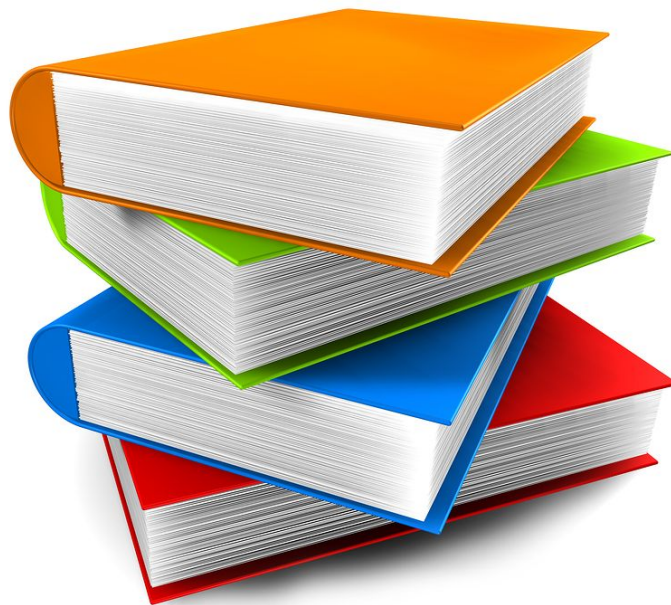


CS.466 - INFORMATION RETRIEVAL

AUTOMATIC BOOKSHOPPER

Shaunak Mukherjee (smukhe15)

Vijayaram Illa (villa1)



1. Introduction

Let's face it - we all love shopping, whatever we tell ourselves. From clothing to sporting goods, we shop for everything. But book shopping is by far the most sought out, especially online. Places like Amazon, Barnes and Noble, eBay, etc. are visited by millions of customers every day for purchasing books. However, book purchasing is a tedious purchase - looking at reviews and deciding what to choose, adding to the cart, shipping - all these take up a lot of time and energy. So, what we propose is an *Automatic Bookshopper Engine*, that makes this process way easier. We fetch data from the **Barnes and Noble website repository**, and interact with the website to deliver the perfect shopping experience. Searching for books, looking at reviews and discounts, adding/showing the cart, entering shipping details, and finalizing the purchase - all in one single package. That's our idea, and we made it a reality.

2. Features

The Automatic BookShopper allows the user to initially search the repository of *Barnes and Noble*, which is the shopping site we've chosen. Here's the welcome screen !

```
=====
***** Welcome to the 600.466 Automatic BookShopper *****
=====

1. Search books by the Book Name
2. Search books by the Author Name
3. Exit
```

We have taken into consideration that many shoppers know the author's name and not the books, or just want to view the works of a said author. With that in mind, there are **two** functionalities that have been implemented, as shown by the welcome screen - searching through the book name, *and* searching through the author name.

2.1 Search by Book Name

Our BookShopper engine scours the Barnes and Noble website for the search page - the main "search" button has been automated to include whatever the user wants to search for. This involves titles in capitals or not - just a scrawl will also do ! We make sure that whatever the user types in, our functions crawl through the website GUI and display only the most relevant results. Here's a sample - let's search for books with the word 'startup' in their title !

As you can see, it shows us the books and the names of their authors, starting with the *most* relevant and ending with the least. The book number is the key here - it's the metric for the subsequent operations, which are going to be further discussed.

2.2 Search by Author Name

The other search metric is searching by the author name, which is pretty similar to the search by the book name, but instead of the book titles, our program scours the website repository for the author names which are brought alongside the books. We've built a conglomerated data structure in *Book.py*, one of the helper programs, which contains the details about the book - author name, title, the book URL, quantity bought, etc. So let's get back to the search and see what crops up if we're in the mood for something beautiful and want to see books written by 'khaled' - an obvious reference to Khaled Hossaini. But the neat thing about our bot is that it displays all books by any 'khaled', Hossaini or not. Some people are into books written by DJ Khaled too, apparently.

```
=====
***** Welcome to the 600.466 Automatic BookShopper *****
=====

1. Search books by the Book Name
2. Search books by the Author Name
3. Exit
Enter choice: 2
Enter the name of the author whose book you wish to buy:
khaled

You're currently searching for books authored by : khaled
=====
***** LIST OF RETRIVED BOOKS *****
=====
NUMBER      BOOK NAME      AUTHOR
-----
1      The Kite Runner (10th...      Khaled Hosseini
2      A Thousand Splendid Suns      Khaled Hosseini
3      The Keys      DJ Khaled
4      And the Mountains Echoed      Khaled Hosseini
5      The Kite Runner (Essential...      Khaled Hosseini
6      No Knives in the Kitchens of...      Khaled Khalifa
7      A Thousand Splendid Suns...      Khaled Hosseini
8      Khaled      Khaled
9      Original Masters Collection      Khaled
10     Spirit of Rai      Khaled
11     Major Key      DJ Khaled
12     I Changed a Lot      DJ Khaled
13     Suffering from Success [Deluxe...      DJ Khaled
14     Kiss the Ring [Deluxe Edition]      DJ Khaled
15     Suffering From Success      DJ Khaled
16     Somewhere      Everett Lewis
17     Suffering from Success [Deluxe...      DJ Khaled
18     The Kite Runner Graphic Novel      Khaled Hosseini
19     Incognito      Khaled Talib
20     Cometas en el cielo (The Kite...      Khaled Hosseini

Select the book number to checkout or press enter exit to main menu: █
```

Now, we've seen the books. Let's know more about them !

2.3 Looking through book details

The next feature is basically looking at the details of the said book. We can't purchase a book without knowing entirely about it, so our program extracts the review of the book (written by the critics), the current price, and the discount - always helps to know how much we're saving when we buy.

```

Select the book number to checkout or press enter exit to main menu: 3

Selected Book: Startup by Doree Shafrir
=====
Review of the book -->
NoneOne of the most anticipated books of 2017--Vulture, BuzzFeed, The Millions, Nylon, PopSugar and Book Riot's "All the Books" PodcastFrom veteran online journalist and BuzzFeed writer Doree Shafrir comes a hilarious debut novel that proves there are some dilemmas that no app can solve.Mack McAllister has a $600 million dollar idea. His mindfulness app, TakeOff, is already the hottest thing in tech and he's about to launch a new and improved version that promises to bring investors running and may turn his brainchild into a $1 billion dollar business--in startup parlance, an elusive unicorn. Katya Pasternack is hungry for a scoop that will drive traffic. An ambitious young journalist at a gossipy tech blog, Katya knows that she needs more than another PR friendly puff piece to make her the go-to byline for industry news. Sabrina a Choe Blum just wants to stay afloat. The exhausted mother of two and failed creative writer is trying to escape from her credit card debt and an inattentive husband-who also happens to be Katya's boss-as she rejoins a work force that has gotten younger, hipper, and much more computer literate since she's been away. Before the ink on Mack's latest round of funding is dry, an errant text message hints that he may be working a bit too closely for comfort with a young social media manager in his office. When Mack's bad behavior collides with Katya's search for a salacious post, Sabrina gets caught in the middle as TakeOff goes viral for all the wrong reasons. As the fallout from Mack's scandal engulfs the lower Manhattan office building where all three work, it's up to Katya and Sabrina to write the story the men in their lives would prefer remain untold. NoneNone

CURRENT PRICE --> $17.21

Discount is --> Save 34%
=====
Add the book to the shopping bag?(y/n): █

```

So we've decided to buy the book 'Startup', and we're saving 34%. That's pretty nifty, isn't it?

2.4 Adding to Cart - the Bag functionality

So we've decided which book we want to buy (and don't). Let's go ahead and confirm it ! The option comes up then asking us if we want to add the book to the cart. The Cart is, again, *another* auxiliary data structure (contained in *ShoppingCart.py*) which contains book details, quantity, etc. So let's go ahead and see what our Cart now looks like !

```
Add the book to the shopping bag?(y/n): y
Do you want to check the cart content?(y/n): y
total items in the cart = 2
```

```
=====
--CART DETAILS--
=====
```

```
Book: 1

Book Title = Startup
Author = Doree Shafrir
Quantity = 1
```

```
Continue to billing?

1 for YES, 0 for NO!
```

So there's an option to display the Cart, which we might/might not wish to see. If we don't, it goes straight to the billing section. The subsequent section covers the shipping and billing part.

2.4.1 New feature : Multiple purchases

Yes, we have also thought what happens if we purchase more than one book. Well, if we press 0 i.e. not go to billing, we can still search for other books. So let's see what that looks like if we buy another book. We're saving 40% on this, so it's probably the better buy.

```
CURRENT PRICE --> $14.85
```

```
Discount is --> Save 40%
```

```
=====
Add the book to the shopping bag?(y/n): y
Do you want to check the cart content?(y/n): y
total items in the cart = 2
```

2.5 Billing and Shipping

We've of course been told not to use any credit cards for the transactions, so this is just a mock procedure. But when we press 1 to finally bill our products, it takes us to the billing page.

Here we do another tweak. We take the user details from a file ("userdata.txt") and parse it to show us the first name, last name, address, etc. of the user. We can go to the file and edit our user details, but let's stick to the one we wrote for the time being.

```
1

(Now reading data from file given)

=====BILLING DETAILS=====

First Name =  Shaun
Last Name =  Mukherjee
Address =   East 54th Street
City =    New York
State =   NY
ZIP =    100000
Phone Number =  (011)216-5488
Company Name =  Specter Litt Ross
ORDER DETAILS =
Book Name :  Startup
Author =   Doree Shafrir

=====

Do you want to checkout? Press 1 for checking out and 0 if you want to go back and change any details!
```

So the user details are added. The *nifty thing* is that the details are all encoded into variables, so if we press 0 in this screen to want to change

our details through the bot, we can readily do so - the order details are also there for reference, and yes, multiple books will be displayed alongside.

After we've checked that everything is okay, let's finally checkout !

```
Do you want to checkout? Press 1 for checking out and 0 if you want to go back and change any details!
1

=====SUCCESS!!=====

Your Order has been successfully placed !
Thank you so much for using our Shopping Bot !

(C) Shaunak Mukherjee and Vijayaram Illa, 2017.
```

That's pretty much the user workflow, and the various features of our Automatic BookShopper. It works pretty readily with just one execution, with many helper functions and files helping to accelerate the process.

3. How to run the Bot

Our project is on GitHub too :

https://github.com/shaunakmukherjee/Shopping_Bot

Steps to get the program running :

- Download and extract the ZIP
- Just type 'python ShoppingBot.py' on the terminal

All of the requirements are installed in the CS *ugrad* and *grad* machines, as we used the very same machines to test our framework.

Voila !

4. Challenges Faced

The various hurdles faced in making the project were mainly faced with regards to the extraction of the data from the complex GUI of the Barnes and Noble website. Since the B&N API isn't strictly accessible to the public, we had to scour the website for the links to extract from. Luckily, we were able to sort that out sooner rather than later. The other issue was making the bot 'intelligent' - for it to clearly understand commands to add/remove/display the cart, to search and show only the 'most relevant' books, etc., thereby making it *non-CRUD* in a way.

4. Conclusion and Acknowledgements

Even with the hurdles faced, we managed to complete our project in time. Our Bot has been tested for many scenarios, and has worked well for all of them. It has been a learning curve for us, both through the project and the class in itself. We'd like to especially thank Prof. Yarowsky and Zhouyang for their invaluable advice and help in making this project a reality. We hope our work will reap fruits. Thank you!

5. Bibliography and References

- [1] <http://www.barnesandnoble.com>
- [2] <https://www.crummy.com/software/BeautifulSoup/bs4/>
- [3] [C. Wong. Web Client Programming.](#) O'Reilly and Associates, 1997
- [4] Manning, P. Raghavan and H. Schuetze, [Introduction to Information Retrieval](#), Cambridge University Press, 200