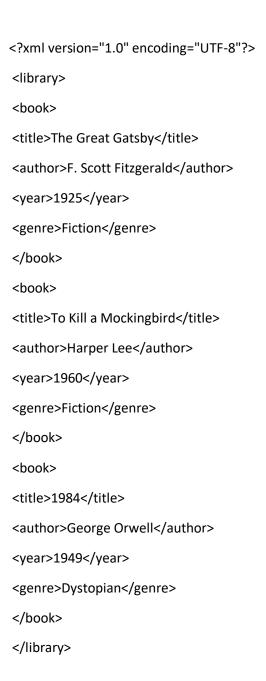
Lab Sheet 3: Introduction to XML and Basic Operations

1. Creating Your First XML Document



2.Create a Java Class for XML Parsing:

```
import org.w3c.dom.*;
import javax.xml.parsers.*;
public class XmlParser {
public static void main(String[] args) {
try {
// Create a new DocumentBuilderFactory and DocumentBuilder
DocumentBuilderFactory factory =DocumentBuilderFactory.newInstance();
DocumentBuilder builder = factory.newDocumentBuilder();
// Parse the XML file
Document document =
builder.parse("C:\\Users\\student\\Documents\\NetBeansProjects\\JavaProject1\\src\\javaproject1\\b
ooks.xml");
// Normalize the document
document.getDocumentElement().normalize();
// Get the root element (library)
NodeList nodeList = document.getElementsByTagName("book");
// Loop through each book in the XML document
for (int i = 0; i < nodeList.getLength(); i++) {
Node node = nodeList.item(i);
if (node.getNodeType() == Node.ELEMENT_NODE) {
Element = (Element) node;
```

```
// Get and print the details of each book
String title =element.getElementsByTagName("title").item(0).getTextContent();
String author =element.getElementsByTagName("author").item(0).getTextContent();
String year =element.getElementsByTagName("year").item(0).getTextContent();
String genre =element.getElementsByTagName("genre").item(0).getTextContent();
System.out.println("Title: " + title);
System.out.println("Author: " + author);
System.out.println("Year: " + year);
System.out.println("Genre: " + genre);
System.out.println("----");
}
}
} catch (Exception e) {
e.printStackTrace();
}
 Output - JavaProject1 (run)
       Title: The Great Gatsby
       Author: F. Scott Fitzgerald
       Year: 1925
       Genre: Fiction
       Title: To Kill a Mockingbird
       Author: Harper Lee
       Year: 1960
       Genre: Fiction
          _____
       Title: 1984
       Author: George Orwell
       Year: 1949
       Genre: Dystopian
       BUILD SUCCESSFUL (total time: 0 seconds)
```

2. Modify the XML Document

```
// Modify the year of the first book
Element firstBook = (Element) nodeList.item(0);
firstBook.getElementsByTagName("year").item(0).setTextContent("2023");

// Save the modified document
TransformerFactory transformerFactory =TransformerFactory.newInstance();
Transformer transformer = transformerFactory.newTransformer();
DOMSource source = new DOMSource(document);
StreamResult result = new StreamResult(new
File("C:\\Users\\student\\Documents\\NetBeansProjects\\JavaProject1\\src\\javaproject1\\updated_books.xml"));
transformer.transform(source, result);
```

```
1 - <?xml version="1.0" encoding="UTF-8" standalone="no"?><library>
2 - <book>
3
     <title>The Great Gatsby</title>
 4
      <author>F. Scott Fitzgerald</author>
 5
      <year>2023</year>
 6
      <genre>Fiction</genre>
7
      </book>
8 🗀 <book>
9
     <title>To Kill a Mockingbird</title>
10
     <author>Harper Lee</author>
11
     <year>1960</year>
      <genre>Fiction</genre>
12
     </book>
13
14 🖒 <book>
15
     <title>1984</title>
16
     <author>George Orwell</author>
17
     <year>1949</year>
18
     <genre>Dystopian</genre>
    - </book>
19
20
   _ </library><!--</pre>
    To change this license header, choose License Headers in Project Properties.
21
22
    To change this template file, choose Tools | Templates
23
     and open the template in the editor.
24
```