# TUTORIAL XPATH

```
      <AAA>
           <BBB/>
           <CCC/>
           <BBB/>
           <BBB/>
           <DDD>
                <BBB/>
           </DDD>
           <CCC/>
      </AAA>
```

a. **/AAA-** Selects the root element AAA
b. **/AAA/CCC** – Selects all CCC elements that are children of the root element
c. **/AAA/DDD/BBB –** Selects all BBB elements  being children of any DDD, who are children  of the root element AAA

```
   <AAA>
           <BBB/>
           <CCC/>
           <BBB/>
           <DDD>
                <BBB/>
           </DDD>
           <CCC>
                <DDD>
                     <BBB/>
                     <BBB/>
                </DDD>
           </CCC>
      </AAA>
```

d. //BBB  -Any element  BBB
e. //DDD/BBB - Elements BBB that are children of DDD

**/AAA/CCC/DDD/***

All elements in path /AAA/CCC/DDD

```
     <AAA>
          <XXX>
               <DDD>
                    <BBB/>
                    <BBB/>
               <EEE/>
               <FFF/>
          </DDD>
     </XXX>
     <CCC>
          <DDD>
               <BBB/>
               <BBB/>
               <EEE/>
               <FFF/>
          </DDD>
     </CCC>
     <CCC>
          <BBB>
               <BBB>
                    <BBB/>
               </BBB>
          </BBB>
     </CCC>
</AAA>
```

### /*/*/*/BBB

All elements BBB having three ancestors

```
<AAA>
     <XXX>
          <DDD>
               <BBB/>
               <BBB/>
               <EEE/>
               <FFF/>
          </DDD>
     </XXX>
     <CCC>
          <DDD>
               <BBB/>
               <BBB/>
               <EEE/>
               <FFF/>
          </DDD>
     </CCC>
     <CCC>
          <BBB>
               <BBB>
                    <BBB/>
               </BBB>
          </BBB>
     </CCC>
</AAA>
```

### //*

All elements in the tree

```
     <AAA>
          <XXX>
               <DDD>
                    <BBB/>
                    <BBB/>
                    <EEE/>
                    <FFF/>
               </DDD>
          </XXX>
          <CCC>
               <DDD>
                    <BBB/>
                    <BBB/>
                    <EEE/>
                    <FFF/>
               </DDD>
          </CCC>
          <CCC>
               <BBB>
                    <BBB>
                         <BBB/>
                    </BBB>
               </BBB>
          </CCC>
     </AAA>
```

2.

**/AAA/BBB[1]**

First BBB child from element AAA

```
     <AAA>
          <BBB/>
          <BBB/>
          <BBB/>
          <BBB/>
     </AAA>
```

**/AAA/BBB[last()]**

Last BBB child from element AAA

```
     <AAA>
          <BBB/>
          <BBB/>
          <BBB/>
          <BBB/>
     </AAA>
```

### //@id

All attributes 'id'

```
     <AAA>
          <BBB id = "b1"/>
          <BBB id = "b2"/>
          <BBB name = "bbb"/>
          <BBB/>
     </AAA>
```

### //BBB[@id]

Elements BBB having an 'id' attribute

```
     <AAA>
          <BBB id = "b1"/>
          <BBB id = "b2"/>
          <BBB name = "bbb"/>
          <BBB/>
     </AAA>
```

### //BBB[@name]

Elements BBB having an attribute 'name'

```
     <AAA>
          <BBB id = "b1"/>
          <BBB id = "b2"/>
          <BBB name = "bbb"/>
          <BBB/>
     </AAA>
```

### //BBB[@*]

Elements BBB having any attribute

```
     <AAA>
          <BBB id = "b1"/>
          <BBB id = "b2"/>
          <BBB name = "bbb"/>
          <BBB/>
     </AAA>
```

### //BBB[not(@*)]

Elements BBB with no attributes

```
     <AAA>
          <BBB id = "b1"/>
          <BBB id = "b2"/>
          <BBB name = "bbb"/>
          <BBB/>
     </AAA>
```

3.

| **//BBB[@id='b1']** |
|---|
| Elements BBB with 'id' attribute value 'b1' |

```
     <AAA>
          <BBB id = "b1"/>
          <BBB name = " bbb "/>
          <BBB name = "bbb"/>
     </AAA>
```

| **//BBB[normalize-space(@name)='bbb']** |
|---|
| Elements BBB with 'name' attribute value 'bbb' once beginning and ending spaces have been erased |

```
     <AAA>
          <BBB id = "b1"/>
          <BBB name = " bbb "/>
          <BBB name = "bbb"/>
     </AAA>
```

| **//*[count(BBB)=2]** |
|---|
| Elements with two BBB children |

```

  <AAA>
          <CCC>
               <BBB/>
               <BBB/>
               <BBB/>
          </CCC>
          <DDD>
               <BBB/>
               <BBB/>
          </DDD>
          <EEE>
               <CCC/>
               <DDD/>
          </EEE>
     </AAA>
```

| **//*[count(*)=2]** |
|---|
| Any element with two children |

```
     <AAA>
          <CCC>
               <BBB/>
               <BBB/>
               <BBB/>
          </CCC>
          <DDD>
               <BBB/>
               <BBB/>
          </DDD>
          <EEE>
               <CCC/>
               <DDD/>
          </EEE>
     </AAA>
```

4.

**//*[starts-with(name(),'B')]**

Elements whose name starts with letter B

```
     <AAA>
          <BCC>
               <BBB/>
               <BBB/>
               <BBB/>
          </BCC>
          <DDB>
               <BBB/>
               <BBB/>
          </DDB>
          <BEC>
               <CCC/>
               <DBD/>
          </BEC>
     </AAA>
```

**//*[contains(name(),'C')]**

Elements whose name contains with letter C

```
     <AAA>
          <BCC>
               <BBB/>
               <BBB/>
               <BBB/>
          </BCC>
          <DDB>
               <BBB/>
               <BBB/>
          </DDB>
          <BEC>
               <CCC/>
               <DBD/>
          </BEC>
     </AAA>
```

**//*[string-length(name()) = 3]**

Elements with a 3 character’s name

```


     <AAA>
          <Q/>
          <SSSS/>
          <BB/>
          <CCC/>
          <DDDDDDDD/>
          <EEEE/>
     </AAA>
```

**//*[string-length(name()) < 3]**

Elements with less than 3 characters on its name

```
     <AAA>
          <Q/>
          <SSSS/>
          <BB/>
          <CCC/>
          <DDDDDDDD/>
          <EEEE/>
     </AAA>
```

**//*[string-length(name()) > 3]**

Elements with more than 3 characters on its name

```
     <AAA>
          <Q/>
          <SSSS/>
          <BB/>
          <CCC/>
          <DDDDDDDD/>
          <EEEE/>
     </AAA>
```

**//CCC | //BBB**

All elements CCC y BBB

```
     <AAA>
          <BBB/>
          <CCC/>
          <DDD>
               <CCC/>
          </DDD>
          <EEE/>
     </AAA>
```

### /AAA/EEE | //BBB

All BBB elements and any EEE element who is a child of the root element AAA

```
     <AAA>
          <BBB/>
          <CCC/>
          <DDD>
               <CCC/>
          </DDD>
          <EEE/>
     </AAA>
```

### /AAA/EEE | //DDD/CCC | /AAA | //BBB

…

```
     <AAA>
          <BBB/>
          <CCC/>
          <DDD>
               <CCC/>
          </DDD>
          <EEE/>
     </AAA>
```

### /descendant::*

All descendants of root

```
  <AAA>
          <BBB>
               <DDD>
                    <CCC>
                         <DDD/>
                         <EEE/>
                    </CCC>
               </DDD>
          </BBB>
          <CCC>
               <DDD>
                    <EEE>
                         <DDD>
                              <FFF/>
                         </DDD>
                    </EEE>
               </DDD>
          </CCC>
     </AAA>
```

## /AAA/BBB/descendant::*

All descendants of /AAA/BBB

```
     <AAA>
          <BBB>
               <DDD>
                    <CCC>
                         <DDD/>
                         <EEE/>
                    </CCC>
               </DDD>
          </BBB>
          <CCC>
               <DDD>
                    <EEE>
                         <DDD>
                              <FFF/>
                         </DDD>
                    </EEE>
               </DDD>
          </CCC>
     </AAA>
```

## //CCC/descendant::*

All descendants of  //CCC

```
  <AAA>
          <BBB>
               <DDD>
                    <CCC>
                         <DDD/>
                         <EEE/>
                    </CCC>
               </DDD>
          </BBB>
          <CCC>
               <DDD>
                    <EEE>
                         <DDD>
                              <FFF/>
                         </DDD>
                    </EEE>
               </DDD>
          </CCC>
     </AAA>
```

**//CCC/descendant::DDD**

All DDD elements with a CCC ancestor

```
<AAA>
     <BBB>
          <DDD>
               <CCC>
                    <DDD/>
                    <EEE/>
               </CCC>
          </DDD>
     </BBB>
     <CCC>
          <DDD>
               <EEE>
                    <DDD>
                         <FFF/>
                    </DDD>
               </EEE>
          </DDD>
     </CCC>
</AAA>
```

//DDD/parent::* Selects the parents of DDD elements

```
     <AAA>
          <BBB>
               <DDD>
                    <CCC>
                         <DDD/>
                         <EEE/>
                    </CCC>
               </DDD>
          </BBB>
          <CCC>
               <DDD>
                    <EEE>
                         <DDD>
                              <FFF/>
                         </DDD>
                    </EEE>
               </DDD>
          </CCC>
     </AAA
```

**//FFF/ancestor::***

Selects the ancestors of FFF elements

```
<AAA>
     <BBB>
```

```
          <DDD>
               <CCC>
                    <DDD/>
                    <EEE/>
               </CCC>
          </DDD>
     </BBB>
     <CCC>
          <DDD>
               <EEE>
                    <DDD>
                         <FFF/>
                    </DDD>
               </EEE>
          </DDD>
     </CCC>
</AAA>
```

### /AAA/BBB/following-sibling::*

Selects all siblings following /AAA/BBB

```
<AAA>
     <BBB>
          <CCC/>
          <DDD/>
     </BBB>
     <XXX>
          <DDD>
               <EEE/>
               <DDD/>
               <CCC/>
               <FFF/>
               <FFF>
                    <GGG/>
               </FFF>
          </DDD>
     </XXX>
     <CCC>
          <DDD/>
     </CCC>
</AAA>
```

### /AAA/XXX/preceding-sibling::*

```
<AAA>
     <BBB>
          <CCC/>
          <DDD/>
     </BBB>
     <XXX>
          <DDD>
               <EEE/>
```

```
                   <DDD/>
                   <CCC/>
                   <FFF/>
                   <FFF>
                        <GGG/>
                   </FFF>
              </DDD>
         </XXX>
         <CCC>
              <DDD/>
         </CCC>
    </AAA>
```

### /AAA/XXX/following::*

All nodes following /AAA/XXX, not including ancestors nor descendants nor attributes

```
  <AAA>
         <BBB>
              <CCC/>
              <ZZZ>
                   <DDD/>
                   <DDD>
                        <EEE/>
                   </DDD>
              </ZZZ>
              <FFF>
                   <GGG/>
              </FFF>
         </BBB>
         <XXX>
              <DDD>
                   <EEE/>
                   <DDD/>
                   <CCC/>
                   <FFF/>
                   <FFF>
                        <GGG/>
                   </FFF>
              </DDD>
         </XXX>
         <CCC>
              <DDD/>
         </CCC>
    </AAA>
```

### //ZZZ/following::*

```
    <AAA>
         <BBB>
```

```
               <CCC/>
               <ZZZ>
                    <DDD/>
                    <DDD>
                         <EEE/>
                    </DDD>
               </ZZZ>
               <FFF>
                    <GGG/>
               </FFF>
          </BBB>
          <XXX>
               <DDD>
                    <EEE/>
                    <DDD/>
                    <CCC/>
                    <FFF/>
                    <FFF>
                         <GGG/>
                    </FFF>
               </DDD>
          </XXX>
          <CCC>
               <DDD/>
          </CCC>
     </AAA>
```

## /AAA/XXX/preceding::*

All nodes preceding /AAA/XXX, not including ancestors nor descendants nor attributes

```
     <AAA>
          <BBB>
               <CCC/>
               <ZZZ>
                    <DDD/>
               </ZZZ>
          </BBB>
          <XXX>
               <DDD>
                    <EEE/>
                    <DDD/>
                    <CCC/>
                    <FFF/>
                    <FFF>
                         <GGG/>
                    </FFF>
               </DDD>
          </XXX>
          <CCC>
               <DDD/>
          </CCC>
     </AAA>
```

## //GGG/preceding::*

```
   <AAA>
          <BBB>
               <CCC/>
               <ZZZ>
                    <DDD/>
               </ZZZ>
          </BBB>
          <XXX>
               <DDD>
                    <EEE/>
                    <DDD/>
                    <CCC/>
                    <FFF/>
                    <FFF>
                         <GGG/>
                    </FFF>
               </DDD>
          </XXX>
          <CCC>
               <DDD/>
          </CCC>
     </AAA>
```

### /AAA/XXX/descendant-or-self::*

```
     <AAA>
          <BBB>
               <CCC/>
               <ZZZ>
                    <DDD/>
               </ZZZ>
          </BBB>
          <XXX>
               <DDD>
                    <EEE/>
                    <DDD/>
                    <CCC/>
                    <FFF/>
                    <FFF>
                         <GGG/>
                    </FFF>
               </DDD>
          </XXX>
          <CCC>
               <DDD/>
          </CCC>
     </AAA>
```

### //CCC/descendant-or-self::*

```
     <AAA>
          <BBB>
```

```
               <CCC/>
               <ZZZ>
                    <DDD/>
               </ZZZ>
          </BBB>
          <XXX>
               <DDD>
                    <EEE/>
                    <DDD/>
                    <CCC/>
                    <FFF/>
                    <FFF>
                         <GGG/>
                    </FFF>
               </DDD>
          </XXX>
          <CCC>
               <DDD/>
          </CCC>
     </AAA>
```

### /AAA/XXX/DDD/EEE/ancestor-or-self::*

```
     <AAA>
          <BBB>
               <CCC/>
               <ZZZ>
                    <DDD/>
               </ZZZ>
          </BBB>
          <XXX>
               <DDD>
                    <EEE/>
                    <DDD/>
                    <CCC/>
                    <FFF/>
                    <FFF>
                         <GGG/>
                    </FFF>
               </DDD>
          </XXX>
          <CCC>
               <DDD/>
          </CCC>
     </AAA>
```

### //GGG/ancestor-or-self::*

```
     <AAA>
          <BBB>
               <CCC/>
               <ZZZ>
                    <DDD/>
```

```
            </ZZZ>
        </BBB>
        <XXX>
            <DDD>
                <EEE/>
                <DDD/>
                <CCC/>
                <FFF/>
                <FFF>
                    <GGG/>
                </FFF>
            </DDD>
        </XXX>
        <CCC>
    <DDD/>
        </CCC>
</AAA>
```

**//GGG/ancestor::* | //GGG/descendant::* | //GGG/following::* | //GGG/preceding::* | //GGG/self::***

```
<AAA>
    <BBB>
        <CCC/>
        <ZZZ/>
    </BBB>
    <XXX>
        <DDD>
            <EEE/>
            <FFF>
                <HHH/>
                <GGG>
                    <JJJ>
                        <QQQ/>
                    </JJJ>
                    <JJJ/>
                </GGG>
                <HHH/>
            </FFF>
        </DDD>
    </XXX>
    <CCC>
        <DDD/>
    </CCC>
</AAA>
```

5. Operations:

**//BBB[position() mod 2 = 0 ]**

```
<AAA>
    <BBB/>
```

```
         <BBB/>
         <BBB/>
         <BBB/>
         <BBB/>
         <BBB/>
         <BBB/>
         <BBB/>
         <CCC/>
         <CCC/>
         <CCC/>
    </AAA>
```

### //BBB[ position() = floor(last() div 2 + 0.5) or position() = ceiling(last() div 2 + 0.5) ]

```
    <AAA>
         <BBB/>
         <BBB/>
         <BBB/>
         <BBB/>
         <BBB/>
         <BBB/>
         <BBB/>
         <BBB/>
         <CCC/>
         <CCC/>
         <CCC/>
    </AAA>
```

### //CCC[ position() = floor(last() div 2 + 0.5) or position() = ceiling(last() div 2 + 0.5) ]

```
  <AAA>
         <BBB/>
         <BBB/>
         <BBB/>
         <BBB/>
         <BBB/>
         <BBB/>
         <BBB/>
         <BBB/>
         <CCC/>
         <CCC/>
         <CCC/>
    </AAA>
```