



# TIGER TEXTS

**David Fan '19**

**Roland Fong '19**

**Nathanael Ji '18**

**Kyle Xiao '19**

COS 333 Spring 2018

*Imagine...*

A new semester begins...  
And you need your  
***textbooks.***

**COS333\_S2018**  
Advanced Programming  
Techniques

Announcements

Syllabus

Course Description

Reading List

**Reading List - COS333\_S2018: Advanced Programming Techniques**Need further assistance? Contact the Help Desk: 609-258-4357 (8-HELP) or [helpdesk@princeton.edu](mailto:helpdesk@princeton.edu)

\* Student Discount Prices represent a 30% reduction from the publisher list price and are only available to enrolled Princeton students. Both the full price and the student price appear in the Book Bag. [More Details](#)

**Required Reading**Title: **The Practice of Programming**Author: *Brian W. Kernighan; Rob Pike*ISBN: **9780201615869**

Publisher: Addison Wesley Professional

Date: 1999-02-04

Binding: Trade Paper

Used Books &amp; Guaranteed Buyback

Book rental process

Not available at Labyrinth

# Need to find readings for each class...

**Recommended Reading***There are no recommended readings to display.*

Book condition and buyback

Book rental process

Now you know the books  
you need.

But where can you get  
them?

act read think read act think read read think read think read think  
 read think act think read read think read think read think act  
 link read act think read read think read think read think act read think  
 read think read think read think act read think read think act  
 et read think read think read think read think act read think read act  
 et read think read think read think read think act read think read act



# LABYRINTH BOOKS

All Books Sale Books Course Books Event Books

home on our tables new releases best sellers

All Books practice programming more search options

Browse the Labyrinth...

African American Studies



# CAMPUSBOOKS

## View results for practice

Refine Search: All Hardcover Paperback Looseleaf

### The Practice of Programming (Addison-Wesley Professional Computing Series)

**Author:** Brian W. Kernighan - Rob Pike

**ISBN 10:** 020161586X

**ISBN 13:** 9780201615869

**Edition:** 1st

**Binding:** Paperback

[Add to Bookbag](#)

All Books

Sale Books

Course Books

Event Books

home

on our tables

new releases

best sellers

All Books

practice programming

more search options

### Search Results in All Books

**Keyword:** practice programming

**Page:** 1 2 3 4 5 6 7 8 [Next ▶](#)

**Sort by:** title | author | pub date | price | shuffle

African American Studies

ISBN All Title Author Publisher Advanced Search | B

practice of programming

## Search Results for practice of program

Filter By:

### The Practice Of Programming (Addison-Wesley Professional Computing Series)

amazon Try Prime

Books practice of programming

Deliver to Princeton 08540 Departments Recommended For You Today's Deals Gift Cards EN Hello, Sign in Account & Lists Orders Try Prime Cart

Books Advanced Search New Releases Amazon Charts Best Sellers & More The New York Times® Best Sellers Children's Books Textbooks Textbook Rentals Sell Us Your Books

< Back to search results for "practice of programming"

The Practice of Programming and millions of other books are available for Amazon Kindle. Learn more

Kindle Monthly Deals UP TO 80% OFF TOP READS IN MAY [Browse now](#)

**The Practice of Programming (Addison-Wesley Professional Computing Series) 1st Edition**

by Brian W. Kernighan (Author), Rob Pike (Author)

★★★★★ 66 customer reviews

[Look inside](#)

Kindle \$31.19 Paperback \$13.58 - \$36.00 Other Sellers See all 4 versions

Buy used \$13.58

Buy new \$36.00

In Stock.

Ships from and sold by Amazon.com. Gift-wrap available.

List Price: \$49.99 Save: \$13.99 (28%)

26 New from \$33.90

FREE Shipping

But it's important to also  
check peer-to-peer sales.



# Textbook Exchange

Open Group within  
Princeton

About

**Discussion**

Items for Sale

Your Items

Members

Videos

Photos

Events

Files

Search this group

TOP POSTS ▾



Alex Mayo

7 hrs

...

**remnants of my fun sophomore fall**

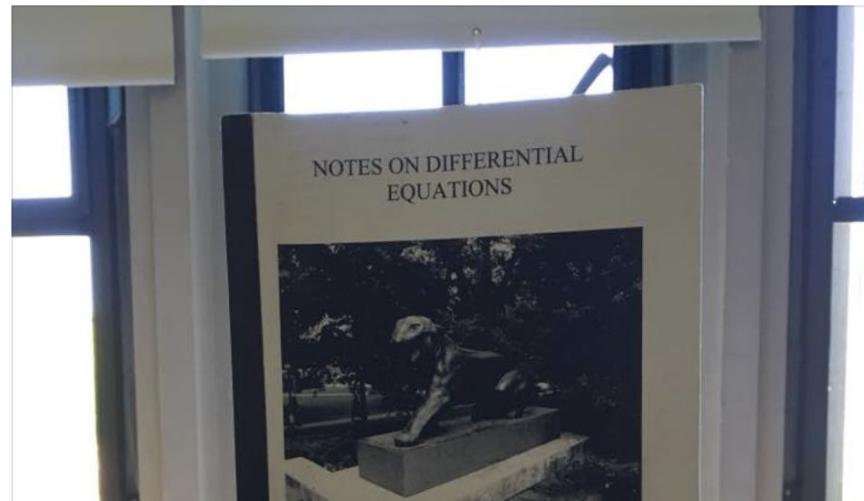
**FREE**

📍 Princeton, NJ

CHM 303/304 (orgo): textbook, solution manual, and lab survival guide, some writing from a previous owner but no signs of use by me lol

CBE 250 (seps): both Seader and Harrison books, very good condition

MAE 305 (diff eq): Howard Stone's pequod from last year, minimal writing message me for prices if interested



## Shortcuts

Textbook Exchange

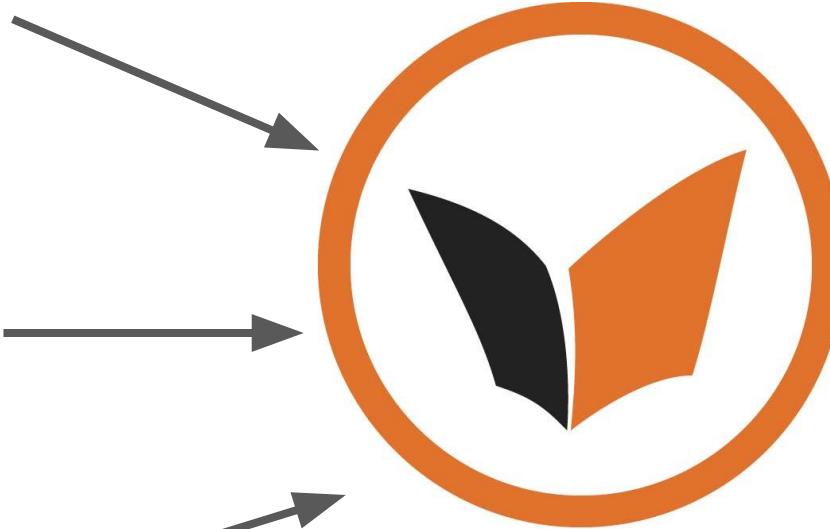
Princeton Memes f... 20+

**WE CAN DO BETTER!**

Lists readings for each course

Scans prices on retailer sites

Facilitates P2P transactions



TIGER TEXTS



TIGER TEXTS

**Live Demo**



Search by Course



LOGIN

About

Search Results



# TIGER TEXTS

The one-stop-shop for all your Princeton coursebook needs!



cos42

LOGIN

COS426 - Computer Graphics



COS424/SML302 - Fundamentals of Machine Learning



Search Results

# Start by searching for a class



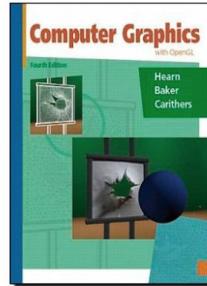
About



Search Results

# Computer Graphics with Open GL

Donald D. Hearn, M. Pauline Baker, ...



## Classes

COS426

## Book Description

Computer Graphics with OpenGL, 4/e is appropriate for junior-to graduate-level courses in computer graphics. Assuming no background in computer graphics, this junior-to graduate-level course presents basic principles for the design, use, and understanding of computer graphics systems and applications. The authors, authorities in their field, offer an integrated approach to two-dimensional and three-dimensional graphics topics. A comprehensive explanation of the popular OpenGL programming package, along with C++ programming examples illustrates applications of the various functions in the OpenGL basic library and the related GLU and GLUT packages. Used Book in Good Condition

## Book Prices

Computer Graphics with Open GL

Amazon

(Used)

\$49.98

Computer Graphics with Open GL

Amazon

(New)

\$150.00



NEW &amp; INTERESTING FINDS ON AMAZON

EXPLORE



Books ▾



Mother's Day Free Shipping ends soon

Departments ▾

Browsing History ▾

Fang's Amazon.com

Today's Deals

Gift Cards

EN

Hello, Fang  
Account & Lists ▾

Orders

Prime ▾



Books Advanced Search

New Releases

Amazon Charts

Best Sellers &amp; More

The New York Times® Best Sellers

Children's Books

Textbooks

Textbook Rentals

Sell Us Your Books

[Return to product information](#) | [Have one to sell?](#) | Every purchase on Amazon.com is protected by an [A-to-z guarantee](#). | [Feedback on this page? Tell us what you think](#)


## Computer Graphics with Open GL (4th Edition) (Hardcover)

by Donald D. Hearn (Author), et al.



★

★

★

★

★

▼

9 customer reviews

| Share



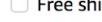
Access codes and supplements are not guaranteed with used items.

Refine by [Clear all](#)

Shipping



prime

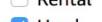


Free shipping

Condition



New



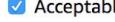
Rental



Used



Like New



Very Good



Good



Acceptable

Price + Shipping

\$49.98

+\$3.99 shipping + \$0.00  
estimated taxCondition [\(Learn more\)](#)**Used - Acceptable**Item is intact, but may show shelf wear.  
Pages may include notes ... » [Read more](#)

Delivery

- Arrives between May 15-21.
- Want it delivered Wednesday, May 16?  
Choose **Expedited Shipping** at checkout.
- [Shipping rates and return policy](#).

Seller Information

**HPB-Ohio**★★★★★ [96% positive](#)  
over the past 12 months.  
(33,779 total ratings)

Buying Options

[Add to cart](#)

\$49.98

+\$3.99 shipping + \$0.00  
estimated tax**Used - Acceptable**Large glossy hardcover. Spine is tight but  
has some tilting. Some... » [Read more](#)

Arrives between May 15-22.

- Ships from FL, United States.
- [Shipping rates and return policy](#).

**jes36253**★★★★★ [99% positive](#)  
over the past 12 months.  
(5,670 total ratings)[Add to cart](#)

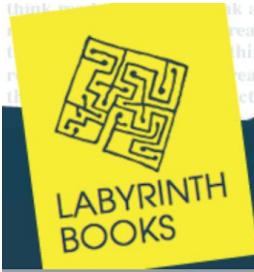
\$53.97

& FREE Shipping + \$0.00  
estimated tax**Used - Acceptable**Shows definite wear, and perhaps  
considerable marking on inside

Arrives between May 15-22.

- Want it delivered Thursday, May 17?  
Choose **Expedited Shipping** at

**Better World Books:  
North**★★★★★ [94% positive](#)[Add to cart](#)



basket • wish list • subscribe • login



All Books

Sale Books

Course Books

Events & More

Stores

home

on our tables

new releases

best sellers

All Books

search by keywords, catalog#, isbn...

Search

more search options

Browse the Labyrinth...



African American Studies

African Studies

Anthropology & Archaeology

Architecture

Art

Asian Studies

Biography

Children's Books

Christianity

Classical Studies

Cognitive Sciences

Cultural Studies

Current Events

Design & Fashion

Eastern European Studies

Eastern Religion &

Philosophy

Economics

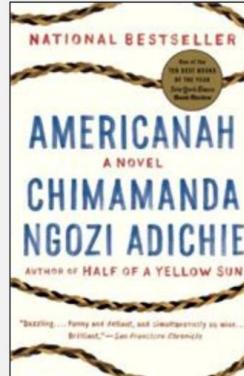
Education

Environmental Studies

European History & Politics

Film & Media

Food & Cooking



Americanah  
by Adichie, Chimamanda Ngozi

One of *The New York Times*'s Ten Best Books of the Year and an NBCC Award Finalist  
An NPR "Great Reads" Book, a *Chicago Tribune* Best Book, a *Washington Post* Notable Book, a *Seattle Times* Best Book, an *Entertainment Weekly* Top Nonfiction Book, a *Newsday* Top 10 Book, and a Good Reads Best of the Year pick.

A powerful, tender story of race and identity by Chimamanda Ngozi Adichie, the award-winning author of *Half of a Yellow Sun*.

Ifemelu and Obinze are young and in love when they depart military-ruled Nigeria for the West. Beautiful, self-assured Ifemelu heads for America, where despite her academic success, she is forced to grapple with what it means to be black for the first time. Quiet, thoughtful Obinze had hoped to join her, but with post-9/11 America closed to him, he instead plunges into a dangerous, undocumented life in London. Fifteen years later, they reunite in a newly democratic Nigeria, and reignite their passion—for each

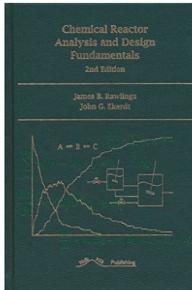
- i About
- 🔍 Search Results
- 📝 Selling
- ❤️ Favorites
- 📋 Offers

## Chemical Reactor Analysis and Design Fundamentals

James B. Rawlings ,John G. Ekerdt



SELL THIS BOOK



### Classes

CBE441

### Book Description

This textbook, designed for undergraduate and graduate chemical engineering courses, presents several new and emerging topics not described in any other textbooks, and exploits the recent advances in computing software and hardware to streamline and reorganize many of the traditional topics.

### Book Prices

Chemical Reactor Analysis and Design Fundamentals

Amazon

(Used)

\$65.99

Chemical Reactor Analysis and Design Fundamentals

Amazon

(New)

\$90.00

- i About
- Search Results
- L Selling
- Heart Favorites
- Offer Offers

## Chemical Reactor Analysis and Design Fundamentals

James B. Rawlings ,John G. Ekerdt



SELL THIS BOOK



### Sell Chemical Reactor Analysis and Design Fundamentals

Price (optional)

\$ 25.99

Condition

New ▾

Comment

I really like CBE. Book is in spotless condition.

Book Pr

CANCEL

SUBMIT

al engineering courses, presents several new and its the recent advances in computing software al topics.

Chemical Reactor Analysis and Design Fundamentals

Amazon

(Used)

\$65.99

Chemical Reactor Analysis and Design Fundamentals

Amazon

(New)

\$90.00

[About](#)[Search Results](#)[Selling](#)[Favorites](#)[Offers](#)[SELL THIS BOOK](#)

## Classes

### Chemical Reactor Analysis and Design Fundamentals

Sold by David Fan for \$25.99  
(New)

I really like CBE. Book is in spotless condition.

Offer Price (optional)

\$ 0.01



#### Book Price

Chemical

Amazon

(Used)

\$65.99

Chemical Reactor Analysis and Design Fundamentals

Amazon

(New)

\$90.00

Seller: David Fan

Platform

(New)

\$25.99

CLOSE

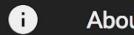
MAKE OFFER



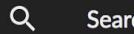
Search by Course



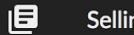
LOGOUT



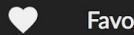
About



Search Results



Selling



Favorites



Offers

## My Offers

No Offers

## Offers to me

Nathanael Ji offers to purchase "Chemical Reactor Analysis and Design Fundamentals" for \$0.01

ACCEPT

DECLINE



CBE441



LOGOUT

About

Search Results

Selling

Favorites

Offers

## My Offers

You offer to purchase "Chemical Reactor Analysis and Design Fundamentals" for \$0.01

[REVOKE](#)

## Offers to me

No Offers

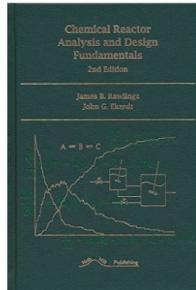
- i About
- 🔍 Search Results
- 📝 Selling
- ❤️ Favorites
- 📋 Offers

## Chemical Reactor Analysis and Design Fundamentals

James B. Rawlings ,John G. Ekerdt



MARK SOLD



### Classes

CBE441

### Book Description

This textbook, designed for undergraduate and graduate chemical engineering courses, presents several new and emerging topics not described in any other textbooks, and exploits the recent advances in computing software and hardware to streamline and reorganize many of the traditional topics.

### Book Prices

Chemical Reactor Analysis and Design Fundamentals

Amazon

(Used)

\$65.99

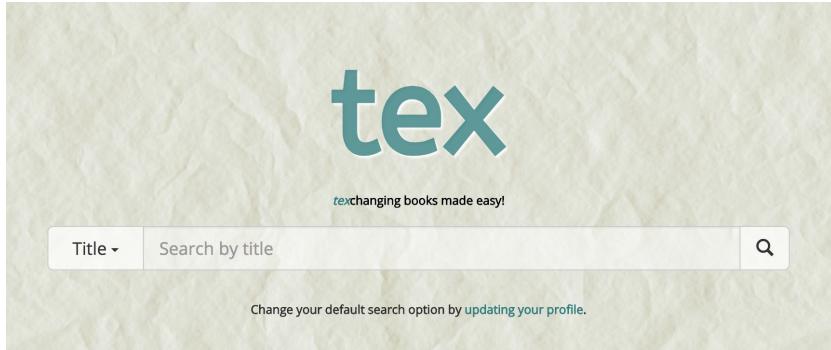
Chemical Reactor Analysis and Design Fundamentals

Amazon

Updated favorites X

# Previous attempts to solve the textbook exchange problem

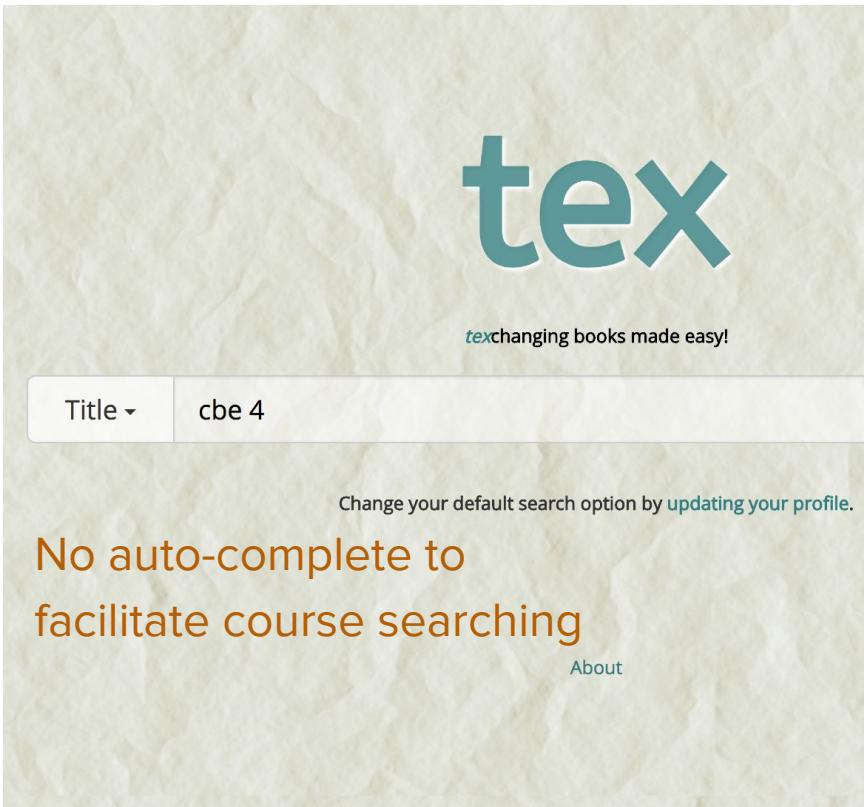
tex



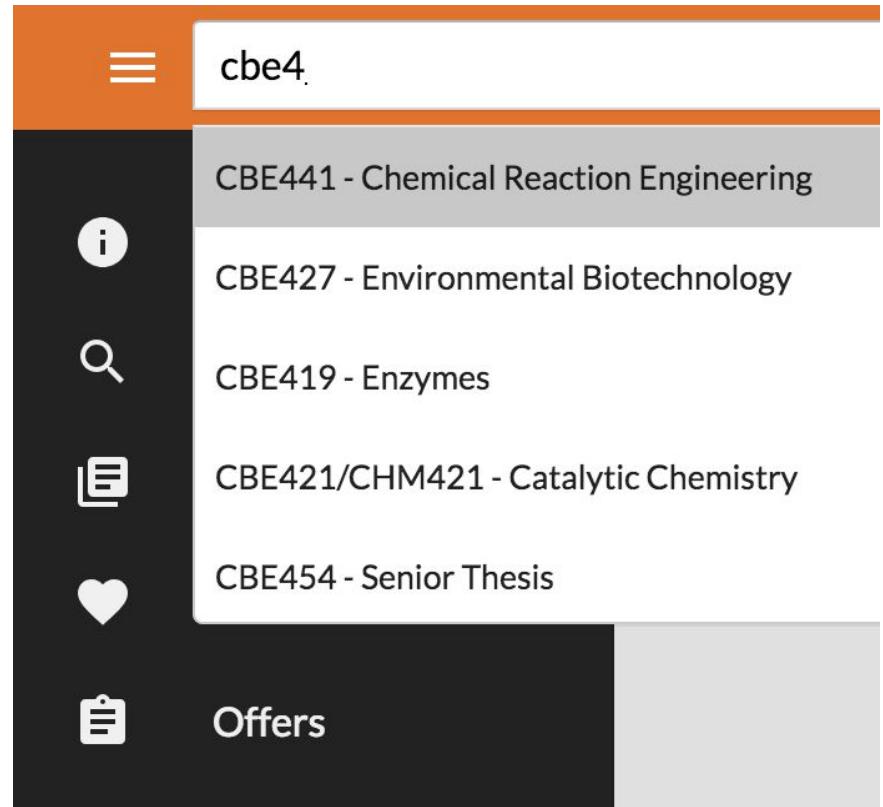
A screenshot of a Facebook group page titled "Textbook Exchange". The sidebar on the left lists group categories: "About", "Discussion" (which is selected), "Items for Sale", "Your Items", "Members", "Videos", "Photos", "Events", and "Files". The main content area shows a message: "What are you selling?" and "You have 1 item for sale. Please mark any items you sold." Below this, there's a section titled "Items for Sale" with a thumbnail image showing several books. One book is labeled "\$1", another is "\$15", and one is labeled "FREE". A link "See All 2,028 Items for Sale" is visible.

Facebook textbook  
exchange

# Improvements over tex



Compared to our fluid and easy auto-complete



# Improvements over Facebook Textbook Exchange

- Highlights all readings for each class
- Comparison with Amazon, Labyrinth, and other sources
- Can see all offers for a book in one place, rather than searching for the book among multiple facebook posts

Ali Whiting ▶ Textbook Exchange within Princeton  
February 3 · [View on Facebook](#)

Selling:  
NEU 202  
MOL 214  
**MOL 345** (custom version for Princeton)

[Like](#) [Comment](#) [Share](#)

Seong Jang ▶ Textbook Exchange  
May 20, 2017 · [View on Facebook](#)

Selling:  
NEU 301 (Cell Neurobiology)  
MOL 348 (Cell/Developmental Biology) (1 of the books)  
**MOL 345 (Biochem)**  
PSY/NEU 331 (Intro to Clinical Neuropsych)  
PSY/NEU 306 (Memory and Cognition)  
ENG 369 (Science/Speculative Fiction) ~10 books

[Like](#) [Comment](#) [Share](#)

MOL345/CHM345

- About
- Search Results
- Selling
- Favorites
- Offers

Principles of Biochemistry Study Guide  
1/3/2016 still in wrap.

Book Prices

Principles of Biochemistry and Study Guide and Solutions Manual  
Labyrinth

Principles of Biochemistry and Study Guide and Solutions Manual  
Amazon

Principles of Biochemistry and Study Guide and Solutions Manual  
Amazon

Seller: David Fan  
Platform

Seller: Nathanael Ji  
Platform

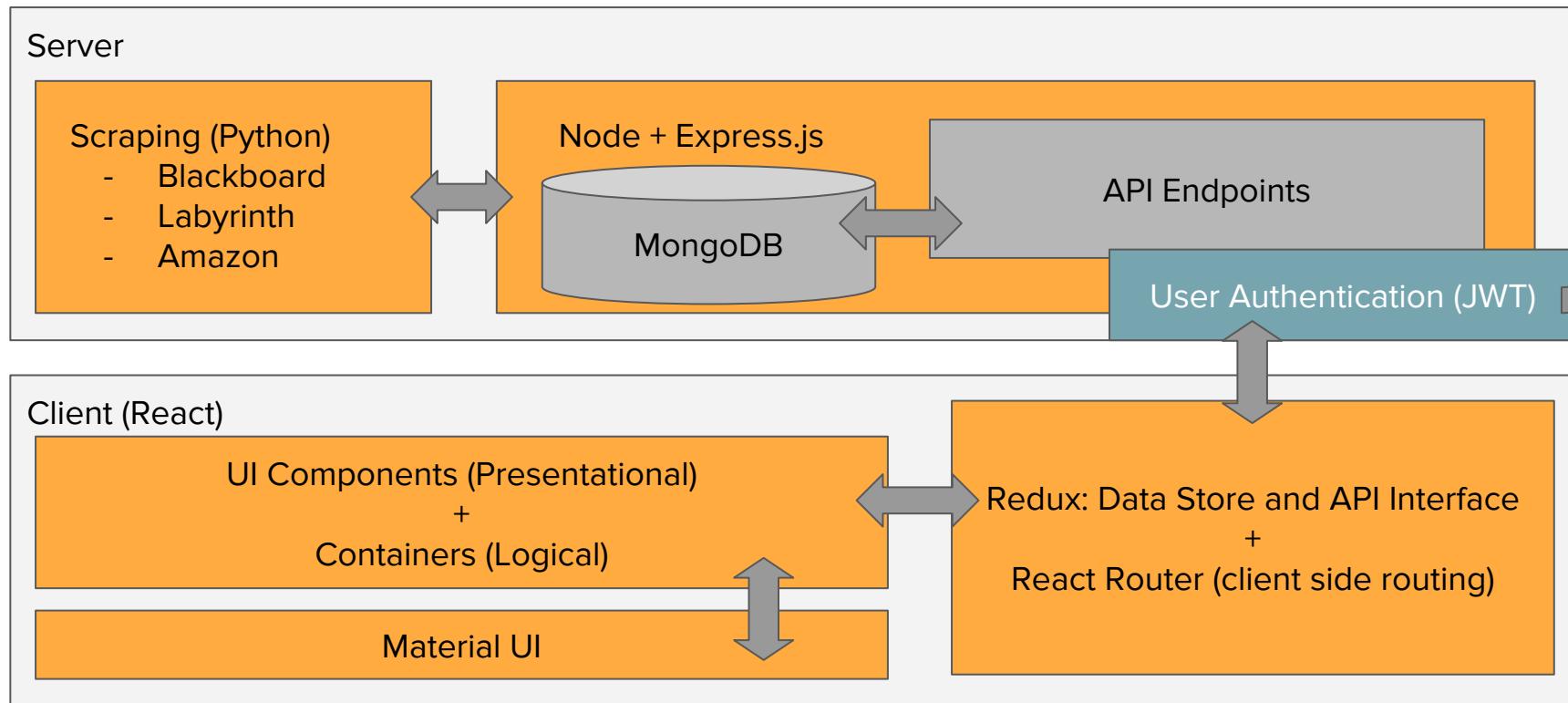


TIGER TEXTS

**How We Did It**

# App Architecture/Implementation

Facebook



# Data Pipeline I High Level Overview

## Scraping (Python)

- Blackboard
- Labyrinth
- Amazon

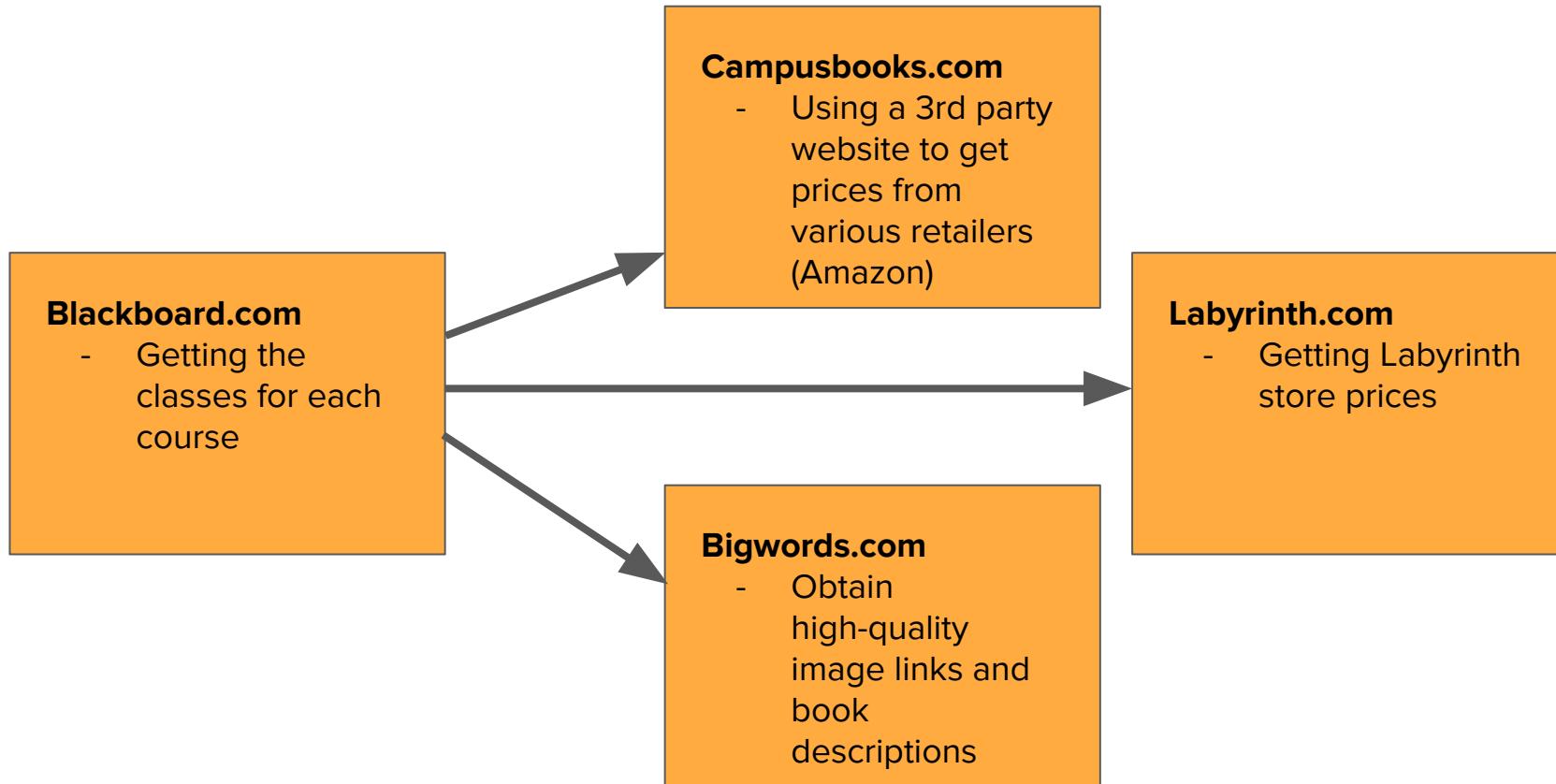
## Processing

- Data validation
- Third party URLs
- Serializing JSON

## Input

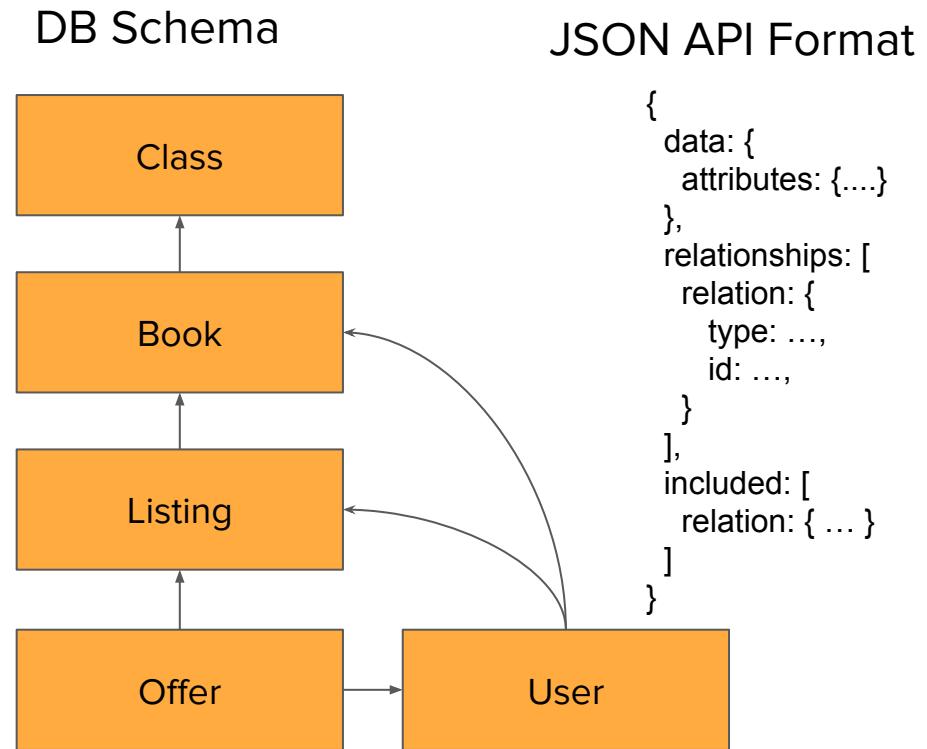
- Scripted POST requests to API endpoints

# Data Pipeline I Scraping Overview



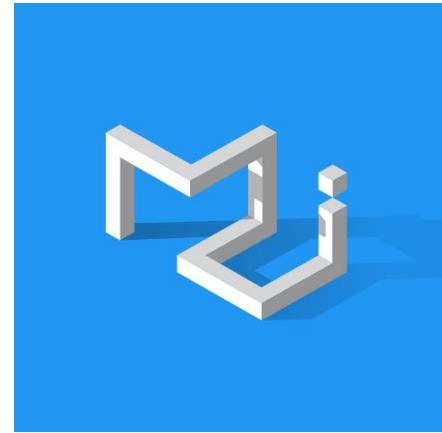
# Database Schema and Backend Logic

- **MongoDB** Schema designed with scalability
  - More operable with Javascript
- **Node.js** server with Express
  - Consistent language and more compatible with JSON (see below)
- API endpoints adhere to **JSON API** specification
  - Uniform handling of data, metadata, and errors over all endpoints
  - User specific endpoints authenticated



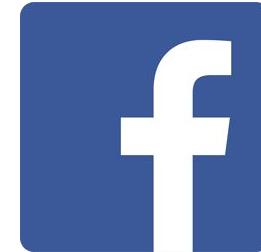
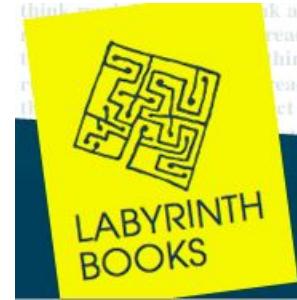
# Client and Frontend Logic

- **React**
  - Chosen for One component, One file paradigm
    - Easier to prototype (as opposed to Angular)
  - React Router - Client Side Routing
  - Redux - Tracks global state of the app
    - Separates API Calls from actual UI render logic
- **Material-UI**
  - Great minimalistic components



# Challenges Faced

- Difficulty obtaining course list and book list
- External dependencies on APIs fell through
- Amazon is very good at detecting scraping
- Lack of design experience across team
- Mobile responsiveness



3. Speed is really good and responsive, the near-instant feedback is really nice.

4. Suggestion: fund this by adding referral links to Amazon results

I love how TigerTexts combines both a peer-to-peer platform and a online price aggregator, so I don't have to worry whether someone else is listing the book - it's useful regardless, and if people do post books, it's even better.

quote as you wish lol

sleak interface, autofill is very nice, one thing that's weird to me is that I can't search by title of the book instead it has to be by course

very nice, i like the book price comparison feature

ooh nicee

gonna use to search up my future classes! 😊 like it

I tried the selling option

It's neat - but it would be nice if I had a history tab where, even if I mark something as sold, i can still see what I put on sale

second thing - this is the book offering for this spring, right? because i couldn't find my fall classes

i'm sure you will work on that 😊

but seriously, great job! I love it ❤️

wow, it's really easy to use in terms of looking for books that you need for classes, especially with the price comparison to amazon and labyrinth. i think the design is clean and serves its purpose well. one thing is i couldn't find the "mark sold" option for a given book.

oh whoops i haven't logged in yet, ok that explains it

maybe having images with the instructions going through a demo below would be helpful? it will take up more space but i think visuals can help a lot

# Acknowledgements

- Many Thanks to
  - Professor Brian Kernighan
  - Lance Goodridge and the other TA's
  - All our lovely beta testers

Why wait?  
<https://tigertexts.io>

