# Flex

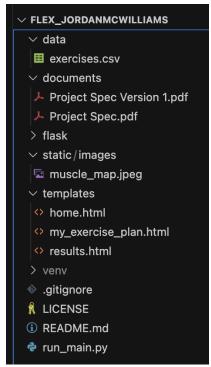
# I. Overview

Flex is an app that provides exercises for specific targeted muscle groups using the existing exercises.csv dataset. First, the user is provided with the option to filter exercises by difficulty level. Second, the user interacts with a visual of the human muscular system to select a muscle and direct to a page of search results. Users can develop a plan targeting as many muscles as they would like. This plan can be printed or exported for later use. This application was developed using a web-based graphical user interface, Flask. This purpose of this guide is to help developers install, understand, and run Flex.

# I. Implementation Summary

- A. Home web interface that grants users the option to search for exercises by muscle
- B. Interactive image with clickable muscle buttons for searching
- C. Option to filter exercises by difficulty level
- D. Ability to add exercises to "My Exercise Plan" with user feedback
- E. Option to continue searching for exercises while temporary plan is stored
- F. Option to delete exercises from "My Exercise Plan" with feedback
- G. Ability to print or save "My Exercise Plan"

# II. File Organization



# III. Running the app

run\_main.py is the file that starts the app. Run the file and click <a href="http://127.0.0.1:5000">http://127.0.0.1:5000</a> to begin.

```
problems output debug console terminal ports

source "/Users/jordanmcwilliams/Desktop/ISU MHCI/Summer 2025/HCI 5840/Project/GitHub/Flex_JordanMcWilliams/venv/bin/activate"
jordanmcwilliams@MacBook-Air Flex_JordanMcWilliams % source "/Users/jordanmcwilliams/Desktop/ISU MHCI/Summer 2025/HCI 5840/Project/GitHub/Flex_JordanMcWilliams/venv/bin/activate"
(venv) jordanmcwilliams@MacBook-Air Flex_JordanMcWilliams % "Users/jordanmcwilliams/Desktop/ISU MHCI/Summer 2025/HCI 5840/Project/GitHub/Flex_JordanMcWilliams/venv/bin/python" "Vjesrs/jordanmcwilliams/Desktop/ISU MHCI/Summer 2025/HCI 5840/Project/GitHub/Flex_JordanMcWilliams/run_main.py"
Current working directory: /Users/jordanmcwilliams/Desktop/ISU MHCI/Summer 2025/HCI 5840/Project/GitHub/Flex_JordanMcWilliams * Serving Flask app 'run_main'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on [http://127.0.0.1:5000]
Press CTRL+C to quit
```

# IV. User Interaction Flow

- A. Home Page: home.html
  - Users select a difficulty level and click a button on the muscle image to search

# 

- B. Results Page: results.html
  - Displays a list of filtered results based on user input on the home page
  - Option to add each exercise to "My Exercise Plan"

Results Page

# Results

Exercises for middle back

• Bent Over Barbell Row

Muscle: ['middle back']

Officiently: begins a barbell with a pomated grip (palms facing down), bend your knees slightly and bring your tono forward, by bending at the waist, while keeping the back straight until it is almost parallel to the floor. Tip: Make sure that you keep the instructions. [Holding abarbel] with a pomated grip (palms facing down), bend your knees slightly and bring your tono forward, by bending at the waist, while keeping the back straight until it is almost parallel to the floor. Tip: Make sure that you keep the bender to the floor and your tono. This is your starting position.", "Now, while keeping the tono stationary, breathe out and lift the barbell to you. Keep the elbows close to the body and only use the forearms to hold the weight. At the top contracted position, squeeze the back muscles and hold for a brief passe.", "Then inhale and slowly lower the barbell back to the starting position.", "Repeat for the recommended amount of [Add to Mp Essercise Plin].

Add to Mp Essercise Plin]

 Bent Over One-Arm Long Bar Row Muscle: ["middle back"]

Muscle: [middle back\*]
Difficulty: beginn:
Instructions: ["Put weight on one of the ends of an Olympic barbell. Make sure that you either place the other end of the barbell in the corner of two walls; or put a heavy object on the ground so the barbell cannot slide backward.," Bend forward until your not not as close to pure particular with the floor as you can and keep your kaces slightly bent.", "Now grab the bar with one arm just behind the plates on the side where the weight was placed and put your other hand on your knee. This will be your starting position.", "Pull the bar straight we will you read to be a supposition.", "Pull the bar straight was placed and put your other hand on your knee. This will be your starting position." Pull the bar straight was placed and put your other hand on your knee. This will be your starting position. "Pull the bar straight was placed and put your other hand on your knee. This will be your starting position." Pull the bar straight was placed and put your other hand on your knee. This will be your starting position. The start has been straight to the pull that the plates to be a supposed to larger plates (like 35-45h ones).", "Repeat for the recommended amount of repetitions and witch arms."]

Add to My Exercise Plan!

- Bent Over Two-Dumbbell Row
- C. My Exercise Plan Page: my exercise plan.html
  - List of all exercises added to "My Exercise Plan"
  - Option to delete each exercise on "My Exercise Plan"
  - Option to print or save the page as a pdf

My Exercise Plan Page

#### My Exercise Plan

Print or Save My Exercise Plan

 Straight Bar Bench Mid Rows Muscle: ["middle back"]

Muscle: ["middle back-"]
Difficulty beginner
Instructions: ["Place a loaded barbell on the end of a bench. Standing on the bench behind the bar, take a medium, pronated grip. Stand with your hips back and chest up, maintaining a neutral apiae. This will be your starting position.", "Row the bar to your tourn the shoulder blades and flexing the elbows. Use a controlled movement with no jerking.", "After a brief pause, slowly return the bar to the starting position, ensuring to go all the way down."]

T-Bar Row with Handle

Muscle: [middle back\*]

Officulty: beginner

Instructions: [Position at Double D row handle around the bar next to the collar. Using your hips and legs, rise to a
standing position,", "Saume a wide stance with your hips back and your chest up. Your arms should be extended. This will be your starting position,", "Pull the weight to your upper abdomen by retracting the shoulder blades and flexing the elbows. Do not
jork the weight or cheat during the movement.", "After a brief pause, return to the starting position."]

[Debte]

Go to Home Page

### V. Functions

- A. home() renders the "Home" page
- B. search() handles requests for specific muscle types and difficulty levels, returning the "Results" page with a filtered list of exercises
- C. add\_to\_plan() updates "My Exercise Plan" page with an exercise unless it is a duplicate
- D. view\_plan() renders the "My Exercise Plan" page
- E. delete\_from\_plan() removes an exercise from "My Exercise Plan" and redirects to view plan

# VI. Known Issues

- A. Difficulty maintaining flash messaging to provide user feedback when adding exercises
- B. No feedback when the same exercise is added twice
- C. Plan store is only temporary and not user specific

### VII. Future Work

- A. Improve user feedback when exercises are added
- B. Improve overall design and appearance of app and results
- C. Allow for more search filter options (equipment, force, etc.)
- D. Shift design to mobile app