

Our Project

Goal: To learn how to leverage the Django framework to build a reassuringly secure and scalable e-commerce website.

Objective: To use application development techniques learned at the University of the Pacific to create an auction-style website using the Django web framework that utilizes all the key coursework we have learned including data structures, algorithms, database management, web development, interface design, computer networking, and parallel computing.

Implementation

Environment

Web framework:

Django

Database:

SQLite3

Development Tools:

Virtual Environment

Linux: Fedora/Ubuntu

Debugtoolbar

Hosting:

Raspberry Pi 4

Languages

Front End:

jQuery/AJAX

JavaScript

HTML/CSS

Backend End:

Python

SQLite

REST

Internet Access:

Ngrok



Auction House

Key Features

User Account Management

- Password Hashing
- Account Recovery System
- AJAX Field Verifier
- Track Login Attempts
- Address Management
- Account Preferences
- Banning Accounts

PayPal Integration

- Order & Transaction Creation
- Integrated PayPal Django API
- Instant Payment Notification (IPN)
- Sandbox Accounts
- Order Confirmations
- Paypal Signal Handling (Ngrok)



Auction Functionality

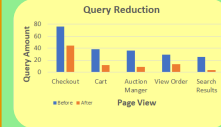
- Various Auction Types
- Fuzzy search Products
- AJAX Auto Updating Bids
- Bid Management & Settings
- Buy It Now Functionality
- Bid Sniping Prevention
- Back End Auction Threading
- Image Storage System

Purchases & Orders

- Cart & Checkout
- Transactions & Receipts
- Purchase & Order History
- Bid History
- Shipment Tracking
- Email Notifications
- Reputation/Review System
- Help Center

Evaluation

Efficiency



- Prefetching Related
- Selecting Related

Security

- Password Hashing
- SQL Injection Protection
- Cross Site Request Forgery
- UFW Firewall
- Limiting Login Attempts
- Session security

Conclusion

Conclusion: Over the course of the semester we were able to integrate all of the desired features into our application. We were able to utilize the Django framework, demonstrating our expertise in: data structures, algorithms, database management, web development, interface design, computer networking, and parallel computing.

Out of Project Scope:

- Additional Payment Methods
- Shipping integration with USPS
- jQuery load more content on page'

Implementation



django



Raspberry Pi



Linux



ngrok

Light Mode

[Search](#) [Buy](#) [Cart](#) [Sell](#) [Account](#)

Manage Account

Personal Information

Username	1337
Account Type	Seller
Email	m_zacarias@u.pacific.edu
Phone Number	(209)-946-2285
Password	Change Password

Edit

Addresses

Primary Address

Street Name	123 main street
City	Poughkeepsie
State	New York

Address Manager

Dark Mode

[Search](#) [Buy](#) [Cart](#) [Sell](#) [Account](#)

Manage Account

Personal Information

Username	1337
Account Type	Seller
Email	m_zacarias@u.pacific.edu
Phone Number	(209)-946-2285
Password	Change Password

Edit

Addresses

Primary Address

Street Name	123 main street
City	Poughkeepsie
State	New York

Address Manager

User Management

Search Buy Cart Sell Account

Add Address

Country: United States

State: California

City:

Zipcode: South Gate
Scotts Valley
Stockton

Street1: South Yuba City
San Gabriel

Street2:

Is primary address: ☐

Add Address

This is a Senior Project created by: Martin Jr Zacarias - Jason Van Bladel - Colton Remmert

Search Buy Cart Sell Account

Edit Personal Info

Username: 1337

Email: m_zacarias@u.pacific.edu

Cellnumber: 2099462285

Update Personal Info

This is a Senior Project created by: Martin Jr Zacarias - Jason Van Bladel - Colton Remmert

Search Buy Cart Sell Account

Manage Account

Personal Information

Username: 1337

Account Type: Seller

Email: m_zacarias@u.pacific.edu

Phone Number: (209)-946-2285

Password: Change Password

Edit

Addresses

Primary Address

Street Name: 123 main street

City: Poughkeepsie

State: New York

Address Manager

Search Buy Cart Sell Account

Edit Preferences

Screen display mode: ☐

Update Preferences

Search Buy Cart Sell Account

Address Manager

Primary Address

State: New York

City: Poughkeepsie

Street Name: 123 main street

Primary Address: ☐

Delete Address: ☐

Edit

Secondary Address

State: Arizona

City: Sun City

Street Name: 456 second street

Primary Address: ☐

Delete Address: ☐

Edit

Back Add Address Save Changes

Login Features

Register for Auction House!

User username: johnM ✓

User firstname: john

User lastname: madden

User email: john_madden@u.pacific.edu ✓

User password: ●●●●●●●●●● ✓

User password confirmation: ●●●●●●●●●●

Accepted Term of Service: Accept Terms of Service ✓

Sign up

Terms of Service

Login User

Login username: john_madden

Login password: ●●●●●●●●●●

Submit

No Account? Create one!

Forgot Password?

Forgot password? Reset it!

Email: c_remmert@u.pacific.edu

Temp code: EV*f3ExJ

User password: ●●●●●●●●●● ✓

User password confirmation: ●●●●●●●●●●

Reset Password



seniorprojectauctionhouse@gmail.com <seniorprojectauctionhouse@gmail.com>

7:41 PM

To: c_remmert@u.pacific.edu

Hello user1,

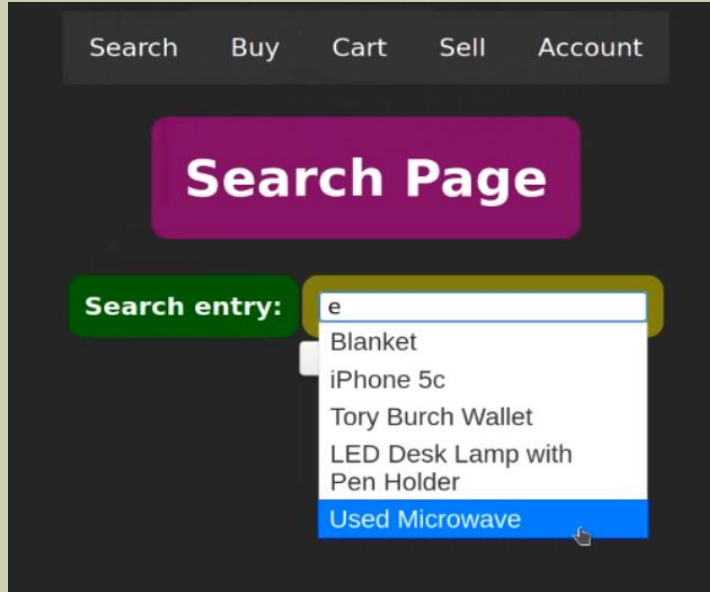
Your code is: EV*f3ExJ

If you did not request to change your password, please contact us and reset your password.

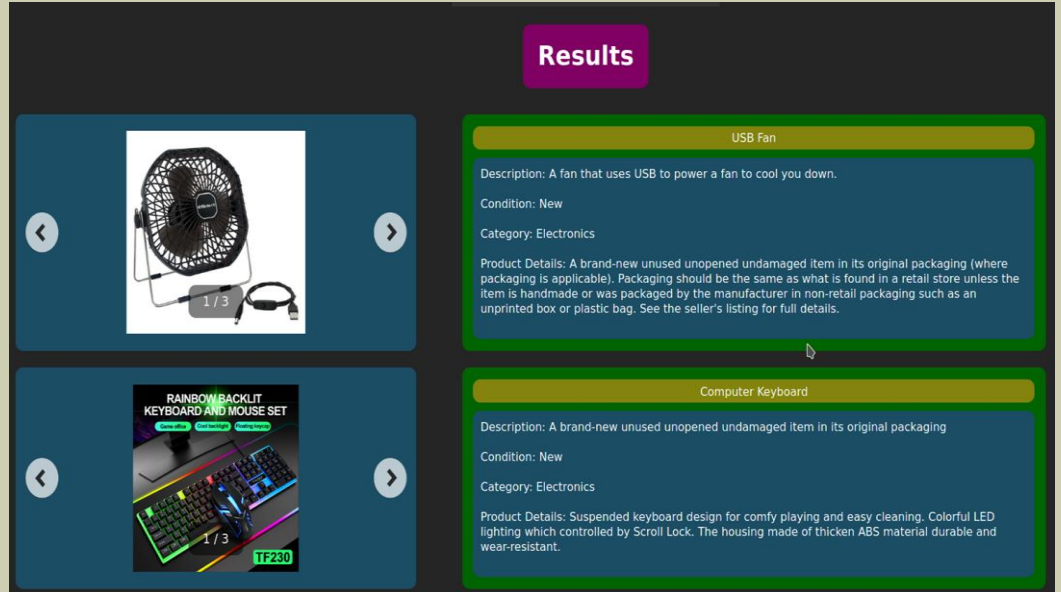
Thank you,

Auction House Website Team

Searching Auctions



Suggestive Search



Search Result For: Electronics

View Auction

[Search](#) [Buy](#) [Cart](#) [Account](#)

Display Auction

1 / 3

Broncos Hat

Brief Description: Wonderful hat worn by a college student thier whole career.

Condition: Worn

Category: Men's Clothing

Auction Form

Minimum Price	\$5.00
Auction Status	In Progress
Time Remaining	Hours: 914 Minutes: 55 Seconds: 45
Auction End Date	Sunday May 30 23:59 PM
Place bid higher than	5.00
<input type="text"/>	<button>Place Bid</button>
Buy for fixed price	\$3000.00
<button>Buy it Now</button>	

This is a Senior Project created by: Martin Jr Zacarias - Jason Van Bladel - Colton Remmert

Bid Placement


Auction Form

Minimum Price	\$5.00
Auction Status	In Progress
Time Remaining	Hours: 915 Minutes: 59 Seconds: 16
Auction End Date	Sunday May 30 23:59 PM
Place bid higher than	5.00
<input type="text"/>	<button>Place Bid</button>
Buy for fixed price	\$3000.00
<button>Buy it Now</button>	

Recent Bids		
Bid Amount	User	Time
\$2000.00	Dr. Jimenez	April 22, 2021, 8:05 p.m.
\$1000.00	JohnM	April 22, 2021, 8:04 p.m.
<button>Show all bids</button>		

Bid Management

Blanket



Auction Details

Auction ID: #105
Auction Type: Default Auction
Auction End Date: May 30, 2021, 4:59 p.m.

Bid Details

You are the highest bidder!
Current highest bid amount: \$13.00
Your most recent bid: \$13.00

Action Menu

Bid Preferences

Full history

Bid Preferences

Maxbidamount:

20

Increasepercentage:

10

Autobuyprice:

15

Notifyuser:

☒

Submit Query

Bids for Auction #105

Query choice:

All Bids

Submit Query

Bid ID	bid Time	Bid Amount
96	April 22, 2021, 9:36 p.m.	\$11.00
<div>Show Auction Page</div>		
97	April 22, 2021, 9:36 p.m.	\$13.00
<div>Show Auction Page</div>		

Martin Zacarias - Jason Van Bladel - Colton Remmert

Anonymous Auction

Auction Details

Auction Type	Anonymous Auction
Rules	Current highest bid is not shown
Minimum bid price	5.00
Start date	Tuesday Mar 23 10:00 AM
End date	Sunday May 30 23:59 PM
Shipping	\$9.00

Recent Bids

Bid Amount	User	Time
???	user2	April 22, 2021, 9:28 p.m.
???	user3	April 22, 2021, 9:34 p.m.
Total bids: 2		

Auction Countdown

Auction Status	In Progress
Time Remaining	Hours: 0 Minutes: 0 Seconds: 5
Auction End Date	Friday Apr 23 15:49 PM
Place bid higher than	8.50

Cart & Checkout

Your Shopping Cart

Broncos Hat



Product Details

Product Conditions: Worn

Price: \$3000.00

Remove Item

Blanket



Product Details

Product Conditions: Brand New

Price: \$20.00

Remove Item

Gold Coin



Product Details

Product Conditions: Good Condition

Price: \$1500.00

Remove Item

USB Fan



Product Details

Product Conditions: New

Price: \$10.00

Remove Item

Subtotal \$4530.00

Checkout

Transaction 11

Broncos Hat Price: \$3000.00
Shipping: \$20.00
Tax: \$0.0
Total: \$3020.00

Blanket Price: \$20.00
Shipping: \$7.00
Tax: \$0.0
Total: \$27.00

Gold Coin Price: \$1500.00
Shipping: \$19.00
Tax: \$0.0
Total: \$1519.00

USB Fan Price: \$10.00
Shipping: \$14.00
Tax: \$1.00
Total: \$25.00

Sub Total: \$4530.00
Total Shipping: \$60.00
Total Tax: \$1.00
Grand Total: \$4591.00

Buy Now




Auto Buy

PayPal Integration

[Search](#) [Buy](#) [Cart](#) [Account](#)

Display Auction



1 / 3

Broncos Hat

Brief Description: Wonderful hat worn by a college student thier whole career.

Condition: Worn

Category: Men's Clothing

Auction Form

Minimum Price	\$5.00
Auction Status	In Progress
Time Remaining	Hours: 913 Minutes: 58 Seconds: 15
Auction End Date	Sunday May 30 23:59 PM
Place bid higher than	5.00
<input type="text"/>	<input type="button" value="Place Bid"/>
Buy for fixed price	\$3000.00
<input type="button" value="Buy it Now"/>	

This is a Senior Project created by: Martin Jr Zacarias - Jason Van Bladel - Colton Remmert

Purchase History

[Search](#) [Buy](#) [Cart](#) [Account](#)

Purchase History

Order ID: 4



Transaction



Processing



Shipped



Delivered

[View Receipt](#)

[Review Order](#)

Estimated Arrival Date Apr 30, 2021

Purchase Date Apr 23, 2021


Total Transaction Price \$3007.00

This is a Senior Project created by: Martin Jr Zacarias - Jason Van Bladel - Colton Remmert

Martin Zacarias - Jason Van Bladel - Colton Remmert

Order Manager

Order ID	12	Order Placed	April 22, 2021, 9:59 p.m.	Buyer	user2	Name	user2 bot_account
# of Items	4	Email	j_vanbladel@u.pacific.edu	Cell	9259804048	Payment Received	\$4591.00
Shipping Address	123 main street Fairfield, Connecticut United States 12345						




Broncos Hat

Wonderful hat worn by a college student thier whole career.

Order Action Menu

Update Shipping

See Reviews



Blanket

A soft blanket that will keep you warm at night.

Auction Creation

Create Auction

Product display name:

ASUS ZenBook Pro Duo

Product description:

ASUS ZenBook Pro Duo UX581 Laptop, 15.6" 4K UHD NanoEdge Touch Display, Intel Core i7-10750H, 16GB R

Product description long:

Professional-grade performance: 10th Generation Intel Core i7 processor, 16 GB of RAM, 1 TB SSD, and NVIDIA GeForce RTX 2060 graphics for professional-level performance
Extreme durability: Durable laptop build that meets military standards, giving you protection and peace of mind wherever you go
Stunning display: 15.6-inch

Product condition:

new

Category:

Electronics

Img1:

Browse...

image0.jpg

Img2:

Browse...

No file selected.

Auction Type

Default 7 day Auction

Minimum bid price:

1000

Add Fixed Buy Price:

Fixed Buy Price:

Start date:

04 / 23 / 2021

Start time:

5:59 PM

Shipping Type

Flat Rate Shipping

Price:

22

Accept:


☒ Understand that I am responsible for this product and shipping to buyers.

Select Address

123 main street

Add Address

Submit



1 / 1

ASUS ZenBook Pro Duo

Brief Description: ASUS ZenBook Pro Duo UX581 Laptop, 15.6" 4K UHD NanoEdge Touch Display, Intel Core i7-10750H, 16GB R

Condition: new

Category: Electronics

Auction Form	
Minimum Price	\$1000.00
Auction Status	Not Started
Time Remaining	Hours: 186 Minutes: 45 Seconds: 57
Auction End Date	Friday Apr 30 17:59 PM
Place bid higher than	1000.00
	<input type="text"/> <input type="button" value="Place Bid"/>

Seller Reputation

[Review this Seller](#)

Auction Details	
Auction Type	Default 7 day Auction
Rules	When bid is place, auction is extended for 5 minutes.
Starting bid price	1000.00
Start date	Friday Apr 23 17:59 PM
End date	Friday Apr 30 17:59 PM
Shipping	\$22.00

Recent Bids


Bid Amount	User	Time
Be the first bidder!		

Description

Professional-grade performance: 10th Generation Intel Core i7 processor, 16 GB of RAM, 1 TB SSD, and NVIDIA GeForce RTX 2060 graphics for professional-level performance
Extreme durability: Durable laptop build that meets military standards, giving you protection and peace of mind wherever you go
Stunning display: 15.6-inch UHD OLED main touchscreen display and full-width ScreenPad Plus touchscreen offer 4K dual-screen computer interaction
Optimized design: Sleek ErgoLift design elevates laptop for optimized cooling, enhanced audio performance, and improved typing position
Convenient and comfortable layout: LED NumberPad and separate palm rest add comfort and convenience
Professional level stylus: Active stylus lets you comfortably draw or take handwritten notes
See more product details

Auction Manager

iPhone 5c



1 / 2

Auction Status: Auction in progress!

Product Details

Product Description Smart phone made by Apple.
Product Conditions: Used w/ Cracked Screen
Minimum Auction Price: \$5.00

Auction Details


Auction Start Time: March 23, 2021, 3 a.m.
Auction End Time: May 30, 2021, 4:59 p.m.

Edit Auction Menu

Cancel Auction!

Edit images

Used Microwave



1 / 4

Auction Status: Auction has ended!

Product Details

Product Description White Microwave that works great and makes wonderful popcorn.
Product Conditions: Used
Fixed Price: \$105.00

Auction Details

Auction Start Time: March 23, 2021, 3 a.m.
Auction End Time: April 22, 2021, 3:20 p.m.

Edit Auction Menu

Edit images

Repost for 7 days

Review System

Seller Reputation

Seller Rating	3.0 / 5
Best Review	Order was sent quickly and I received this order with no issues! +Reputation
Worst Review	Product is defective and received late.
Review this Seller	

Review Successfully Submitted

user1

Rating:	5  
Review:	Order was sent quickly and I received this order with no issues! +Reputation for this seller!

Help Center

Missing Product

Please enter as much information as possible!

Content:

It has been one week and I still have not received my product. Im concerned that it is either stolen or missing.

Submit Report

My Reports

Report ID

1

Content

It has been one week and I still have not received my product. Im concerned that it is either stolen or missing.

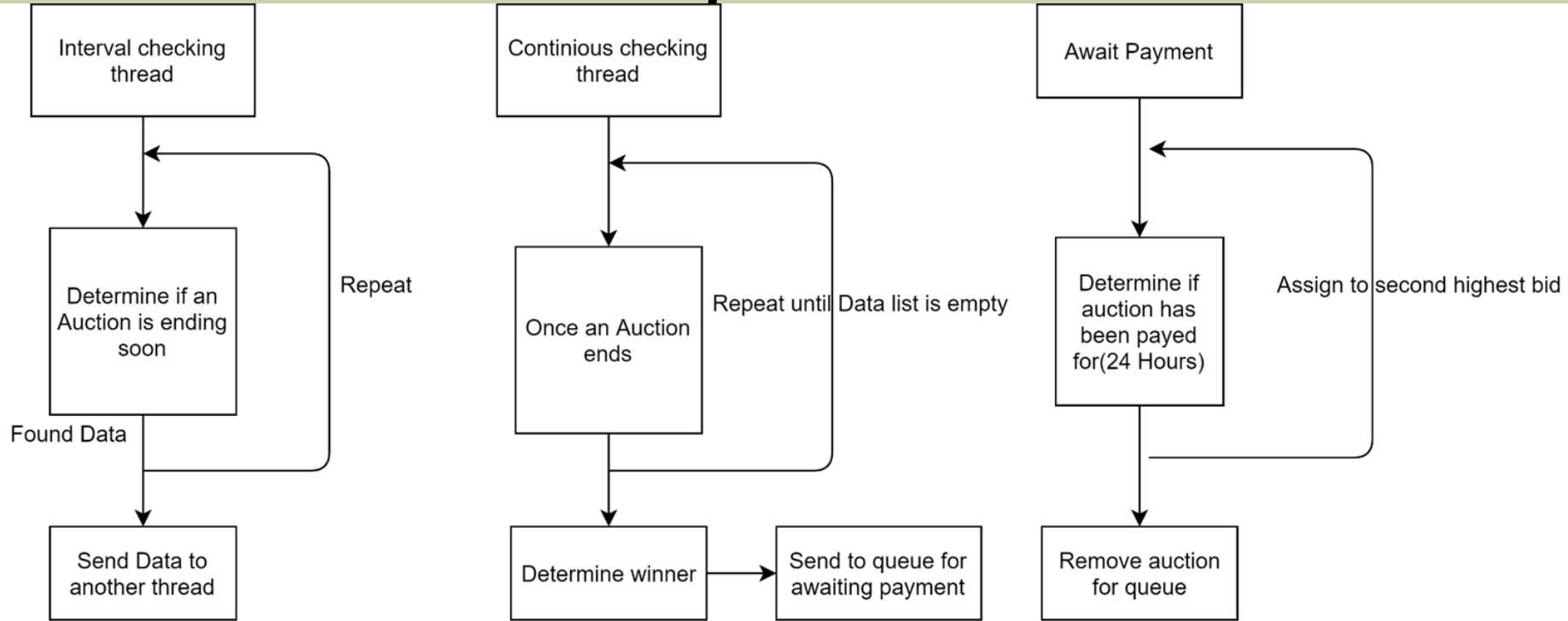
Type

MP

Resolved



Live Server Updates



Security Features

id	password
Filter	Filter
4	pbkdf2_sha256\$216000\$cjom6xNhSs1u\$XAdKMCKUxuT9AOs02UxHgHIw81ARr+rQLMuY/aW2Y0=

Try again later...

Sorry, you have attempted too many login attempts... Come back again in 15 minutes.

Password Hashing

```
<form id="login" action="" method="post">
  {% csrf_token %}
  <table class="ftable">
    {{ form.as_table }}
  </table>
</form>
```

Limiting Login Attempts

```
if form.is_valid():
    #loginForm is Valid
    userLogin = form.cleaned_data['login_username']
    userPass = form.cleaned_data['login_password']

    #check user with Django authenticate
    user = authenticate(username=userLogin, password=userPass)
```

Cross Site Request Forgery

SQL Injection Protection

Query Reductions

