

# Fall 2025 DUEN Cohort: Nonchalant Hustlers Construction Project Presentation

# Tabling Before

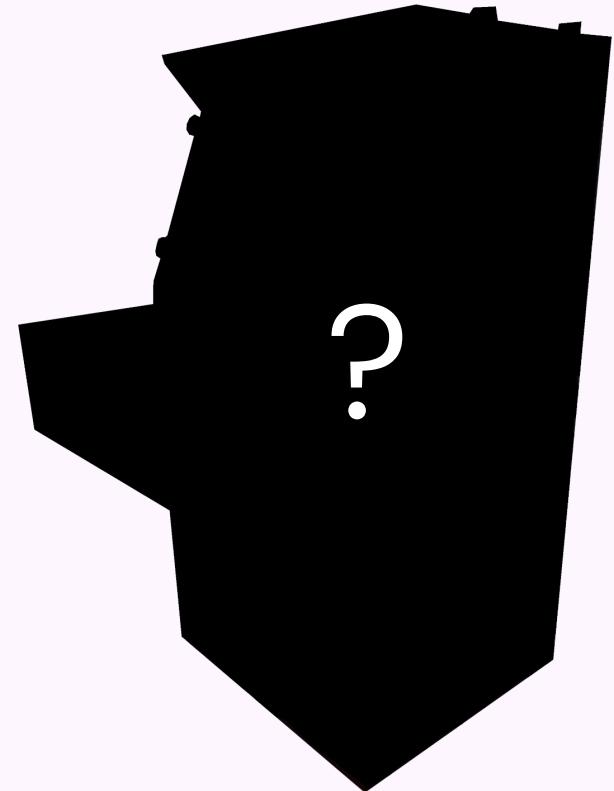
- Manually hand out flyers
- Person-to-person
- Projects not as engaging
- DUEN not shown in **BEST LIGHT**



DUEN is tabling from  
10-2PM at the MU, table 27!  
Come check us out!

# Our Goal

- Interactive game
  - Showcases technical skills
- Engaged audience → more turnout
- Shows DUEN in **BEST LIGHT**



FALL

2025



# DUEN Tabling Machine (DTM)



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FALL

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# User Guide

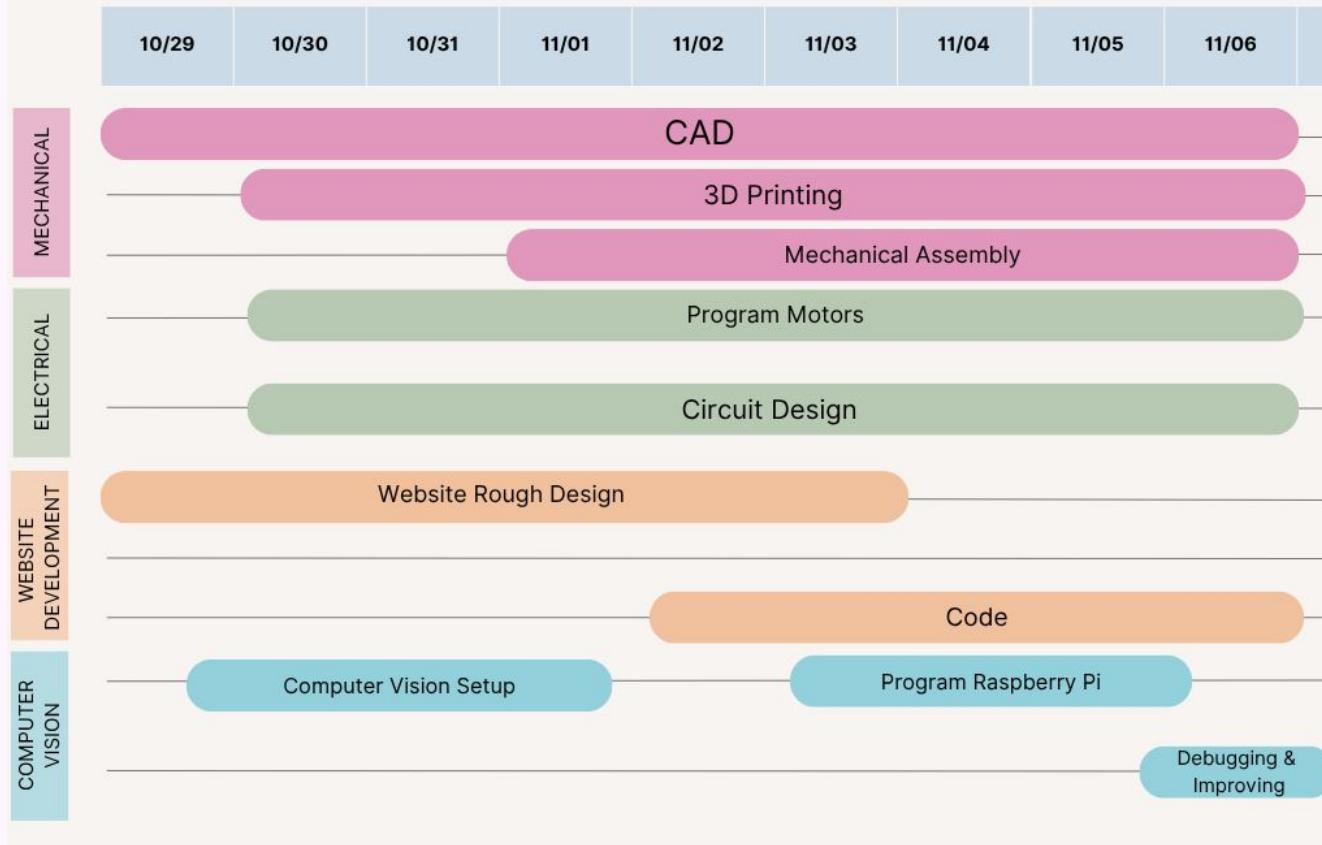


# Overview/Live Demonstration

- Flappy Bird game controlled by arms
- Rigged physical prize wheel
- Door at bottom of machine
- Tray extends out

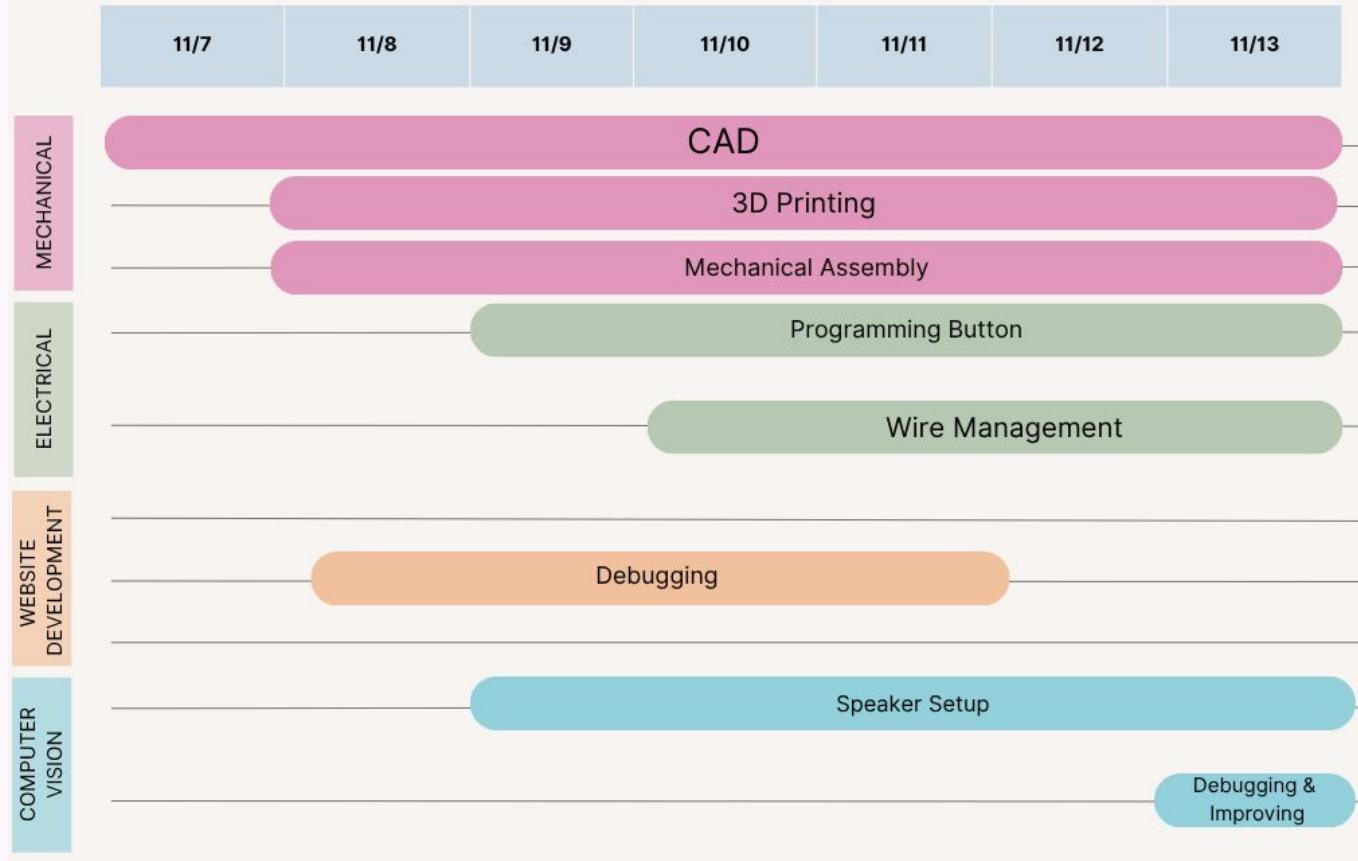


# TABLING MACHINE TIMELINE



# TABLING MACHINE

## WEEK 2



# Prototype



Version 1



Version 2



Version 3

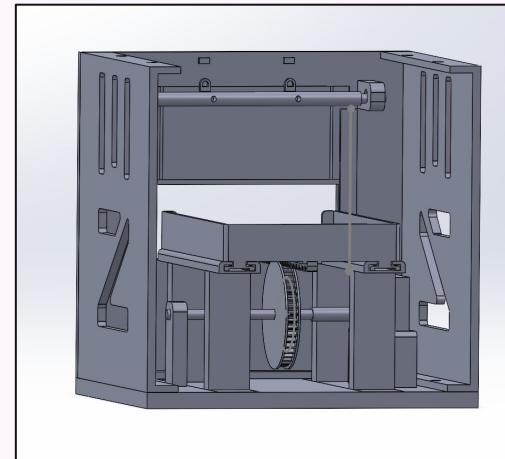
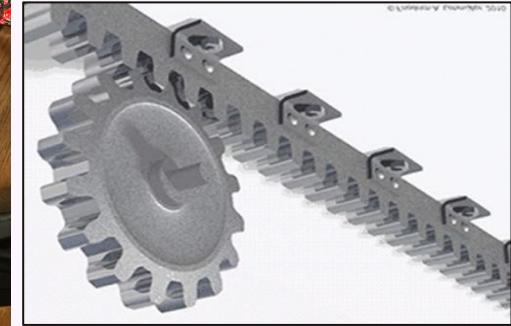
# Mechanics/CAD

- Chassis
  - Portable
  - Wire management
  - Housing mechanisms
  - Temporary assembly



# Mechanics/CAD

- Door
  - Nylon Pulley system
- Flyer Dispenser
  - Rack and Pinion
- Wheel
  - Axel attached to motor



# Mechanics/CAD

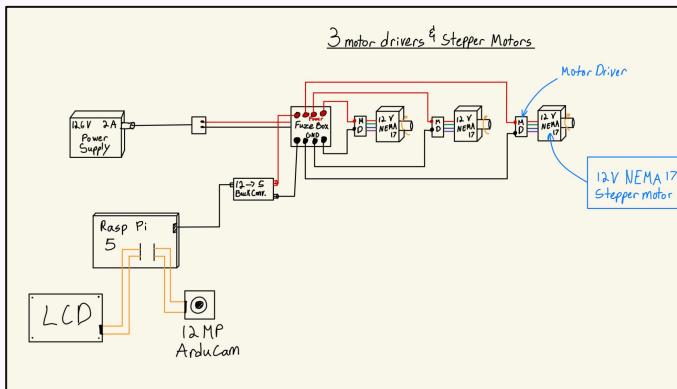
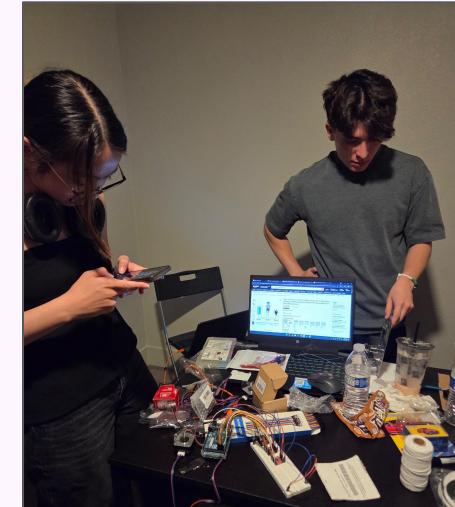
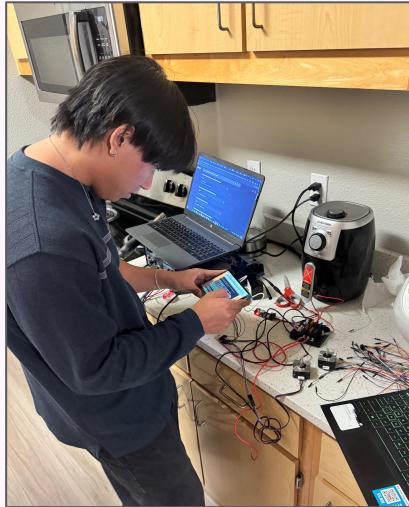
Challenges/solutions:

- Function and aesthetic
- Tolerances
- Printing fails/delays
  - PETG too wet
  - Print orientation



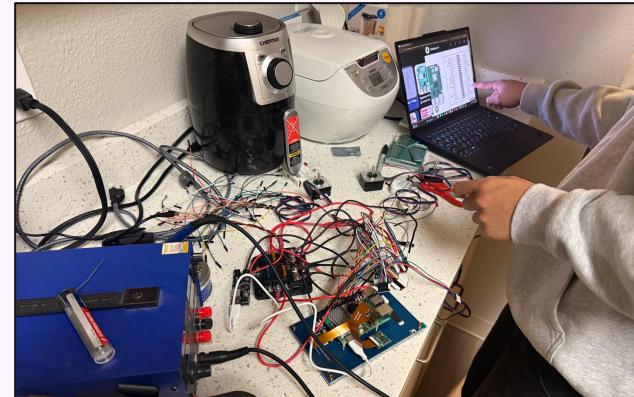
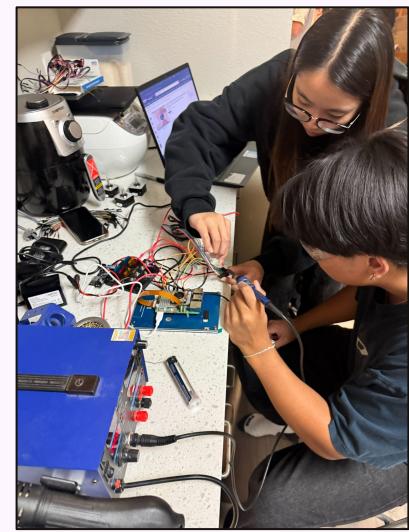
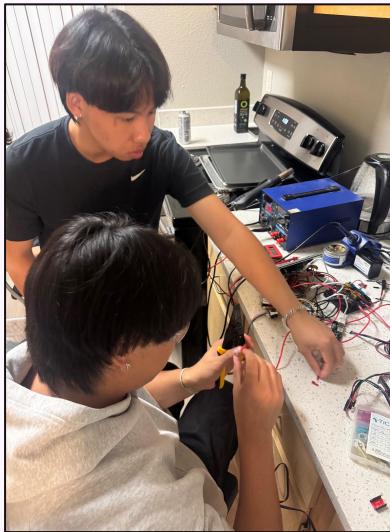
# Electrical/Hardware

- Raspberry Pi
- Motor Drivers + Motors
- 12.6V/2A Battery
- 7in LCD Touch Screen
- Heatsink with Fan
- Push Buttons



# Electrical/Hardware

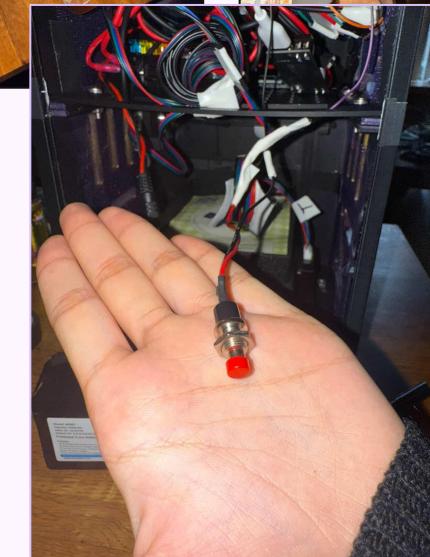
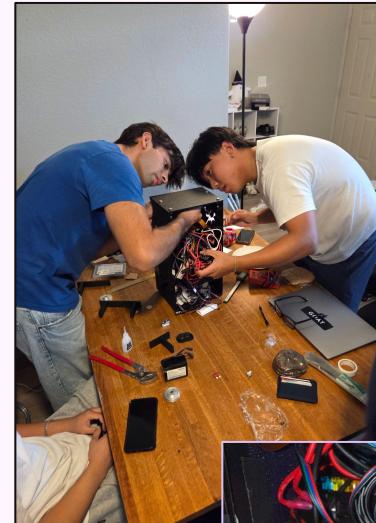
- Challenges/Solutions
  - USB-A to USB-C Issue
  - Power Wires
  - Fuse Box Blow
  - Motor Driver Replacement
  - GPIO to gpiozero
  - Tracking wheel starting position



# Electrical/Hardware

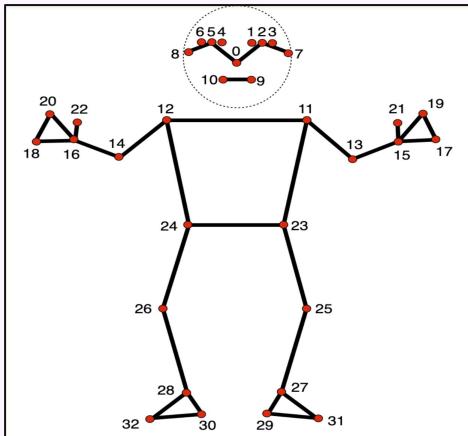
Post Feedback:

- Cable management
- Emergency shutoff button



# Computer Vision

- Uses Google MediaPipe (pose estimation)
- Two states to register flap event
  - Up: Wrist and elbow above shoulder
  - Down: Wrist below elbow



# Computer Vision

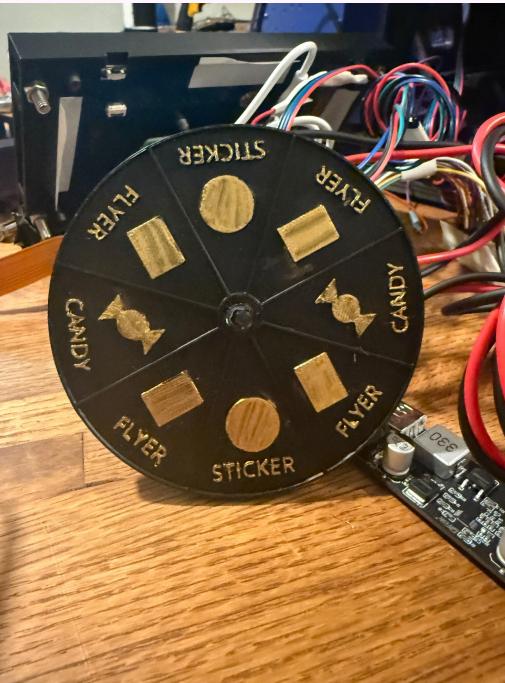
- Challenges
  - Transition from webcam to AI Camera and Raspberry Pi implementation
- Solutions
  - Reflashed OS to bookworm. Rollback Python to 3.11.2



# Computer Vision

## Post Feedback:

- Implemented sound
- Game starts running on turning ON
- Wheel reset comes at end



# Website Development

- Portfolio to showcase the project
- React & Tailwind CSS
- Website has 3 pages
  - Home Page
  - Team/Contribution Page
  - Photos/Timeline Page

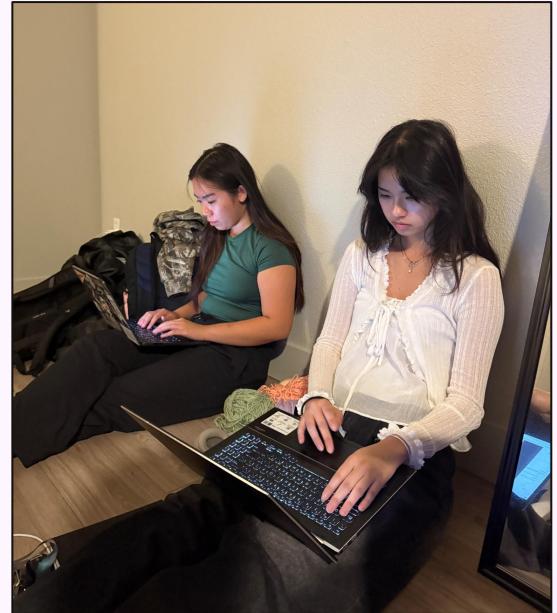


Link to our  
website!

# Website Development

## Post Feedback

- Minor visual appeal changes
- Added smooth scrolling
- Changed deployment method



# Budget

ITEMS	PURPOSE	QUANTITY	COST FOR 1	TOTAL COST
<a href="#"><u>Raspberry Pi 5 (8GB RAM)</u></a>	Microprocessor	1	\$87.00	\$87.00
<a href="#"><u>Assorted Wires</u></a>	to connect diff circuit elements	1	\$6.98	\$6.98
<a href="#"><u>Ribbon Cables</u></a>	connect AI camera to Raspberry	1	\$12.10	\$12.10
<a href="#"><u>AI Camera</u></a>	computer vision hand motion detecting	1	\$25.00	\$25.00
<a href="#"><u>LCD Screen</u></a>	Display what camera sees	1	\$38.99	\$38.99
<a href="#"><u>Battery</u></a>	Power the system	1	\$27.89	\$27.89
<a href="#"><u>SD Card</u></a>	to store camera data	1	\$12.95	\$12.95
<a href="#"><u>Active Cooling Heatsink</u></a>	cool the raspberry	1	\$9.97	\$9.97
<a href="#"><u>BreadBoard</u></a>	Wiring and prototyping	3	\$1.99	\$5.97
<a href="#"><u>String</u></a>		1	\$4.99	\$4.99
<a href="#"><u>Glue</u></a>		1	\$7.99	\$7.99
<a href="#"><u>Nuts and Bolts</u></a>		3	\$6	\$18.84
<a href="#"><u>Buck Converter</u></a>		1	\$10	\$9.99
<a href="#"><u>Stepper Motor</u></a>		3	\$9	\$28.35
<a href="#"><u>Stepper Motor Driver</u></a>		3	\$10	\$30.57
<a href="#"><u>fuse box</u></a>		1	\$11	\$11.43
<a href="#"><u>Buttons</u></a>		1	\$8	\$7.99
<a href="#"><u>PLA Filament</u></a>		2	\$16	\$31.98
<a href="#"><u>PETG Filament</u></a>		1	\$16	\$15.99
<a href="#"><u>Mesh Fabric</u></a>		1	9.99	\$9.99
<a href="#"><u>Tape</u></a>		1	5.99	\$5.99
<a href="#"><u>Nylon String</u></a>		1	6.99	\$6.99
<a href="#"><u>Plexiglass</u></a>		2	12.49	\$24.98
Spray Paint		1	35	35
			<b>TOTAL</b>	<b>\$477.92</b>

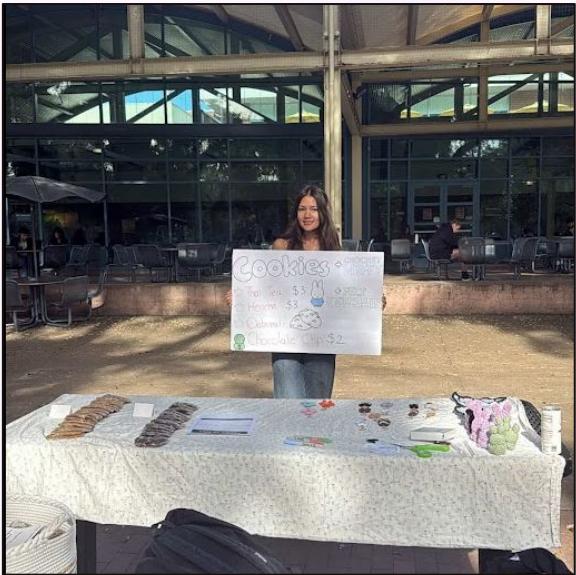
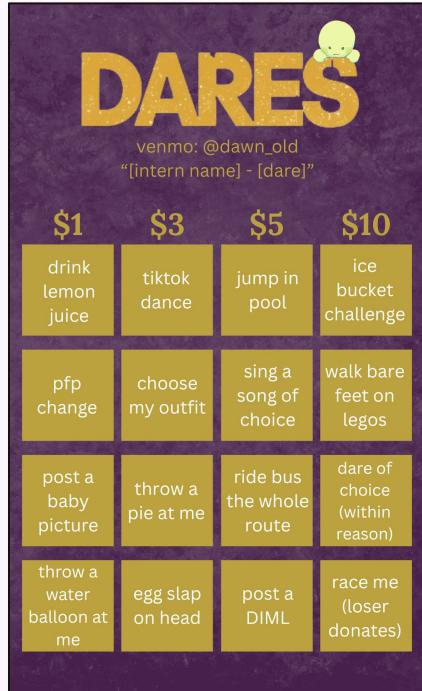
# Fundraising

- Bake sale
- Duen dares
- Crochet/keychain
- Canes

**Revenue:** \$948

**Expenses:** \$94.33

**Profit:** \$853.67



# Thank You Questions?

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[https://jytingy.github.io/duen\\_website/](https://jytingy.github.io/duen_website/)

