Group DO Project One Proposal

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Name	Email	Team	P1 Role	P2 Role	P3 Role
Rohan Ramachandran	RNRAMACHANDR@WISC.EDU	Red	DW	FD	BD
Raihan Tanvir	RTANVIR@WISC.EDU	Red	AE	DW	FD
Aditya Roy	ROY35@WISC.EDU	Red	BD	AE	DW
Ruilin Yan	RYAN56@WISC.EDU	Red	FD	BD	AE
Joshua Kyle Saguiped	SAGUIPED@WISC.EDU	Blue	DW	FD	BD
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SHANTANU Chaudhuri	SCHAUDHURI5@WISC.EDU	Blue	BD	AE	DW
Shyama Subrahmanya Nikhil Kruthiventi	SKRUTHIVENTI@WISC.EDU	Blue	FD	BD	AE

Project Title: Book Mapper

Brief Project Description:

The application allows users to search through a collection of books stored in the CSV format. Users can look up a book directly through its ISBN number. The application will also check whether the ISBN is well formed and warn the user if this is not the case. In addition, the titles of all books can be searched by single words or phrases that they contain. The search can be further refined by specifying the name or part of the name of the authors of the books to search

for. The application is based on a hash table that maps ISBN numbers (the keys) to books (values). To allow searching through titles and authors, the hash table also supports iterating through all the books (values) in the table.

Representative Tasks Performed Using this Application:

1. Loop up book with ISBN 9780330491198 (demo by frontend developer)
2. Find all books by author "James Joyce" (demo by backend developer)
3. Find all books with "steam" in their title (demo by data wrangler)
4. Find all books by author "Douglas Adams" with "hitchhiker" in their title (demo by algorithm engineer)

Data Wrangler (DW) Role: Rohan Ramachandran, Joshua Kyle Saguiped

The Data Wrangler is primarily responsible for developing and testing code that reads in the book data from the CSV file. The goal of the Data Wrangler's code will be to enable the Backend Engineer to process and store book data.

Data Description:

The dataset that we will be using is a public dataset from Kaggle, available here. The relevant attributes (columns) of the CSV file are "title", "authors", and "isbn13".

Development Responsibilities:

The Data Wrangler will focus on developing implementations for the interfaces IBookLoader and IBook. IBookLoader's implementation will be a reader for CSV files with book data. The implementation of IBook will represent each of the books and store its relevant data attributes.

Presentation Responsibilities:

After integration, the Data Wrangler will record a video demonstration of using the Book Mapper application to find all books in the dataset that contain "steam" in their title.

Algorithm Engineer (AE) Role: Raihan Tanvir, Joe Schmalstig

The Algorithm Engineer has two main responsibilities. One is to extend the hash table with the functionality to allow iteration over all the values stored in the hash table. The second responsibility will be to develop an ISBN checker class that the Frontend Developer uses to check whether an ISBN number provided by the user is a valid ISBN13 according to the rules described here.

Development Responsibilities:

The Algorithm Engineer will focus on extending the hash table by implementing an additional interface ([java.lang.Iterable<ValueType>](#)), in addition to MapADT<KeyType, ValueType>. **UPDATE 09/14: by implementing [IterableMapADT](#) which combines both these interfaces.** The extension will allow iterating over values in the map in any order. The second interface the Algorithm Engineer will implement is IISBNValidator. Its implementation checks whether a given ISBN13 is valid so that the Frontend Developer can use it to validate user input.

Presentation Responsibilities:

After integration, the Algorithm Engineer will record a video demonstration of using the Book Mapper application to find all books in the dataset by the author "Douglas Adams" that contain "hitchhiker" in their title.

Backend Developer (BD) Role: Aditya Roy, SHANTANU Chaudhuri

The Backend Developer is primarily responsible for implementing the search capabilities of the application using the hash table implementation developed by the Algorithm Engineer. In addition, the Backend Developer will create the main entry point that gets this entire app running. This entry point will be a class named BookMapper that 1) uses an IBookLoader to load book data, 2) passes that data to a new IBookMapperBackend, and passes this backend object along with an IISBNValidator to the IBookMapperFrontend constructor so that this frontend can drive the program's user interface.

Development Responsibilities:

The Backend Developer will develop a class that implements the interface IBookMapperBackend. IBookMapperBackend provides all the search and filter functionality needed by the Frontend Developer. This includes looking up a single book by its ISBN number, finding books based on a word or phrase in their title, and setting a filter for the author name of books returned by a search. The Backend Developer uses the extended data structure developed by the Algorithm Engineer to implement this class.
In addition, the Backend Developer will develop a class called BookMapper that loads the dataset and instantiates all of the classes contributed by the roles of the project. This class can be used to run the Book Mapper application.

Presentation Responsibilities:

After integration, the Backend Developer will record a video demonstration of using the Book Mapper application to find all books in the dataset by the author "James Joyce".

Frontend Developer (FD) Role: Ruilin Yan, Shyama Subrahmanya Nikhil Kruthiventi

The Frontend Developer is primarily responsible for developing the text-based user interface of the Book Mapper application.

Log of a Sample Execution of the App (user input is colored **red**):

```
Welcome to the Book Mapper Application!
x+x+x+x+x+x+x+x+x+x+x+x+x+x+x+x+x+x

You are in the Main Menu:
        1) Lookup ISBN
        2) Search by Title Word
        3) Set Author Name Filter
        4) Exit Application
1
You are in the Lookup ISBN Menu:
        Enter ISBN to look up: 9780330491198
1. "The Hitchhiker's Guide to the Galaxy (Hitchhiker's Guide to the Galaxy  #1)" by
Douglas Adams, ISBN: 9780330491198

You are in the Main Menu:
        1) Lookup ISBN
        2) Search by Title Word
        3) Set Author Name Filter
        4) Exit Application
3
You are in the Set Author Filter Menu:
        Author name must currently contain: none
        Enter a new string for author names to contain (empty for any): James
Joyce
You are in the Main Menu:
        1) Lookup ISBN
        2) Search by Title Word
        3) Set Author Name Filter
        4) Exit Application
2
You are in the Search for Title Word Menu:
        Enter a word to search for in book titles (empty for all books):
Matches (author filter: James Joyce) 12 of 11124
1. "A Portrait of the Artist as a Young Man" by James Joyce/Jim Norton, ISBN:
9789626343661

2. "Dubliners" by James Joyce/Frank McCourt/Donal Donnelly/Ciaran Hinds/Colm
Meaney/Malachy McCourt, ISBN: 9780060789565

3. "A Portrait of the Artist As a Young Man" by James Joyce/Walter Hettche/Hans
Walter Gabler/John Paul Riquelme/John Mitchel/Michael Davitt/Canon  Doyle/Pádraic
Pearse/Ignatius of Loyola/Giovanni Pietro Pinamont/Walter Pater/Oscar Wilde/Douglas
Hyde/Kenneth Burke/Umberto Eco/Hugh Kenner/Hélène Cixous/Karen Lawrence/Maud
Ellmann/Bonnie Kime Scott/Joseph Valente/Marian Eide/Pericles Lewis/Jonathan
Mulrooney/J.M. Synge, ISBN: 9780393926798

4. "Ulysses" by James Joyce/Craig Raine, ISBN: 9780679455134

5. "A Portrait of the Artist as a Young Man" by James Joyce/Seamus Deane, ISBN:
9780142437346
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6. "A Portrait of the Artist as a Young Man" by James Joyce/Langdon Hammer, ISBN:
9780451530158

7. "Dubliners: Text  Criticism  and Notes" by James Joyce/Robert Scholes/A. Walton
Litz, ISBN: 9780140247749

8. "Dubliners" by James Joyce/Jeri Johnson/Thiên Lương, ISBN: 9780192839992

9. "Finnegans Wake" by James Joyce, ISBN: 9780571217359

10. "Dubliners" by James Joyce/Margot Norris/Hans Walter Gabler/Walter Hettche,
ISBN: 9780393978513

11. "The Portable James Joyce" by James Joyce/Harry Levin, ISBN: 9780517618875

12. "Ulysses" by James Joyce/Declan Kiberd, ISBN: 9780141182803

Matches (author filter: James Joyce) 12 of 11124
You are in the Main Menu:
        1) Lookup ISBN
        2) Search by Title Word
        3) Set Author Name Filter
        4) Exit Application
3
You are in the Set Author Filter Menu:
        Author name must currently contain: James Joyce
        Enter a new string for author names to contain (empty for any):
You are in the Main Menu:
        1) Lookup ISBN
        2) Search by Title Word
        3) Set Author Name Filter
        4) Exit Application
2
You are in the Search for Title Word Menu:
        Enter a word to search for in book titles (empty for all books): steam
Matches (any author) 4 of 11124
1. "The End of Nana Sahib: The Steam House (Extraordinary Voyages  #20)" by Jules
Verne/Agnes D. Kingston, ISBN: 9781410103277

2. "Steamed (A Gourmet Girl Mystery  #1)" by Jessica Conant-Park/Susan Conant, ISBN:
9780425210383

3. "Full Steam Ahead!: Unleash the Power of Vision in Your Work and Your Life" by
Kenneth H. Blanchard/Jesse Stoner, ISBN: 9781576753064

4. "Long Day's Journey: The Steamboat & Stagecoach Era in the Northern West" by
Carlos A. Schwantes, ISBN: 9780295976914

Matches (any author) 4 of 11124
You are in the Main Menu:
        1) Lookup ISBN
        2) Search by Title Word
        3) Set Author Name Filter
        4) Exit Application
3
You are in the Set Author Filter Menu:
        Author name must currently contain: none
        Enter a new string for author names to contain (empty for any): Douglas
Adams
You are in the Main Menu:
        1) Lookup ISBN
        2) Search by Title Word
```

```
            3) Set Author Name Filter
            4) Exit Application
2
You are in the Search for Title Word Menu:
            Enter a word to search for in book titles (empty for all books):
hitchhiker
Matches (author filter: Douglas Adams) 14 of 11124
1. "The Hitchhiker's Guide to the Galaxy (Hitchhiker's Guide to the Galaxy  #1)" by
Douglas Adams, ISBN: 9780671746063

2. "Life  the Universe and Everything (Hitchhiker's Guide to the Galaxy  #3)" by
Douglas Adams, ISBN: 9780345418906

3. "The Ultimate Hitchhiker's Guide to the Galaxy (Hitchhiker's Guide to the Galaxy
#1-5)" by Douglas Adams, ISBN: 9780345453747

4. "So Long  and Thanks for All the Fish (Hitchhiker's Guide to the Galaxy  #4)" by
Douglas Adams, ISBN: 9780330491235

5. "The More Than Complete Hitchhiker's Guide (Hitchhiker's Guide  #1-4 + short
story)" by Douglas Adams, ISBN: 9780681403222

6. "The Hitchhiker's Guide to the Galaxy (Hitchhiker's Guide to the Galaxy  #1)" by
Douglas Adams, ISBN: 9780330491198

7. "The Ultimate Hitchhiker's Guide: Five Complete Novels and One Story
(Hitchhiker's Guide to the Galaxy  #1-5)" by Douglas Adams, ISBN: 9780517226957

8. "The Hitchhiker's Guide to the Galaxy: The Quintessential Phase (Hitchhiker's
Guide: Radio Play  #5)" by Douglas Adams/Dirk Maggs/Simon  Jones/Geoffrey
McGivern/Mark Wing-Davey/Susan  Sheridan/Sandra Dickinson/Stephen  Moore/William
Franklyn/Rula Lenska/Sam  Burke, ISBN: 9780563504078

9. "The Restaurant at the End of the Universe (The Hitchhiker's Guide to the Galaxy
#2)" by Douglas Adams/Martin  Freeman, ISBN: 9780739332078

10. "The Hitchhiker's Guide to the Galaxy (Hitchhiker's Guide to the Galaxy  #1)" by
Douglas Adams/Stephen Fry, ISBN: 9780739322208

11. "The Hitchhiker's Guide to the Galaxy (Hitchhiker's Guide  #1)" by Douglas
Adams, ISBN: 9781400052936

12. "The Hitchhiker's Guide to the Galaxy (Hitchhiker's Guide to the Galaxy  #1)" by
Douglas Adams, ISBN: 9781400052929

13. "The Ultimate Hitchhiker's Guide (Hitchhiker's Guide to the Galaxy  #1-5)" by
Douglas Adams, ISBN: 9780517149256

14. "The Illustrated Hitchhiker's Guide To The Galaxy" by Douglas Adams, ISBN:
9780517599242

Matches (author filter: Douglas Adams) 14 of 11124
You are in the Main Menu:
            1) Lookup ISBN
            2) Search by Title Word
            3) Set Author Name Filter
            4) Exit Application
4
Goodbye!
```

Development Responsibilities:

The Frontend Developer will develop a class that implements the IBookMapperFrontend interface and that contains the code for interacting with the user. The constructor of the class will accept an object of type IBookMapperBackend for access to the backend implementation and an object of type IISBNValidator for access to the ISBN validator implementation.

Presentation Responsibilities:

After integration, the Frontend Developer will record a video demonstration of using the Book Mapper application to find the book with ISBN 9780330491198.
UPDATE 07/10: Changed content of demo to what is listed with the tasks above.

Scope and Signatures:

Ideas for Scoping Up:

One option for extending the project is to provide users with overview statistics of the dataset, such as the most prolific authors in the dataset or number books published per decade. A second option is to allow users to add new books to the dataset and save them to the CSV file.

Ideas for Scoping Down:

Options for scaling down the project are 1) omitting the check for ISBNs entered by the user, 2) omitting the option for users to refine their search with authors names, and 3) omitting the support for searching through book titles.

Outside Libraries and Other Tools:

None, except for the dataset.

Team Signatures: *This section does not need to be completed for Project1, but will need to be completed as part of the proposal for Projects 2-3.*

Name	Email	Team	Type Name As Signature
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Aditya Roy	ROY35@WISC.EDU	Red	

Ruilin Yan	RYAN56@WISC.EDU	Red	
Joshua Kyle Saguiped	SAGUIPED@WISC.EDU	Blue	
Joe Schmalstig	SCHMALSTIG@WISC.EDU	Blue	
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TA Feedback:

<During grading, your TA will share any questions or concerns that they have about this group proposal here.>

Team Response:

<After grading, if the TA Feedback above describes and required clarifications or changes to this proposal, please discuss as a group before acknowledging and addressing those concerns here.>

Proposal Amendments:

If your group needs to make any changes to what is described above after the proposal deadline, then 1) make sure everyone in your group agrees with those changes, 2) describe those changes in the first empty row below, and then 3) notify your group's TA about those changes and whey are being made. Your TA will then review your request and indicate whether they approve of such changes by adding their initials to the end of that amendment's row below.

Number	Description	TA Approval
1		
2		
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4		
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