**CORE JAVA ASSIGNMENT 1**

**BooksMenuUI.java**

**package** com.books.app.ui;

**import** java.time.DateTimeException;

**import** java.time.LocalDate;

**import** java.time.format.DateTimeFormatter;

**import** java.util.Map;

**import** java.util.Scanner;

**import** java.util.Set;

**import** com.books.app.exception.BookAppException;

**import** com.books.app.model.Book;

**import** com.books.app.model.BooksAppMenu;

**import** com.books.app.model.Subject;

**import** com.books.app.service.BookAppServiceImpl;

**import** com.books.app.service.IBookAppService;

**public** **class** BooksMenuUI {

**static** IBookAppService *bookAppService*;

**static** Scanner *scan*;

**static** DateTimeFormatter *dtFormater*;

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

**try** {

*bookAppService* = **new** BookAppServiceImpl();

} **catch** (BookAppException exp) {

System.***err***.println(exp.getMessage());

System.*exit*(0);

}

*scan* = **new** Scanner(System.***in***);

*dtFormater* = DateTimeFormatter.*ofPattern*("dd-MM-yyyy");

BooksAppMenu menu = **null**;

**while** (menu != BooksAppMenu.***QUIT***) {

System.***out***.println("===========================");

System.***out***.println("Books App Menu Options");

System.***out***.println("===========================");

**for** (BooksAppMenu m : BooksAppMenu.*values*()) {

System.***out***.println(m.ordinal() + "\t" + m.name());

}

System.***out***.print("Select the action: ");

**int** action = -1;

**if** (*scan*.hasNextInt())

action = *scan*.nextInt();

**else** {

*scan*.next();

System.***out***.println("Please choose an action displayed");

**continue**;

}

**if** (action < 0 || action >= BooksAppMenu.*values*().length) {

System.***out***.println("Invalid Option");

} **else** {

menu = BooksAppMenu.*values*()[action];

**switch** (menu) {

**case** ***VIEW***:

*doView*();

**break**;

**case** ***ADD\_BOOK***:

*doAddBook*();

**break**;

**case** ***ADD\_SUBJECT***:

*doAddSubject*();

**break**;

**case** ***DELETE\_BOOK***:

*doDeleteBook*();

**break**;

**case** ***DELETE\_SUBJECT***:

*doDeleteSubject*();

**break**;

**case** ***SEARCH\_BOOK***:

*doSearchBook*();

**break**;

**case** ***SEARCH\_SUBJECT***:

*doSearchSubject*();

**break**;

**case** ***QUIT***:

System.***out***.println("Thanks for visiting!!");

**break**;

}

}

}

*scan*.close();

}

**private** **static** **void** doSearchSubject() {

**try** {

System.***out***.print("Subject Title: ");

String subtitle = *scan*.next();

Subject subj = *bookAppService*.searchSubject(subtitle);

**if** (subj != **null**) {

System.***out***.println("Subject Found : " + subj.getSubtitle());

System.***out***.println("Available books are : ");

Set<Book> books = subj.getReferences();

**for** (Book book : books) {

**if** (book != **null**) {

System.***out***.println("-------------- " + book.getTitle());

}

}

}

} **catch** (BookAppException exp) {

System.***out***.println(exp.getMessage());

}

}

**private** **static** **void** doSearchBook() {

**try** {

System.***out***.print("Book Title: ");

String booktitle = *scan*.next();

Book book = *bookAppService*.search(booktitle);

**if** (book != **null**) {

System.***out***.println("Book Found : " + book.getTitle());

System.***out***.println("Title ----- " + book.getTitle());

System.***out***.println("Price ----- " + book.getPrice());

System.***out***.println("Volume ----- " + book.getVolume());

System.***out***.println("Published Date ----- " + book.getPublistDt());

}

} **catch** (BookAppException exp) {

System.***out***.println(exp.getMessage());

}

}

**private** **static** **void** doDeleteSubject() {

**try** {

System.***out***.print("Subject Title: ");

String subtitle = *scan*.next();

**boolean** delsubj = *bookAppService*.deleteSubject(subtitle);

**if** (delsubj) {

System.***out***.println("Subject deleted successfully");

} **else** {

System.***out***.println("Subject cannot be deleted");

}

} **catch** (BookAppException exp) {

System.***out***.println(exp.getMessage());

}

}

**private** **static** **void** doDeleteBook() {

**try** {

System.***out***.print("Book Title: ");

String booktitle = *scan*.next();

**boolean** delbook = *bookAppService*.delete(booktitle);

**if** (delbook) {

System.***out***.println("Book deleted successfully");

} **else** {

System.***out***.println("Book cannot be deleted");

}

} **catch** (BookAppException exp) {

System.***out***.println(exp.getMessage());

}

}

**private** **static** **void** doAddSubject() {

String newSubject = **null**;

**try** {

Subject sub = **new** Subject();

System.***out***.print("Enter Subject ID: ");

sub.setSubjectId(Long.*parseLong*(*scan*.next()));

System.***out***.print("Enter Subject Title: ");

sub.setSubtitle(*scan*.next());

System.***out***.print("Enter Duration in hrs: ");

sub.setDurationInHours(Integer.*parseInt*(*scan*.next()));

**if** (*bookAppService*.searchSubject(sub.getSubtitle()) == **null**) {

newSubject = *bookAppService*.addSubject(sub);

}

System.***out***.println("Subject " + newSubject + " is added");

} **catch** (BookAppException exp) {

System.***out***.println(exp.getMessage());

}

}

**private** **static** **void** doView() {

**try** {

Map<String, Subject> subjects = *bookAppService*.view();

**if** (subjects != **null**) {

**for** (Map.Entry<String, Subject> entry : subjects.entrySet()) {

Subject subj = entry.getValue();

**if** (subj != **null**) {

System.***out***.println("Subject : " + subj.getSubtitle());

System.***out***.println("---- Books : ");

Set<Book> books = subj.getReferences();

**if** (books != **null** && !books.isEmpty()) {

**for** (Book book : books) {

**if** (book != **null**) {

System.***out***.println("-------- " + book.getTitle());

}

}

}

}

}

}**else** {

System.***out***.println("No books to view !!");

}

} **catch** (BookAppException e) {

e.printStackTrace();

}

}

**private** **static** **void** doAddBook() {

**try** {

Subject sub = **new** Subject();

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

System.***out***.print("Enter Book Id: ");

book.setBookId(Long.*parseLong*(*scan*.next()));

System.***out***.print("Enter Book Title: ");

book.setTitle(*scan*.next());

System.***out***.print("Enter Price: ");

book.setPrice(Double.*parseDouble*(*scan*.next()));

System.***out***.print("Enter Volume: ");

book.setVolume(*scan*.nextInt());

System.***out***.print("Enter PublishDate(dd-MM-yyyy): ");

String pubDtStr = *scan*.next();

**try** {

book.setPublistDt(LocalDate.*parse*(pubDtStr, *dtFormater*));

} **catch** (DateTimeException exp) {

**throw** **new** BookAppException("Date must be in the format day(dd)-month(MM)-year(yyyy)");

}

System.***out***.print("Enter Subject Title: ");

sub.setSubtitle(*scan*.next());

**if** (*bookAppService*.searchSubject(sub.getSubtitle()) == **null**) {

*bookAppService*.addSubject(sub);

}

String bookTitle = *bookAppService*.add(book, sub.getSubtitle());

System.***out***.println("Book " + bookTitle+" is added");

} **catch** (BookAppException exp) {

System.***out***.println(exp.getMessage());

}

}

}

**IBookAppService.java**

**package** com.books.app.service;

**import** java.util.List;

**import** java.util.Map;

**import** com.books.app.exception.BookAppException;

**import** com.books.app.model.Book;

**import** com.books.app.model.Subject;

**public** **interface** IBookAppService {

String add(Book book, String subtitle) **throws** BookAppException;

String addSubject(Subject subject) **throws** BookAppException;

**boolean** delete(String booktitle) **throws** BookAppException;

**boolean** deleteSubject(String subtitle) **throws** BookAppException;

Book search(String booktitle) **throws** BookAppException;

Subject searchSubject(String subtitle) **throws** BookAppException;

List<Book> viewAllBooks() **throws** BookAppException;

Map<String, Subject> view() **throws** BookAppException;

}

**BookAppServiceImpl.java**

**package** com.books.app.service;

**import** java.util.List;

**import** java.util.Map;

**import** com.books.app.dao.BookAppDAOImpl;

**import** com.books.app.dao.IBookAppDAO;

**import** com.books.app.exception.BookAppException;

**import** com.books.app.model.Book;

**import** com.books.app.model.Subject;

**public** **class** BookAppServiceImpl **implements** IBookAppService {

**private** IBookAppDAO bookAppDao;

**public** BookAppServiceImpl() **throws** BookAppException {

bookAppDao = **new** BookAppDAOImpl();

}

**public** IBookAppDAO getBookAppDAO() {

**return** bookAppDao;

}

@Override

**public** String add(Book book, String subtitle) **throws** BookAppException {

**return** bookAppDao.add(book, subtitle);

}

@Override

**public** String addSubject(Subject subject) **throws** BookAppException {

**return** bookAppDao.addSubject(subject);

}

@Override

**public** **boolean** delete(String booktitle) **throws** BookAppException {

**return** bookAppDao.delete(booktitle);

}

@Override

**public** **boolean** deleteSubject(String subtitle) **throws** BookAppException {

**return** bookAppDao.deleteSubject(subtitle);

}

@Override

**public** Book search(String booktitle) **throws** BookAppException {

**return** bookAppDao.search(booktitle);

}

@Override

**public** Subject searchSubject(String subtitle) **throws** BookAppException {

**return** bookAppDao.searchSubject(subtitle);

}

@Override

**public** List<Book> viewAllBooks() **throws** BookAppException {

**return** bookAppDao.viewAll();

}

@Override

**public** Map<String, Subject> view() **throws** BookAppException{

**return** bookAppDao.view();

}

}

**IBookAppDAO.java**

**package** com.books.app.dao;

**import** java.util.List;

**import** java.util.Map;

**import** com.books.app.exception.BookAppException;

**import** com.books.app.model.Book;

**import** com.books.app.model.Subject;

**public** **interface** IBookAppDAO {

String add(Book book, String subtitle) **throws** BookAppException;

String addSubject(Subject subject) **throws** BookAppException;

**boolean** delete(String booktitle) **throws** BookAppException;

**boolean** deleteSubject(String subtitle) **throws** BookAppException;

Book search(String booktitle) **throws** BookAppException;

Subject searchSubject(String subtitle) **throws** BookAppException;

List<Book> viewAll() **throws** BookAppException;

Map<String, Subject> view() **throws** BookAppException;

}

**BookAppDAOImpl.java**

**package** com.books.app.dao;

**import** java.io.File;

**import** java.io.FileInputStream;

**import** java.io.IOException;

**import** java.io.ObjectInputStream;

**import** java.util.ArrayList;

**import** java.util.HashSet;

**import** java.util.List;

**import** java.util.Map;

**import** java.util.Set;

**import** java.util.TreeMap;

**import** com.books.app.exception.BookAppException;

**import** com.books.app.model.Book;

**import** com.books.app.model.Subject;

**public** **class** BookAppDAOImpl **implements** IBookAppDAO {

**public** **static** **final** String ***DATA\_STORE\_FILE\_NAME*** = "./bookapp.dat";

**private** Map<String, Subject> subjects;

**public** BookAppDAOImpl() **throws** BookAppException {

File file = **new** File(***DATA\_STORE\_FILE\_NAME***);

**if** (!file.exists()) {

subjects = **new** TreeMap<String, Subject>();

System.***out***.println("BookApp map is newly instantiated");

} **else** {

**try** (ObjectInputStream fin = **new** ObjectInputStream(**new** FileInputStream(***DATA\_STORE\_FILE\_NAME***))) {

Object obj = fin.readObject();

**if** (obj **instanceof** Map) {

subjects = (TreeMap<String, Subject>) obj;

System.***out***.println("books successfully loaded");

} **else** {

**throw** **new** BookAppException("Not a valid BookApp");

}

} **catch** (IOException | ClassNotFoundException exp) {

System.***err***.println(exp);

**throw** **new** BookAppException("Loading Data Failed");

}

}

}

@Override

**public** String add(Book book, String subtitle) **throws** BookAppException {

String bookTitle = **null**;

Set<Book> books = **null**;

**if** (book != **null**) {

bookTitle = book.getTitle();

**if** (subjects != **null**) {

**if** (subjects.containsKey(subtitle)) {

**if** (subjects.get(subtitle).getReferences() != **null**) {

books = subjects.get(subtitle).getReferences();

books.add(book);

} **else** {

books = **new** HashSet<Book>();

books.add(book);

subjects.get(subtitle).setReferences(books);

}

subjects.get(subtitle).setReferences(books);

}

}

}

**return** bookTitle;

}

@Override

**public** String addSubject(Subject subject) **throws** BookAppException {

String subjectTitle = **null**;

**if** (subject != **null**) {

subjectTitle = subject.getSubtitle();

subjects.put(subjectTitle, subject);

}

**return** subjectTitle;

}

@Override

**public** **boolean** delete(String booktitle) **throws** BookAppException {

**if** (subjects != **null**) {

**for** (Map.Entry<String, Subject> entry : subjects.entrySet()) {

Subject subj = entry.getValue();

**if** (subj != **null**) {

Set<Book> books = subj.getReferences();

**for** (Book book : books) {

**if** (booktitle.equalsIgnoreCase(book.getTitle())) {

books.remove(book);

**return** **true**;

}

}

}

}

}

**return** **false**;

}

@Override

**public** **boolean** deleteSubject(String subtitle) **throws** BookAppException {

**if** (subjects != **null**) {

**if** (subjects.containsKey(subtitle)) {

subjects.remove(subtitle);

**return** **true**;

}

}

**return** **false**;

}

@Override

**public** Book search(String booktitle) **throws** BookAppException {

**if** (subjects != **null**) {

**for** (Map.Entry<String, Subject> entry : subjects.entrySet()) {

Subject subj = entry.getValue();

**if** (subj != **null**) {

Set<Book> books = subj.getReferences();

**for** (Book book : books) {

**if** (booktitle.equalsIgnoreCase(book.getTitle())) {

**return** book;

}

}

}

}

}

**return** **null**;

}

@Override

**public** Subject searchSubject(String subtitle) **throws** BookAppException {

**if** (subjects != **null**) {

**if** (subjects.containsKey(subtitle)) {

**return** subjects.get(subtitle);

}

}

**return** **null**;

}

@Override

**public** List<Book> viewAll() **throws** BookAppException {

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

**if** (subjects != **null**) {

**for** (Map.Entry<String, Subject> entry : subjects.entrySet()) {

Subject subj = entry.getValue();

**if** (subj != **null**) {

Set<Book> books = subj.getReferences();

**for** (Book book : books) {

bookList.add(book);

}

}

}

}

**return** bookList;

}

@Override

**public** Map<String, Subject> view() **throws** BookAppException {

**if** (subjects != **null** && !subjects.isEmpty()) {

**return** subjects;

}

**return** **null**;

}

}

**BookAppException.java**

**package** com.books.app.exception;

@SuppressWarnings("serial")

**public** **class** BookAppException **extends** Exception {

**public** BookAppException(String errMsg) {

**super**(errMsg);

}

}

**BooksAppMenu.java**

**package** com.books.app.model;

**public** **enum** BooksAppMenu {

***VIEW***,***ADD\_BOOK***,***ADD\_SUBJECT***,***DELETE\_BOOK***,***DELETE\_SUBJECT***,***SEARCH\_BOOK***,***SEARCH\_SUBJECT***,***QUIT***;

}

**Subject.java**

**package** com.books.app.model;

**import** java.io.Serializable;

**import** java.util.Set;

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

**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;

}

}

**Book.java**

**package** com.books.app.model;

**import** java.io.Serializable;

**import** java.time.LocalDate;

**public** **class** Book **implements** Serializable {

**private** **long** **bookId**;

**private** String title;

**private** **double** price;

**private** **int** volume;

**private** LocalDate publistDt;

**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** **int** getVolume() {

**return** volume;

}

**public** **void** setVolume(**int** volume) {

**this**.volume = volume;

}

**public** LocalDate getPublistDt() {

**return** publistDt;

}

**public** **void** setPublistDt(LocalDate publistDt) {

**this**.publistDt = publistDt;

}

}

**RESULTS :**

**BookApp map is newly instantiated**

===========================

Books App Menu Options

===========================

0 VIEW

1 ADD\_BOOK

2 ADD\_SUBJECT

3 DELETE\_BOOK

4 DELETE\_SUBJECT

5 SEARCH\_BOOK

6 SEARCH\_SUBJECT

7 QUIT

**Select the action: 0**

**No books to view !!**

===========================

Books App Menu Options

===========================

0 VIEW

1 ADD\_BOOK

2 ADD\_SUBJECT

3 DELETE\_BOOK

4 DELETE\_SUBJECT

5 SEARCH\_BOOK

6 SEARCH\_SUBJECT

7 QUIT

**Select the action: 1**

**Enter Book Id: 1200**

**Enter Book Title: AncientIndia**

**Enter Price: 40.00**

**Enter Volume: 1**

**Enter PublishDate(dd-MM-yyyy): 01-01-2018**

**Enter Subject Title: History**

**Book AncientIndia is added**

===========================

Books App Menu Options

===========================

0 VIEW

1 ADD\_BOOK

2 ADD\_SUBJECT

3 DELETE\_BOOK

4 DELETE\_SUBJECT

5 SEARCH\_BOOK

6 SEARCH\_SUBJECT

7 QUIT

**Select the action: 1**

**Enter Book Id: 1201**

**Enter Book Title: MordernIndia**

**Enter Price: 50.00**

**Enter Volume: 2**

**Enter PublishDate(dd-MM-yyyy): 01-02-2018**

**Enter Subject Title: History**

**Book MordernIndia is added**

===========================

Books App Menu Options

===========================

0 VIEW

1 ADD\_BOOK

2 ADD\_SUBJECT

3 DELETE\_BOOK

4 DELETE\_SUBJECT

5 SEARCH\_BOOK

6 SEARCH\_SUBJECT

7 QUIT

**Select the action: 1**

**Enter Book Id: 1202**

**Enter Book Title: Mughals**

**Enter Price: 60.00**

**Enter Volume: 3**

**Enter PublishDate(dd-MM-yyyy): 01-03-2018**

**Enter Subject Title: History**

**Book Mughals is added**

===========================

Books App Menu Options

===========================

0 VIEW

1 ADD\_BOOK

2 ADD\_SUBJECT

3 DELETE\_BOOK

4 DELETE\_SUBJECT

5 SEARCH\_BOOK

6 SEARCH\_SUBJECT

7 QUIT

**Select the action: 0**

**Subject : History**

**---- Books :**

**-------- AncientIndia**

**-------- MordernIndia**

**-------- Mughals**

===========================

Books App Menu Options

===========================

0 VIEW

1 ADD\_BOOK

2 ADD\_SUBJECT

3 DELETE\_BOOK

4 DELETE\_SUBJECT

5 SEARCH\_BOOK

6 SEARCH\_SUBJECT

7 QUIT

**Select the action: 2**

**Enter Subject ID: 5000**

**Enter Subject Title: Science**

**Enter Duration in hrs: 20**

**Subject Science is added**

===========================

Books App Menu Options

===========================

0 VIEW

1 ADD\_BOOK

2 ADD\_SUBJECT

3 DELETE\_BOOK

4 DELETE\_SUBJECT

5 SEARCH\_BOOK

6 SEARCH\_SUBJECT

7 QUIT

**Select the action: 1**

**Enter Book Id: 1300**

**Enter Book Title: AstroPhysics**

**Enter Price: 80.00**

**Enter Volume: 3**

**Enter PublishDate(dd-MM-yyyy): 01-04-2018**

**Enter Subject Title: Science**

**Book AstroPhysics is added**

===========================

Books App Menu Options

===========================

0 VIEW

1 ADD\_BOOK

2 ADD\_SUBJECT

3 DELETE\_BOOK

4 DELETE\_SUBJECT

5 SEARCH\_BOOK

6 SEARCH\_SUBJECT

7 QUIT

**Select the action: 1**

**Enter Book Id: 1301**

**Enter Book Title: OriginOfSpecies**

**Enter Price: 70.00**

**Enter Volume: 5**

**Enter PublishDate(dd-MM-yyyy): 01-08-2018**

**Enter Subject Title: Science**

**Book OriginOfSpecies is added**

===========================

Books App Menu Options

===========================

0 VIEW

1 ADD\_BOOK

2 ADD\_SUBJECT

3 DELETE\_BOOK

4 DELETE\_SUBJECT

5 SEARCH\_BOOK

6 SEARCH\_SUBJECT

7 QUIT

**Select the action: 0**

**Subject : History**

**---- Books :**

**-------- AncientIndia**

**-------- MordernIndia**

**-------- Mughals**

**Subject : Science**

**---- Books :**

**-------- OriginOfSpecies**

**-------- AstroPhysics**

===========================

Books App Menu Options

===========================

0 VIEW

1 ADD\_BOOK

2 ADD\_SUBJECT

3 DELETE\_BOOK

4 DELETE\_SUBJECT

5 SEARCH\_BOOK

6 SEARCH\_SUBJECT

7 QUIT

**Select the action: 2**

**Enter Subject ID: 6000**

**Enter Subject Title: Sports**

**Enter Duration in hrs: 15**

**Subject Sports is added**

===========================

Books App Menu Options

===========================

0 VIEW

1 ADD\_BOOK

2 ADD\_SUBJECT

3 DELETE\_BOOK

4 DELETE\_SUBJECT

5 SEARCH\_BOOK

6 SEARCH\_SUBJECT

7 QUIT

**Select the action: 0**

**Subject : History**

**---- Books :**

**-------- AncientIndia**

**-------- MordernIndia**

**-------- Mughals**

**Subject : Science**

**---- Books :**

**-------- OriginOfSpecies**

**-------- AstroPhysics**

**Subject : Sports**

**---- Books :**

===========================

Books App Menu Options

===========================

0 VIEW

1 ADD\_BOOK

2 ADD\_SUBJECT

3 DELETE\_BOOK

4 DELETE\_SUBJECT

5 SEARCH\_BOOK

6 SEARCH\_SUBJECT

7 QUIT

**Select the action: 3**

**Book Title: Mughals**

**Book deleted successfully**

===========================

Books App Menu Options

===========================

0 VIEW

1 ADD\_BOOK

2 ADD\_SUBJECT

3 DELETE\_BOOK

4 DELETE\_SUBJECT

5 SEARCH\_BOOK

6 SEARCH\_SUBJECT

7 QUIT

**Select the action: 0**

**Subject : History**

**---- Books :**

**-------- AncientIndia**

**-------- MordernIndia**

**Subject : Science**

**---- Books :**

**-------- OriginOfSpecies**

**-------- AstroPhysics**

**Subject : Sports**

**---- Books :**

===========================

Books App Menu Options

===========================

0 VIEW

1 ADD\_BOOK

2 ADD\_SUBJECT

3 DELETE\_BOOK

4 DELETE\_SUBJECT

5 SEARCH\_BOOK

6 SEARCH\_SUBJECT

7 QUIT

**Select the action: 4**

**Subject Title: Sports**

**Subject deleted successfully**

===========================

Books App Menu Options

===========================

0 VIEW

1 ADD\_BOOK

2 ADD\_SUBJECT

3 DELETE\_BOOK

4 DELETE\_SUBJECT

5 SEARCH\_BOOK

6 SEARCH\_SUBJECT

7 QUIT

**Select the action: 0**

**Subject : History**

**---- Books :**

**-------- AncientIndia**

**-------- MordernIndia**

**Subject : Science**

**---- Books :**

**-------- OriginOfSpecies**

**-------- AstroPhysics**

===========================

Books App Menu Options

===========================

0 VIEW

1 ADD\_BOOK

2 ADD\_SUBJECT

3 DELETE\_BOOK

4 DELETE\_SUBJECT

5 SEARCH\_BOOK

6 SEARCH\_SUBJECT

7 QUIT

**Select the action: 5**

**Book Title: MordernIndia**

**Book Found : MordernIndia**

**Title ----- MordernIndia**

**Price ----- 50.0**

**Volume ----- 2**

**Published Date ----- 2018-02-01**

===========================

Books App Menu Options

===========================

0 VIEW

1 ADD\_BOOK

2 ADD\_SUBJECT

3 DELETE\_BOOK

4 DELETE\_SUBJECT

5 SEARCH\_BOOK

6 SEARCH\_SUBJECT

7 QUIT

**Select the action: 6**

**Subject Title: Science**

**Subject Found : Science**

**Available books are :**

**-------------- OriginOfSpecies**

**-------------- AstroPhysics**

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Books App Menu Options

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**Select the action: 7**

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