
modify do delete $chnew/title
return $chnew
```

2(b)

```
do delete doc('books.xml')/book[editor eq ``Harry``]
```

2(c)

```
do insert (attribute importance {'normal'})
into doc('books.xml')/chapter
```

2(d)

```
for $ch in doc('books.xml')/book/chapter[@difficulty eq 'medium']
replace value of $ch/@importance with 'high'
```

### EXERCISE 3: XQUERY (2 POINTS)

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3(a)

```
{
declare $totalpages as xs:decimal :=0;
declare $totalsections as xs:decimal :=0;
declare $avgpages as xs:decimal :=0;

for $s in doc('books.xml')/book/chapter/section
return
{set $totalpages := $totalpages + $s/pages;
 set $totalsections := $totalsections + 1
};
$avgpages := $totalpages/$totalsections
}
```

3(b) Atomic block rolls back if any error occurs in between (undoes the changes until then in the block). However, a regular block just stops, but does not undo the changes. Any example where a change is made in the blocks before an error gives different results with and without the “atomic” keyword.

### EXERCISE 4: XSLT (2 POINTS)

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Relevant XSLT snippet:

```
<xsl:template match="chapter/title">
  <chapter-title/>
</xsl:template>
```

```
<xsl:template match="section/title">
  <section-title/>
</xsl:template>
```

```
<xsl:template match="figure">
</xsl:template>
```

```
<xsl:template match="@*|node()">
  <xsl:copy>
    <xsl:apply-templates select="@*|node()"/>
  </xsl:copy>
</xsl:template>
```

```
</xsl:copy>  
</xsl:template>
```