Bài thực hành 02
Phát triển Big Web services

1. *Mục tiêu*

- *Tạo ứng dụng Big web services có tương tác với database.*
- *Cung cấp các chức năng xử lý CRUD với CSDL*

2. *Bài thực hành Step by Step*

Bài thực hành 1: Tạo Big web services tương tác với database để thực hiện xử lý theo các phương thức:

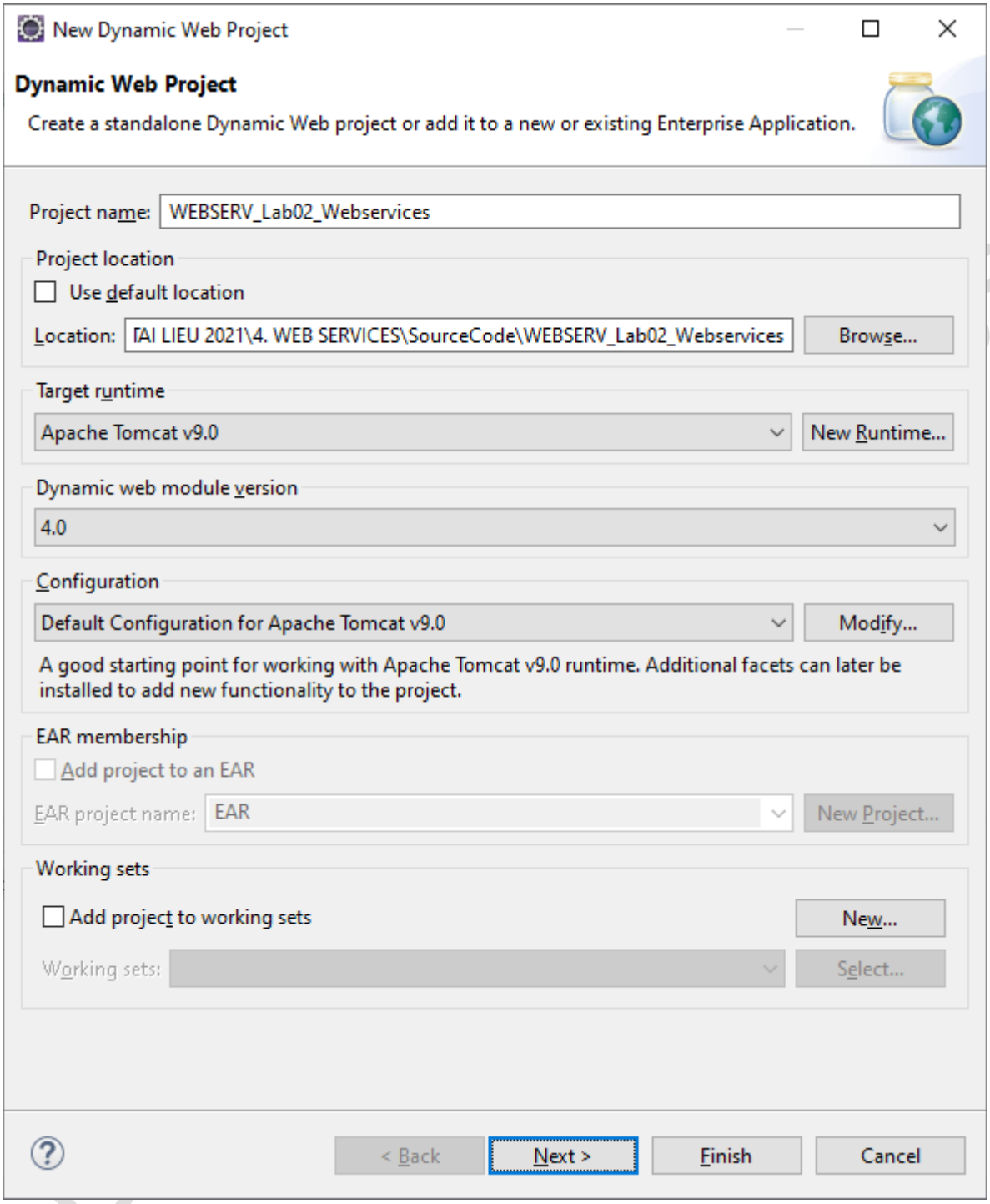
- **Get all data**
- **Get data by id**
- **Insert**
- **Update**
- **Delete**

Bước 1: **Tạo database cho ứng dụng**

```
create database DB_BigWebservice
go
use DB_BigWebservice
go
create table Book(
       Isbn varchar(15) not null primary key,
       BookName nvarchar(100),
       Author nvarchar(70),
       Publisher nvarchar(100),
       YearPubish int,
       Pages int,
       Price float)

insert into Book values ('B01',N'Hai Van Dam Duoi Bien',N'Nguyen Thuy Linh',N'NXB Kim
Dong',2019,500,120000)
insert into Book values ('B02',N'Lap trinh HCJ',N'Nguyen Duc Nam',N'NXB Giao
Duc',2020,200,50000)
```

Bước 2: **Tạo ứng dụng Dynamic Web Project có tên WEBSERV_Lab02_Webservices**

File → New → Other → Web → Dynamic Web Project . Đặt tên project "**WEBSERV_Lab02_Webservices**"



Bước 3: **Convert project to maven project**

Thêm vào các thư viện

- Hibernate core
- Hibernate entity manager

- Sqljdbc4.jar

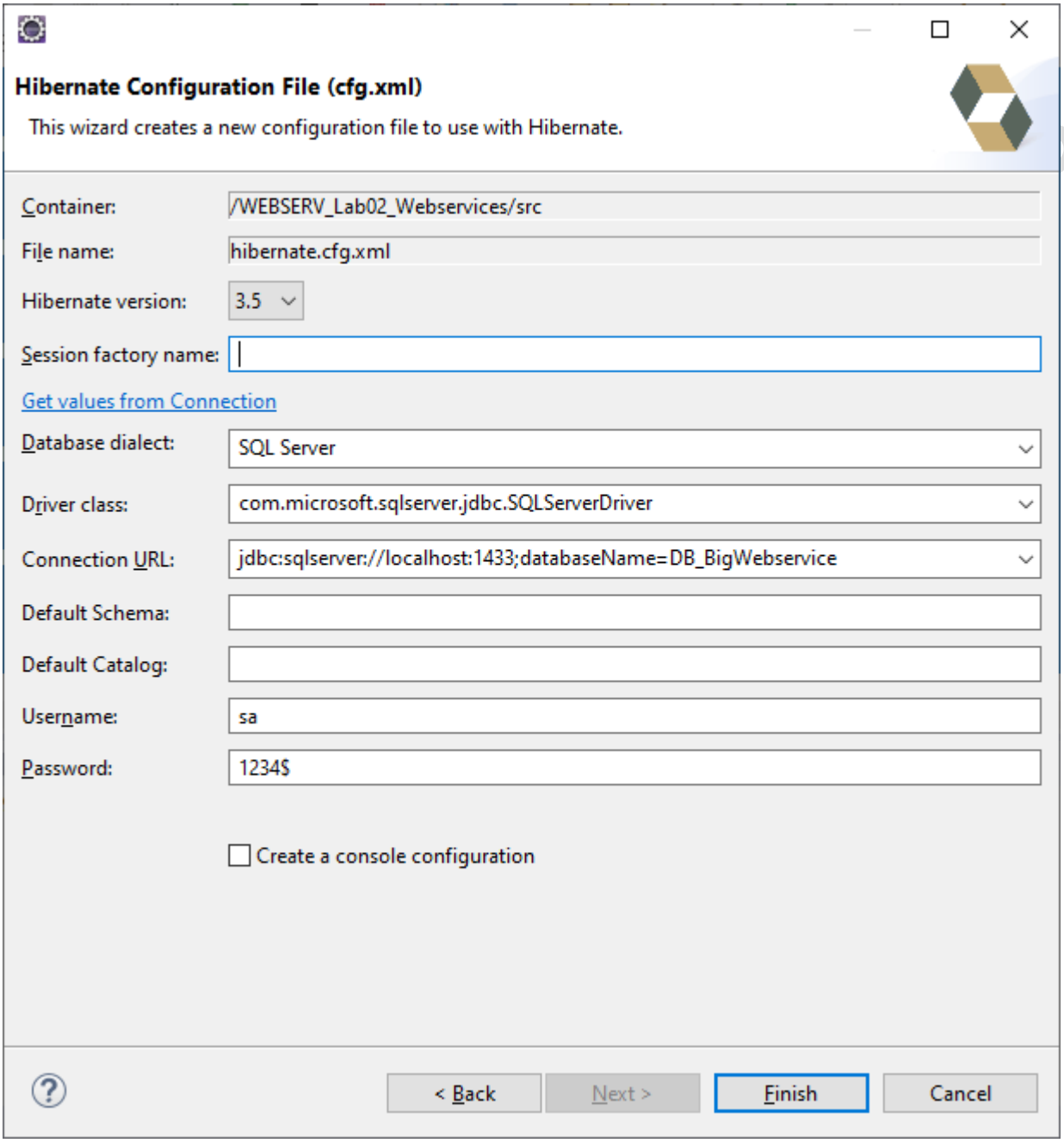
Bước 4: Tạo class ánh xạ với bảng trong database

```
package entity;

import java.io.Serializable;

import javax.persistence.Column;
import javax.persistence.Entity;
import javax.persistence.Id;
import javax.persistence.Table;

@Entity
@Table(name = "Book")
public class Book implements Serializable{
	/**
	 *
	 */
	private static final long serialVersionUID = 1L;
	@Id
	@Column(name = "Isbn")
	private String isbn;
	@Column(name = "BookName")
	private String bookName;
	@Column(name = "Author")
	private String author;
	@Column(name = "Publisher")
	private String publisher;
	@Column(name = "YearPublish")
	private Integer yearPublish;
	@Column(name = "Pages")
	private Integer pages;
	@Column(name = "Price")
	private Double price;

	public Book() {
		super();
		// TODO Auto-generated constructor stub
	}

	public Book(String isbn, String bookName, String author, String publisher,
Integer yearPublish, Integer pages,
		Double price) {
		super();
		this.isbn = isbn;
		this.bookName = bookName;
		this.author = author;
		this.publisher = publisher;
		this.yearPublish = yearPublish;
		this.pages = pages;
		this.price = price;
	}

	public String getIsbn() {
```

```
            return isbn;
        }

        public void setIsbn(String isbn) {
            this.isbn = isbn;
        }

        public String getBookName() {
            return bookName;
        }

        public void setBookName(String bookName) {
            this.bookName = bookName;
        }

        public String getAuthor() {
            return author;
        }

        public void setAuthor(String author) {
            this.author = author;
        }

        public String getPublisher() {
            return publisher;
        }

        public void setPublisher(String publisher) {
            this.publisher = publisher;
        }

        public Integer getYearPublish() {
            return yearPublish;
        }

        public void setYearPublish(Integer yearPublish) {
            this.yearPublish = yearPublish;
        }

        public Integer getPages() {
            return pages;
        }

        public void setPages(Integer pages) {
            this.pages = pages;
        }

        public Double getPrice() {
            return price;
        }

        public void setPrice(Double price) {
            this.price = price;
        }

}
```

Bước 5: Tạo file cấu hình của hibernate

Src / New / Other / Hibernate / Hibernate Configuration File (cfg.xml)



Thêm vào các thông số cấu hình của hibernate

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE hibernate-configuration PUBLIC "-//Hibernate/Hibernate Configuration DTD
3.0//EN"
                                         "http://www.hibernate.org/dtd/hibernate-
configuration-3.0.dtd">
<hibernate-configuration>
```

```
 <session-factory>
  <property
name="hibernate.connection.driver_class">com.microsoft.sqlserver.jdbc.SQLServerDriver<
/property>
  <property name="hibernate.connection.password">1234$</property>
  <property
name="hibernate.connection.url">jdbc:sqlserver://localhost:1433;databaseName=DB_BigWeb
service</property>
  <property name="hibernate.connection.username">sa</property>
  <property
name="hibernate.dialect">org.hibernate.dialect.SQLServer2008Dialect</property>
  <property name="hibernate.show_sql">true</property>
  <property name="hibernate.current_session_context_class">thread</property>
  <property name="hibernate.use_sql_comments">true</property>
  <mapping class="entity.Book"/>
 </session-factory>
</hibernate-configuration>
```

Bước 6: Tạo file HibernateUtil.java

```
package util;

import org.hibernate.SessionFactory;
import org.hibernate.boot.Metadata;
import org.hibernate.boot.MetadataSources;
import org.hibernate.boot.registry.StandardServiceRegistryBuilder;
import org.hibernate.service.ServiceRegistry;

public class HibernateUtil {
	private static SessionFactory sessionFactory;
	static {
		if(sessionFactory==null) {
			ServiceRegistry reg = new
StandardServiceRegistryBuilder().configure().build();
			MetadataSources source = new MetadataSources(reg);
			Metadata metadata = source.getMetadataBuilder().build();
			sessionFactory = metadata.getSessionFactoryBuilder().build();
		}
	}
	public static SessionFactory getSessionFactory() {
		return sessionFactory;
	}
}
```

Bước 7: Tạo giao diện BookDAO.java

```
package dao;

import java.util.List;

import entity.Book;

public interface BookDAO {
	public List<Book> getListBooks();
	public Book getBookById(String isbn);
```

```
        public boolean insertBook(Book book);
        public boolean updateBook(Book book);
        public boolean deleteBook(String isbn);
}
```

Bước 8 : Tạo class BookDAOImpl.java

```
package dao.impl;

import java.util.List;

import org.hibernate.Session;

import dao.BookDAO;
import entity.Book;
import util.HibernateUtil;

public class BookDAOImpl implements BookDAO{

        @Override
        public List<Book> getListBooks() {
                Session session = HibernateUtil.getSessionFactory().openSession();
                try {
                        session.beginTransaction();
                        List list = session.createQuery("from Book").list();
                        session.getTransaction().commit();
                        return list;
                } catch (Exception e) {
                        e.printStackTrace();
                        session.getTransaction().rollback();
                }finally {
                        session.close();
                }
                return null;
        }

        @Override
        public Book getBookById(String isbn) {
                Session session = HibernateUtil.getSessionFactory().openSession();
                try {
                        session.beginTransaction();
                        Book book = session.get(Book.class, isbn);
                        session.getTransaction().commit();
                        return book;
                } catch (Exception e) {
                        e.printStackTrace();
                        session.getTransaction().rollback();
                }finally {
                        session.close();
                }
                return null;
        }

        @Override
        public boolean insertBook(Book book) {
                Session session = HibernateUtil.getSessionFactory().openSession();
                try {
```

```
                session.beginTransaction();
                session.save(book);
                session.getTransaction().commit();
                return true;
            } catch (Exception e) {
                e.printStackTrace();
                session.getTransaction().rollback();
            }finally {
                session.close();
            }
            return false;
        }

        @Override
        public boolean updateBook(Book book) {
            Session session = HibernateUtil.getSessionFactory().openSession();
            try {
                session.beginTransaction();
                session.update(book);
                session.getTransaction().commit();
                return true;
            } catch (Exception e) {
                e.printStackTrace();
                session.getTransaction().rollback();
            }finally {
                session.close();
            }
            return false;
        }

        @Override
        public boolean deleteBook(String isbn) {
            Session session = HibernateUtil.getSessionFactory().openSession();
            try {
                session.beginTransaction();
                session.delete(getBookById(isbn));
                session.getTransaction().commit();
                return true;
            } catch (Exception e) {
                e.printStackTrace();
                session.getTransaction().rollback();
            }finally {
                session.close();
            }
            return false;
        }

}
```

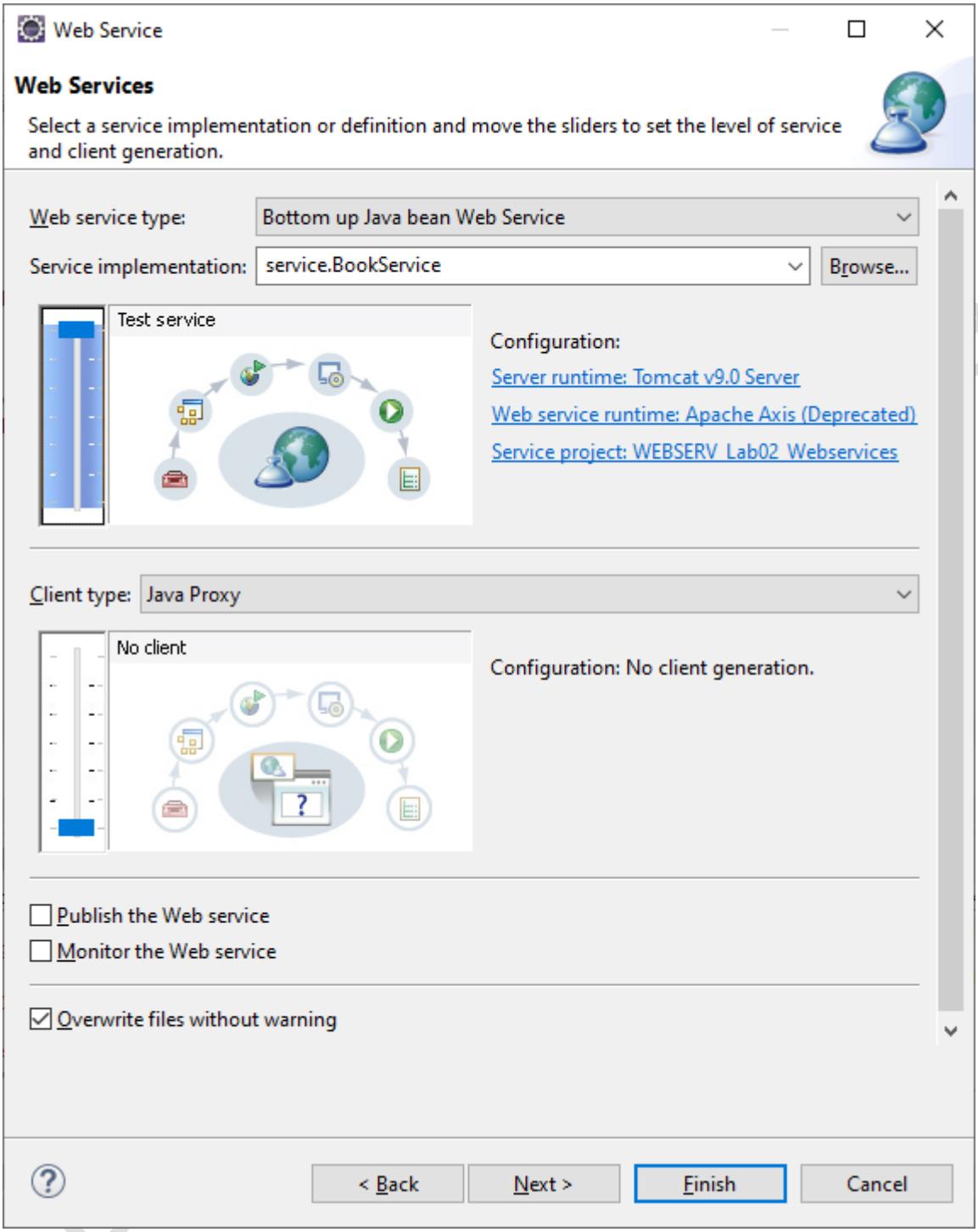
Bước 9: Tạo file BookService.java

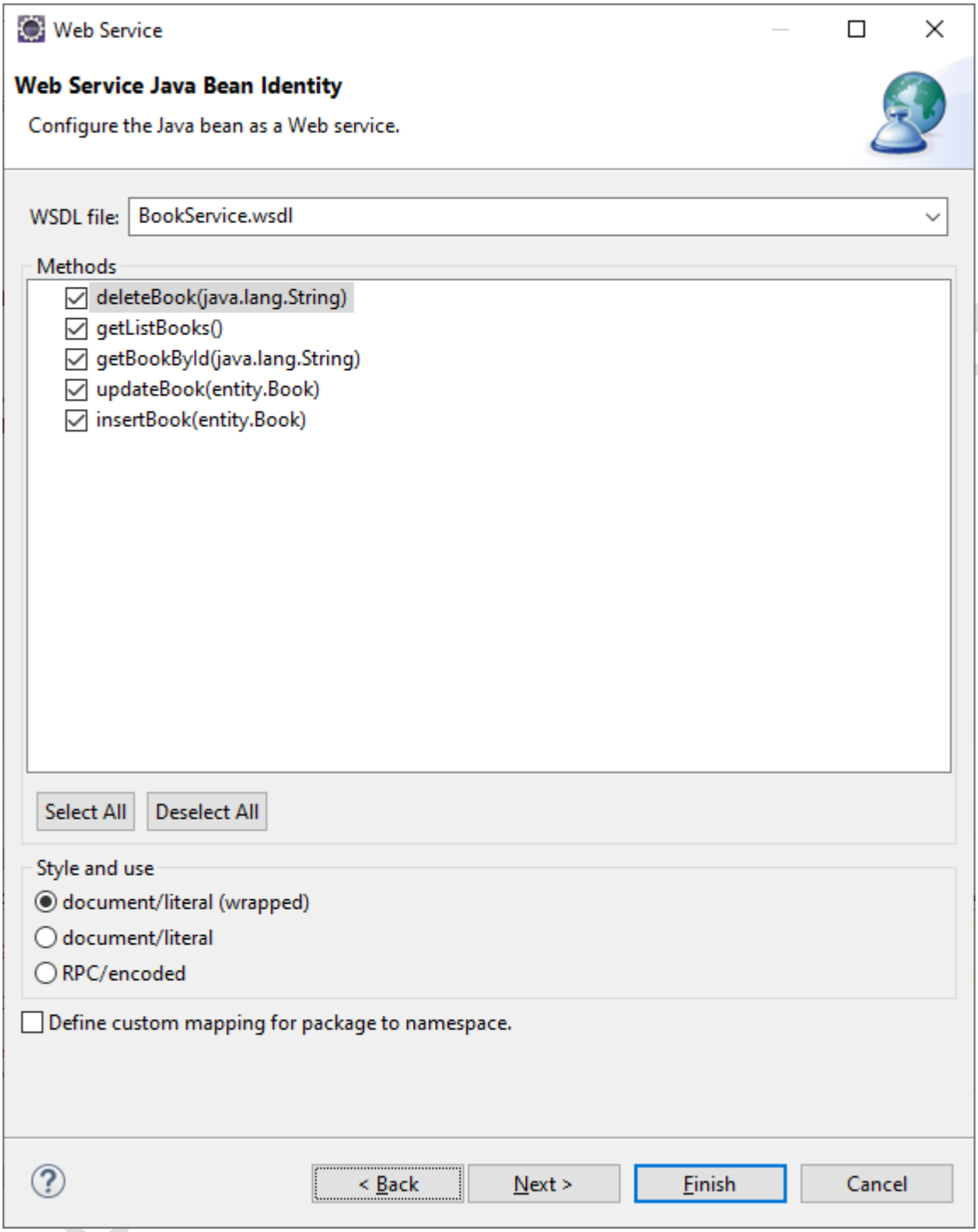
```
package service;

import java.util.List;
```

```
import dao.impl.BookDAOImpl;
import entity.Book;

public class BookService {
	public Book[] getListBooks(){
		List<Book> listBooks = new BookDAOImpl().getListBooks();
		Book[] arr = new Book[listBooks.size()];
		listBooks.toArray(arr);
		return arr;
	}
	public Book getBookById(String isbn) {
		return new BookDAOImpl().getBookById(isbn);
	}
	public boolean insertBook(Book book) {
		return new BookDAOImpl().insertBook(book);
	}
	public boolean updateBook(Book book) {
		return new BookDAOImpl().updateBook(book);
	}
	public boolean deleteBook(String isbn) {
		return new BookDAOImpl().deleteBook(isbn);
	}
}
```

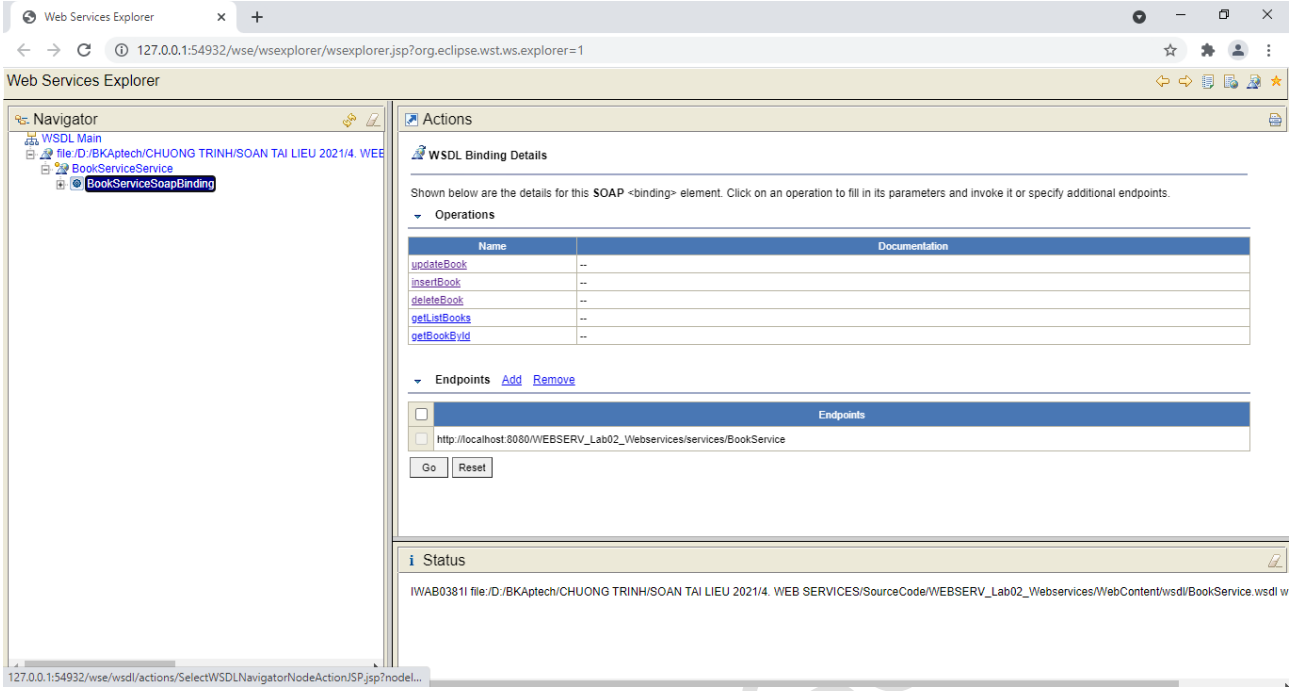
Bước 10: Tạo Big Web services từ class BookService.java

Right click BookService.java / New / Other / Web services / Web service

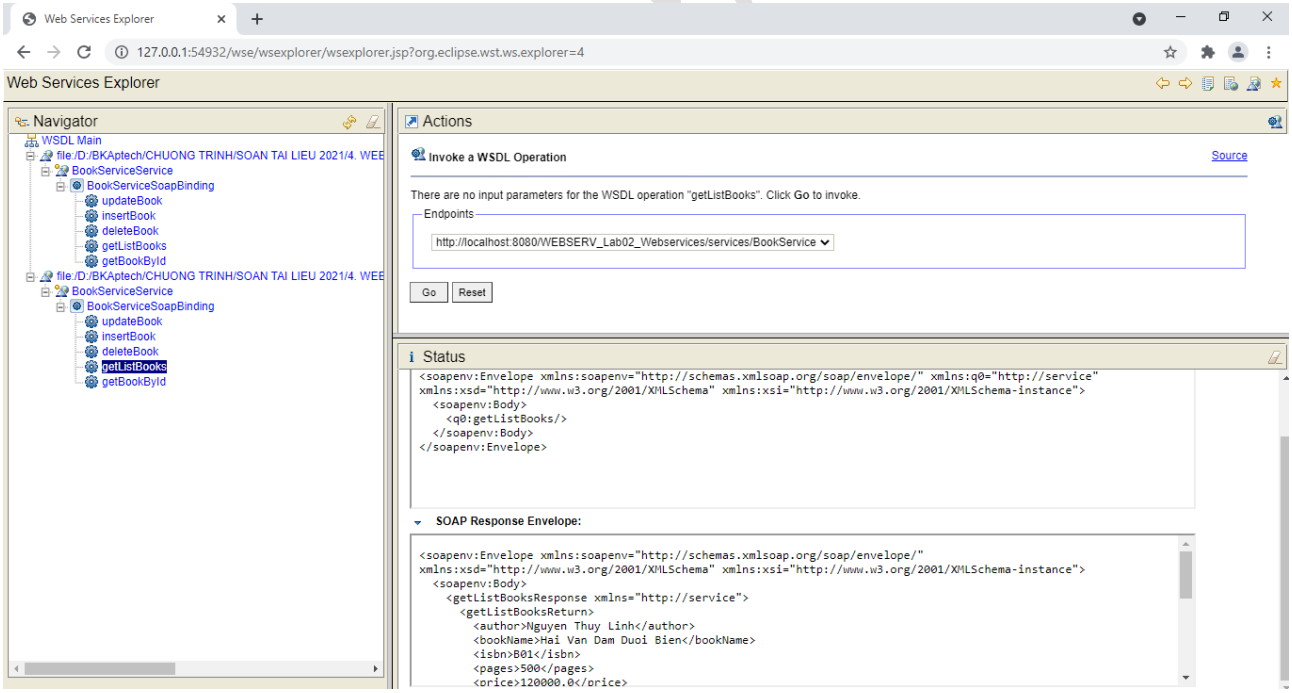




Big Web services được tạo thành công



Chạy thử chức năng getListBooks



3. ***Bài tập tự làm***

Bài 1. Tạo database như sau

Tên cột	Kiểu dữ liệu	Mô tả
CusId	Int identity	Khoá chính
CusName	Nvarchar(70)	
Gender	Bit	
Birthday	Datetime	
Address	Nvarchar(200)	
Email	Varchar(100)	
Telephone	Varchar(15)	

Tạo một Big web services cung cấp các phương thức xử lý sau:

- Get list customers
- Get customer by id
- Insert customer
- Update customer
- Delete customer