**Subject.java**

**package** com.cognizant.model;

**import** java.io.Serializable;

**import** java.util.Set;

/\*\*

\* **@author** Saugata Ray

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\*/

**public** **class** Subject **implements** Serializable{

**private** **static** **final** **long** ***serialVersionId*** = 1L;

**private** **long** subjectId;

**private** String subTitle;

**private** **int** durationInHours;

**private** Set<Book> references;

**public** **long** getSubjectId() {

**return** subjectId;

}

**public** **void** setSubjectId(**long** subjectId) {

**this**.subjectId = subjectId;

}

**public** String getSubTitle() {

**return** subTitle;

}

**public** **void** setSubTitle(String subTitle) {

**this**.subTitle = subTitle;

}

**public** **int** getDurationInHours() {

**return** durationInHours;

}

**public** **void** setDurationInHours(**int** durationInHours) {

**this**.durationInHours = durationInHours;

}

**public** Set<Book> getReferences() {

**return** references;

}

**public** **void** setReferences(Set<Book> references) {

**this**.references = references;

}

@Override

**public** String toString() {

**return** "Subject [subjectId=" + subjectId + ", subTitle=" + subTitle + ", durationInHours=" + durationInHours

+ "]";

}

}

**Book.java**

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package com.cognizant.model;

import java.io.Serializable;

import java.time.LocalDate;

/\*\*

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public class Book implements Serializable{

private static final long serialVersionUID = 3667779253735136971L;

private long bookId;

private String title;

private double price;

private Integer volume;

private LocalDate publishDate;

public long getBookId() {

return bookId;

}

public void setBookId(long bookId) {

this.bookId = bookId;

}

public String getTitle() {

return title;

}

public void setTitle(String title) {

this.title = title;

}

public double getPrice() {

return price;

}

public void setPrice(double price) {

this.price = price;

}

public Integer getVolume() {

return volume;

}

public void setVolume(Integer volume) {

this.volume = volume;

}

public LocalDate getPublishDate() {

return publishDate;

}

public void setPublishDate(LocalDate publishDate) {

this.publishDate = publishDate;

}

@Override

public String toString() {

return "Book [bookId=" + bookId + ", title=" + title + ", price=" + price + ", volume=" + volume + "]";

}

}

**Application.java**

**package** com.cognizant;

**import** java.io.BufferedReader;

**import** java.io.IOException;

**import** java.io.InputStreamReader;

**import** java.util.ArrayList;

**import** java.util.List;

**import** com.cognizant.model.Book;

**import** com.cognizant.model.Subject;

/\*\*

\* **@author** Saugata Ray

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**public** **class** Application {

List<Subject> subjectList=**new** ArrayList<Subject>();

List<Book> bookList=**new** ArrayList<Book>();

Application() {

**while** (**true**) {

System.***out***.println("\n");

System.***out***.println("enter '1' to add a new subject");

System.***out***.println("enter '2' to add a new book");

System.***out***.println("enter '3' to delete a subject");

System.***out***.println("enter '4' to delete a book");

System.***out***.println("enter '5' to search a subject");

System.***out***.println("enter '6' to search a book");

System.***out***.println("enter '7' to show all");

System.***out***.println("enter '8' to exit");

String input = gatValFromConsole("Enter your choise ");

select(Integer.*parseInt*(input));

}

}

**public** **static** **void** main(String[] args) {

**new** Application();

}

**public** **void** select(**int** i) {

**switch**(i) {

**case** 1: subjectList.add(addSubject());

**break**;

**case** 2: bookList.add(addBook());

**break**;

**case** 3: deleteSubject();

**break**;

**case** 4: deleteBook();

**break**;

**case** 5: searchSubject();

**break**;

**case** 6: searchBook();

**break**;

**case** 7: showAll();

**break**;

**case** 8: exit();

**break**;

}

}

**private** **void** showAll() {

System.***out***.println("\n");

System.***out***.println("<------Total Subject List------->");

subjectList.stream().forEach(System.***out***::println);

System.***out***.println("\n");

System.***out***.println("<------Total Book List------->");

bookList.stream().forEach(System.***out***::println);

}

**private** Subject addSubject() {

Subject subject = **new** Subject();;

subject.setSubjectId(Long.*parseLong*(gatValFromConsole("enter subject id")));

subject.setSubTitle(gatValFromConsole("enter subject title"));

subject.setDurationInHours(Integer.*parseInt*(gatValFromConsole("enter duration (In Hours)")));

System.***out***.println(subject.toString());

**return** subject;

}

**private** **void** deleteSubject() {

**long** subjectId=Long.*parseLong*(gatValFromConsole("enter the subject id to be deleted"));

**if**(subjectList.removeIf(sub->sub.getSubjectId()==subjectId))

System.***out***.println("subject with id :"+subjectId+" has been removed");

}

**private** Subject searchSubject() {

**long** subjectId=Long.*parseLong*(gatValFromConsole("enter the subject id for search"));

Subject subject= subjectList.stream()

.filter(sub -> sub.getSubjectId() == subjectId).reduce((a, b) -> {

**throw** **new** IllegalStateException("Multiple elements: " + a + ", " + b);

}).get();

System.***out***.println("<------Search Result------->");

System.***out***.println(subject);

**return** subject;

}

**private** Book addBook() {

Book book = **new** Book();

book.setBookId(Long.*parseLong*(gatValFromConsole("enter book id")));

book.setTitle(gatValFromConsole("enter subject title"));

book.setPrice(Integer.*parseInt*(gatValFromConsole("enter book price")));

book.setVolume(Integer.*parseInt*(gatValFromConsole("enter book volume")));

System.***out***.println(book.toString());

**return** book;

}

**private** **void** deleteBook() {

**long** bookId=Long.*parseLong*(gatValFromConsole("enter the book id to be deleted"));

**if**(bookList.removeIf(bk->bk.getBookId()==bookId))

System.***out***.println("book with id :"+bookId+" has been removed");

}

**private** Book searchBook() {

**long** bookId=Long.*parseLong*(gatValFromConsole("enter the book id for search "));

Book book=bookList.stream()

.filter(bk -> bk.getBookId() == bookId).reduce((a, b) -> {

**throw** **new** IllegalStateException("Multiple elements: " + a + ", " + b);

}).get();

System.***out***.println("<------Search Result------->");

System.***out***.println(book);

**return** book;

}

**private** String gatValFromConsole(String log) {

System.***out***.println(log);

String inputString = "";

**try** {

BufferedReader bufferRead = **new** BufferedReader(**new** InputStreamReader(System.***in***));

inputString = bufferRead.readLine();

} **catch** (IOException ex) {

ex.printStackTrace();

}

**return** inputString;

}

**private** **void** exit() {

System.*exit*(0);

}

}

**OUTPUT**



























