Medium Solution

Load Packages

```r
library(stringr)
library(rmarkdown)
library(XML)
```

```r
xml_data <- '
<movies>
    <movie mins="126" lang="eng">
        <title>Good Will Hunting</title>
        <director>
            <first_name>Gus</first_name>
            <last_name>Van Sant</last_name>
        </director>
        <year>1998</year>
        <genre>drama</genre>
    </movie>
    <movie mins="106" lang="spa">
        <title>Y tu mama tambien</title>
        <director>
            <first_name>Alfonso</first_name>
            <last_name>Cuaron</last_name>
        </director>
        <year>2001</year>
        <genre>drama</genre>
    </movie>
</movies>
'
```

```r
# Parse the XML data
parsed_xml <- XML::xmlParse(xml_data)
```

```r
# Root node
root_node <- XML::xmlRoot(parsed_xml)
root_node
```

```
<movies>
  <movie mins="126" lang="eng">
    <title>Good Will Hunting</title>
    <director>
      <first_name>Gus</first_name>
      <last_name>Van Sant</last_name>
    </director>
    <year>1998</year>
    <genre>drama</genre>
  </movie>
  <movie mins="106" lang="spa">
    <title>Y tu mama tambien</title>
    <director>
      <first_name>Alfonso</first_name>
      <last_name>Cuaron</last_name>
    </director>
    <year>2001</year>
    <genre>drama</genre>
  </movie>
</movies>
```

```r
#Identical Test
identical(root_node,parsed_xml)
```

```
[1] FALSE
```

```r
length <- XML::xmlSize(root_node)
length
```

```
[1] 2
```

```r
movies_nodes <- XML::xmlChildren(root_node)
movies_nodes
```

```
$movie
<movie mins="126" lang="eng">
  <title>Good Will Hunting</title>
  <director>
    <first_name>Gus</first_name>
    <last_name>Van Sant</last_name>
  </director>
  <year>1998</year>
  <genre>drama</genre>
</movie>

$movie
<movie mins="106" lang="spa">
  <title>Y tu mama tambien</title>
  <director>
    <first_name>Alfonso</first_name>
    <last_name>Cuaron</last_name>
  </director>
  <year>2001</year>
  <genre>drama</genre>
</movie>

attr(,"class")
[1] "XMLInternalNodeList" "XMLNodeList"
```

```r
first_movie <- movies_nodes[1]
first_movie
```

```
$movie
<movie mins="126" lang="eng">
  <title>Good Will Hunting</title>
  <director>
    <first_name>Gus</first_name>
    <last_name>Van Sant</last_name>
  </director>
  <year>1998</year>
  <genre>drama</genre>
</movie>
```

```r
second_movie <- movies_nodes[2]
second_movie
```

```
$movie
<movie mins="106" lang="spa">
  <title>Y tu mama tambien</title>
  <director>
    <first_name>Alfonso</first_name>
    <last_name>Cuaron</last_name>
  </director>
  <year>2001</year>
  <genre>drama</genre>
</movie>
```

```r
node_children_one <- XML::xmlChildren(first_movie$movie)
node_children_one
```

```
$title
<title>Good Will Hunting</title>

$director
<director>
  <first_name>Gus</first_name>
  <last_name>Van Sant</last_name>
</director>

$year
<year>1998</year>

$genre
<genre>drama</genre>

attr(,"class")
[1] "XMLInternalNodeList" "XMLNodeList"
```

```r
node_children_two <- XML::xmlChildren(second_movie$movie)
node_children_two
```

```
$title
<title>Y tu mama tambien</title>

$director
<director>
  <first_name>Alfonso</first_name>
  <last_name>Cuaron</last_name>
</director>

$year
<year>2001</year>

$genre
<genre>drama</genre>

attr(,"class")
[1] "XMLInternalNodeList" "XMLNodeList"
```

```r
movie_name <- XML::xmlName(first_movie$movie)
movie_name
```

```
[1] "movie"
```

```r
movie_attributes <- XML::xmlAttrs(first_movie$movie)
movie_attributes
```

```
 mins   lang
"126"  "eng"
```

```r
num_elements_in_movie <- XML::xmlSize(first_movie$movie)
num_elements_in_movie
```

```
[1] 4
```

```r
child_nodes <- XML::xmlChildren(first_movie$movie)
node_names <- character()
for(node in child_nodes) {
  node_names <- c(node_names, XML::xmlName(node))
}
node_names
```

```
[1] "title"    "director" "year"     "genre"
```

```r
movie_title_node <- sapply(xmlChildren(first_movie$movie), xmlName)
movie_title_node
```

```
   title   director       year      genre
 "title" "director"     "year"    "genre"
```

```r
good_will <- first_movie$movie[[1]]
good_will
```

```
<title>Good Will Hunting</title>
```

```r
title_node <- first_movie$movie[["title"]]
title_text <- XML::xmlValue(title_node)
title_text
```

```
[1] "Good Will Hunting"
```