Lab sheet 03(XML)

Introduction to XML and Basic Operations

Tools Required:

* Java Development Kit (JDK 8 or higher)
* NetBeans IDE 8.2 (or any Java IDE)

Creating First XML Document

create a new Java Project.Create a new file named books.xml in your project folder.

<?xml version="1.0" encoding="UTF-8"?>

<library>

<book>

<title>The Great Gatsby</title>

<author>F. Scott Fitzgerald</author>

<year>1925</year>

<genre>Fiction</genre>

</book>

<book>

<title>To Kill a Mockingbird</title>

<author>Harper Lee</author>

<year>1960</year>

<genre>Fiction</genre>

</book>

<book>

<title>1984</title>

<author>George Orwell</author>

<year>1949</year>

<genre>Dystopian</genre>

</book>

</library><?xml version="1.0" encoding="UTF-8"?>

<library>

Create a new Java class named XmlParser.java in your project.

package javaapplication8;

import org.w3c.dom.\*;

import javax.xml.parsers.\*;

/\*\*

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\* @author student

\*/

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\\JavaApplication8\\src\\javaapplication8\\books.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 = (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("-----------");

}

}

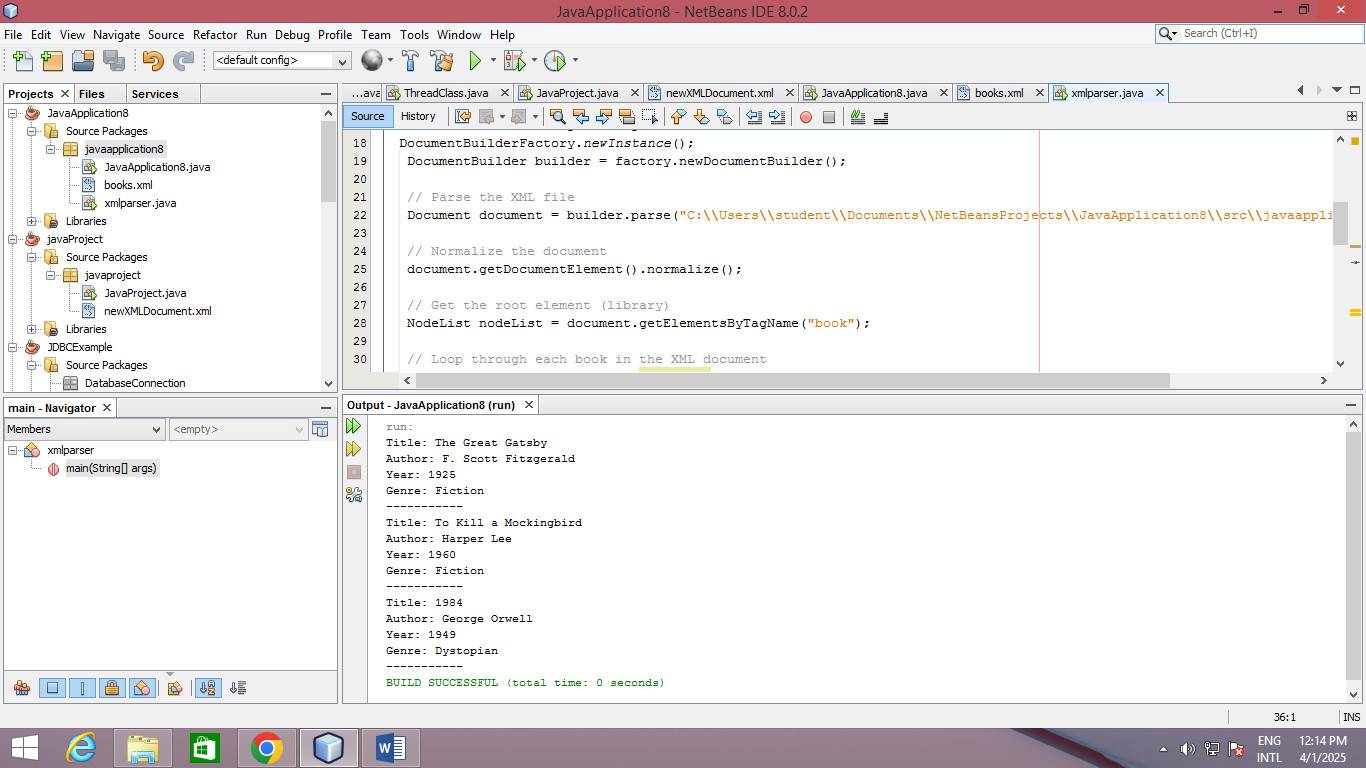
} catch (Exception e) {

e.printStackTrace();

}

}

}



In the XmlParser.java class, add code to update the year of the first book in the

XML:

package javaapplication8;

import java.io.File;

import org.w3c.dom.\*;

import javax.xml.parsers.\*;

import javax.xml.transform.Transformer;

import javax.xml.transform.TransformerFactory;

import javax.xml.transform.dom.DOMSource;

import javax.xml.transform.stream.StreamResult;

/\*\*

\*

\* @author student

\*/

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\\JavaApplication8\\src\\javaapplication8\\books.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 = (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("-----------");

}

}

// 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\\JavaApplication8\\src\\javaapplication8\\updated\_books.xml"));

transformer.transform(source, result);

} catch (Exception e) {

e.printStackTrace();

}

}

}

