FITNESS TRACKER SYSTEM

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WHY FITNESS TRACKER ?

- **Helps monitor fitness progress**
- **Promotes a healthier lifestyle**
- **Provides data-driven insights.**

OBJECTIVE:

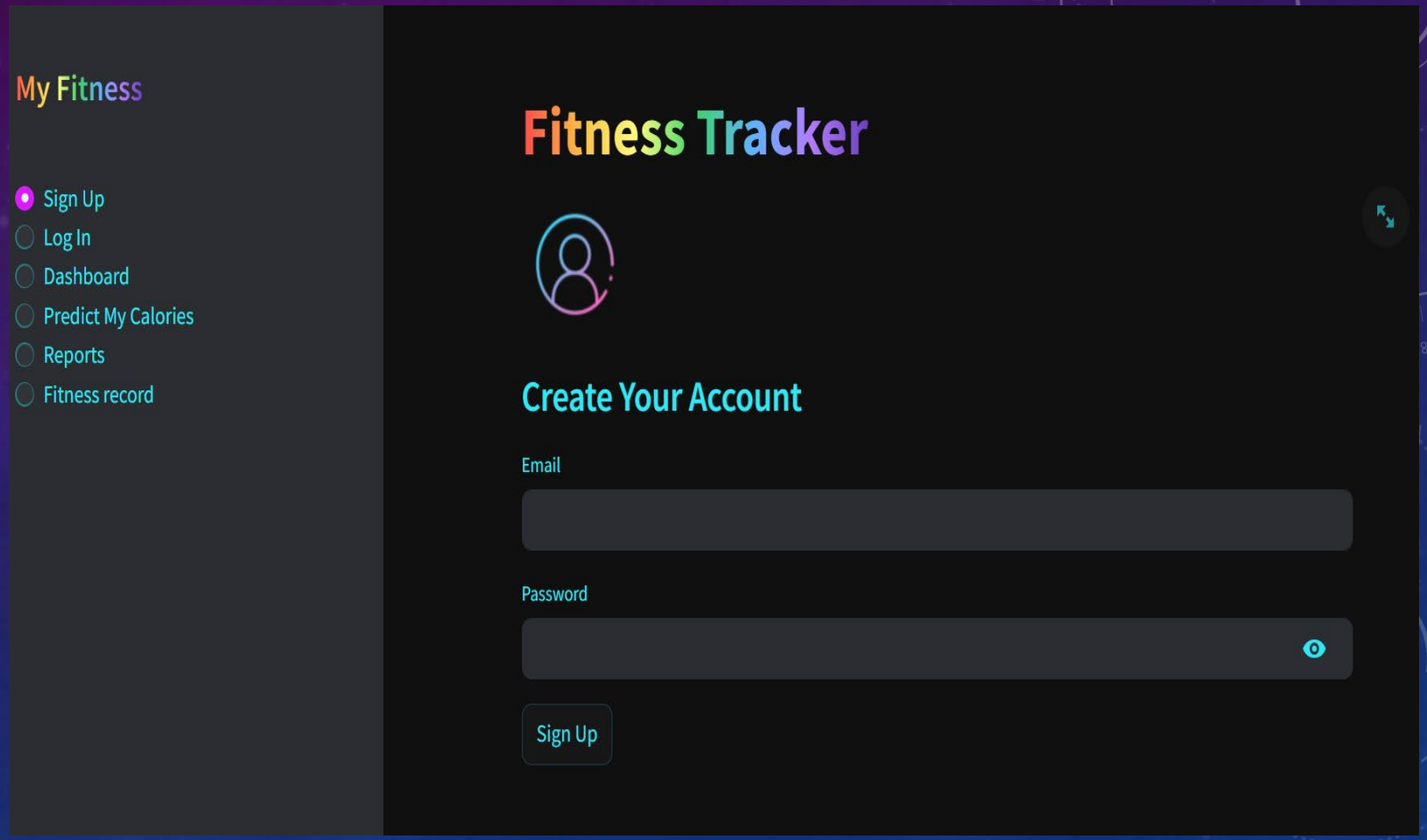
To showcase a web-based fitness tracker that combines data management and machine learning.

Features of the System

- User Authentication
- Dashboard
- Prediction
- Reports
- Data Visualization

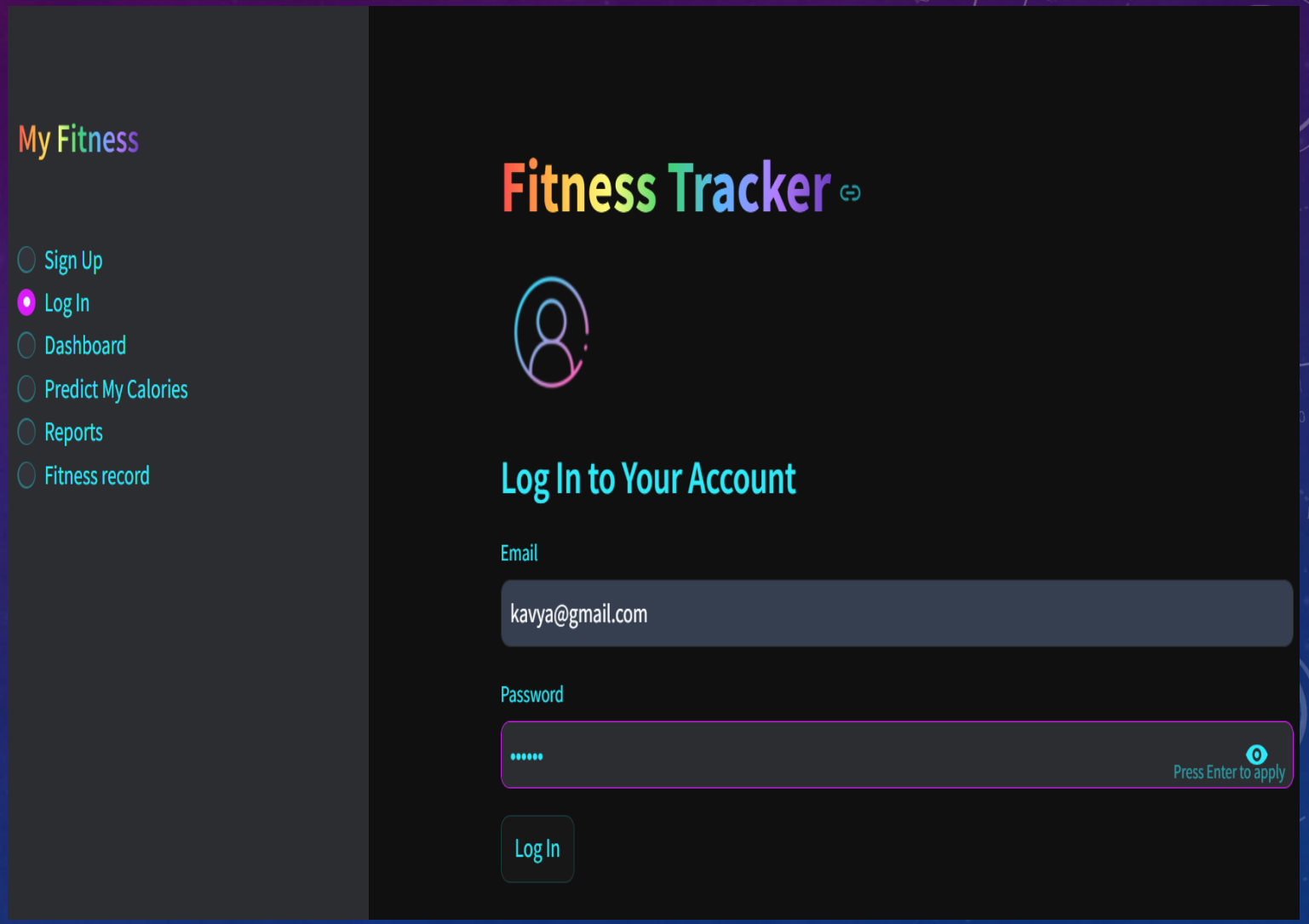
USER AUTHENTICATION

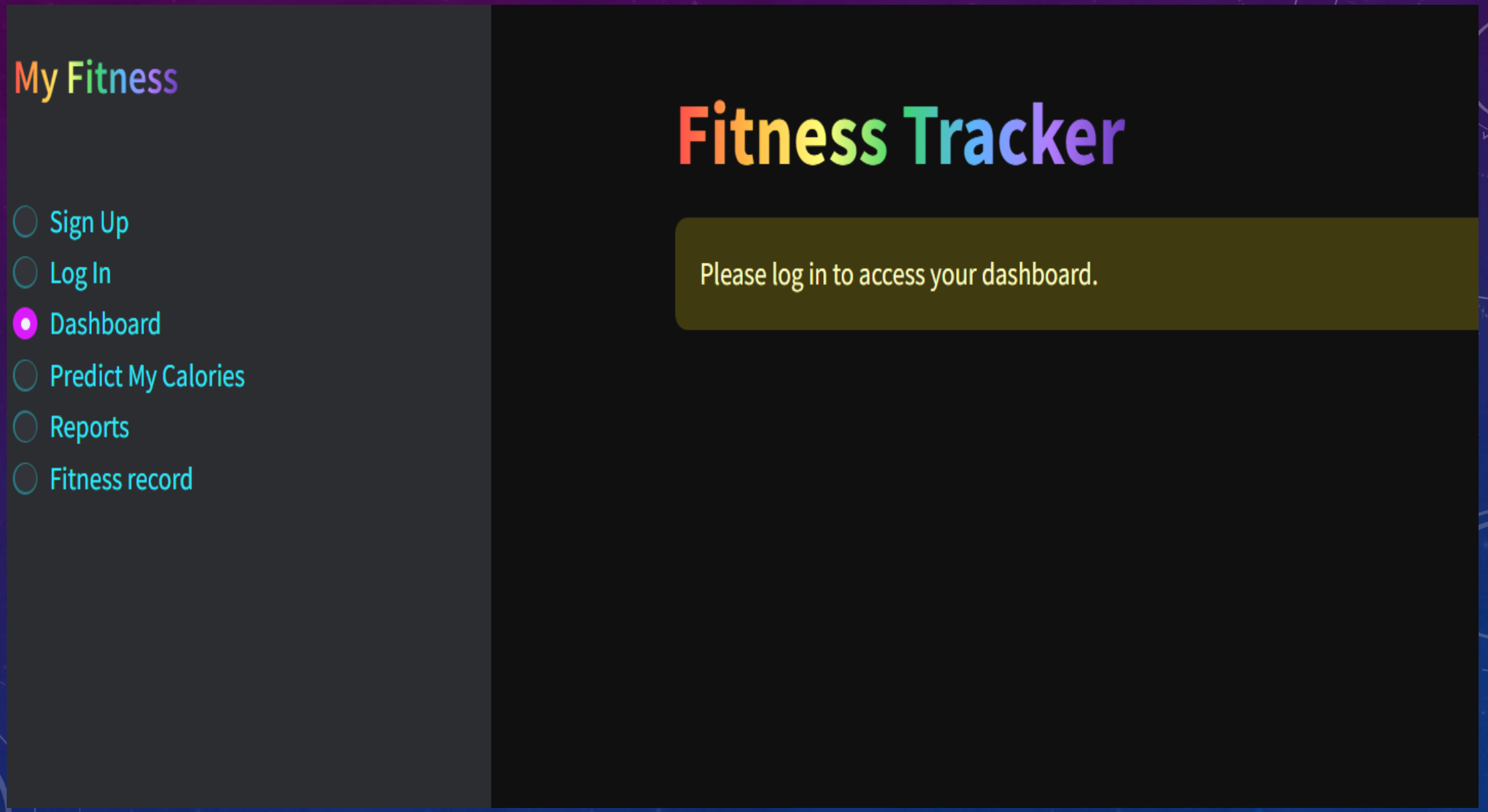
Sign up: new user can register by email and password.The credential are securely stored in firestore.



USER AUTHENTICATION

Log in : Existing users can access their personalized dashboard by entering with valid credentials.

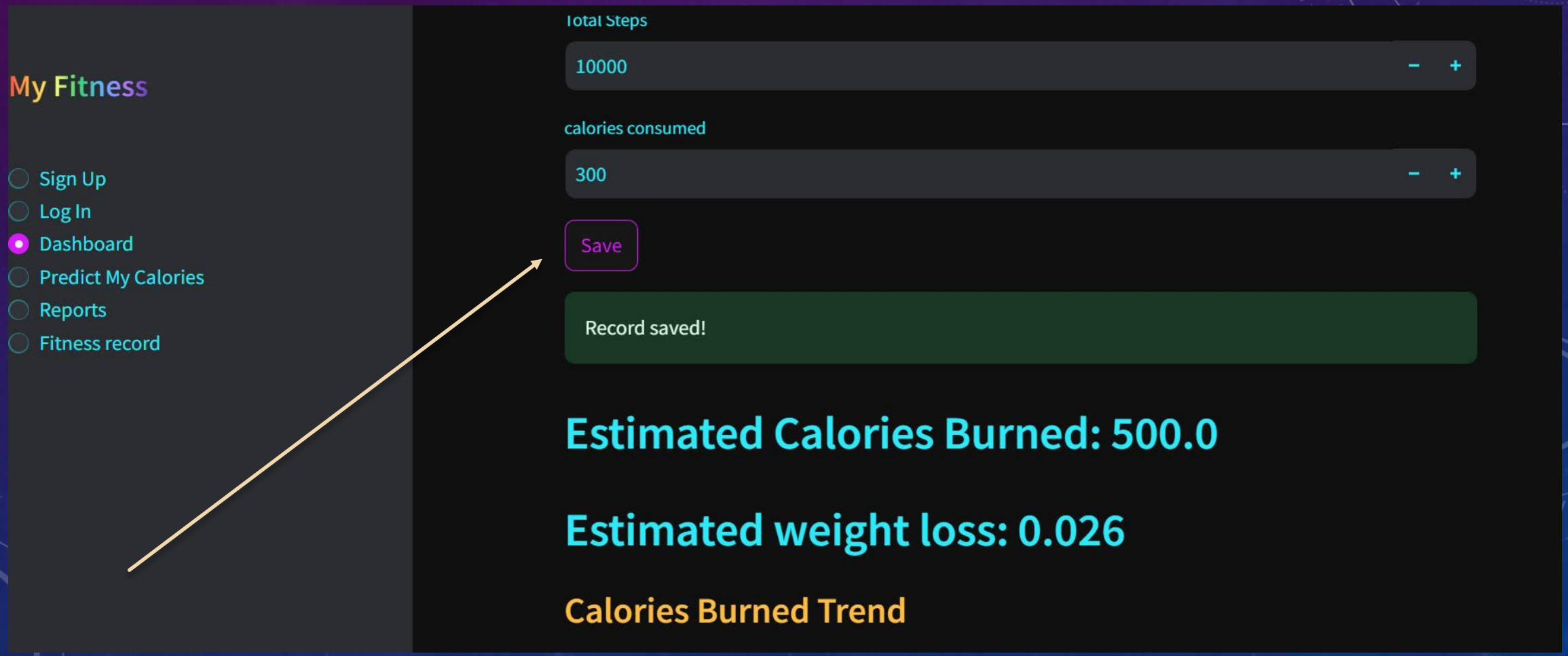



My Fitness
Sign Up
Log In
Dashboard
Predict My Calories
Reports
Fitness record
Fitness Tracker
Please log in to access your dashboard.

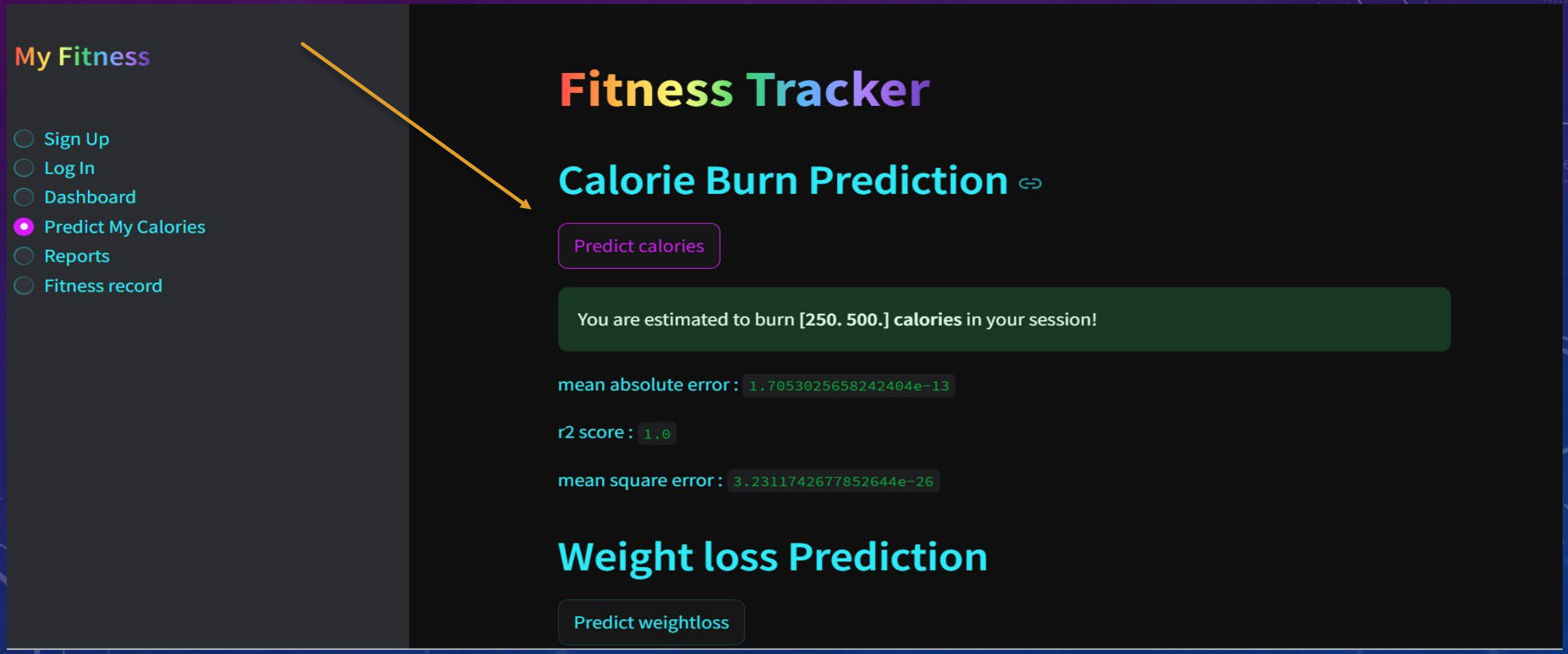
DASHBOARD

My Fitness
Sign Up
Log In
Dashboard
Predict My Calories
Reports
Fitness record
Fitness Tracker
log out
Welcome to Your Dashboard,
sriyanka@gmail.com!
Add New Fitness Record
Date
2024/12/27
Age
30
Weight (kg)

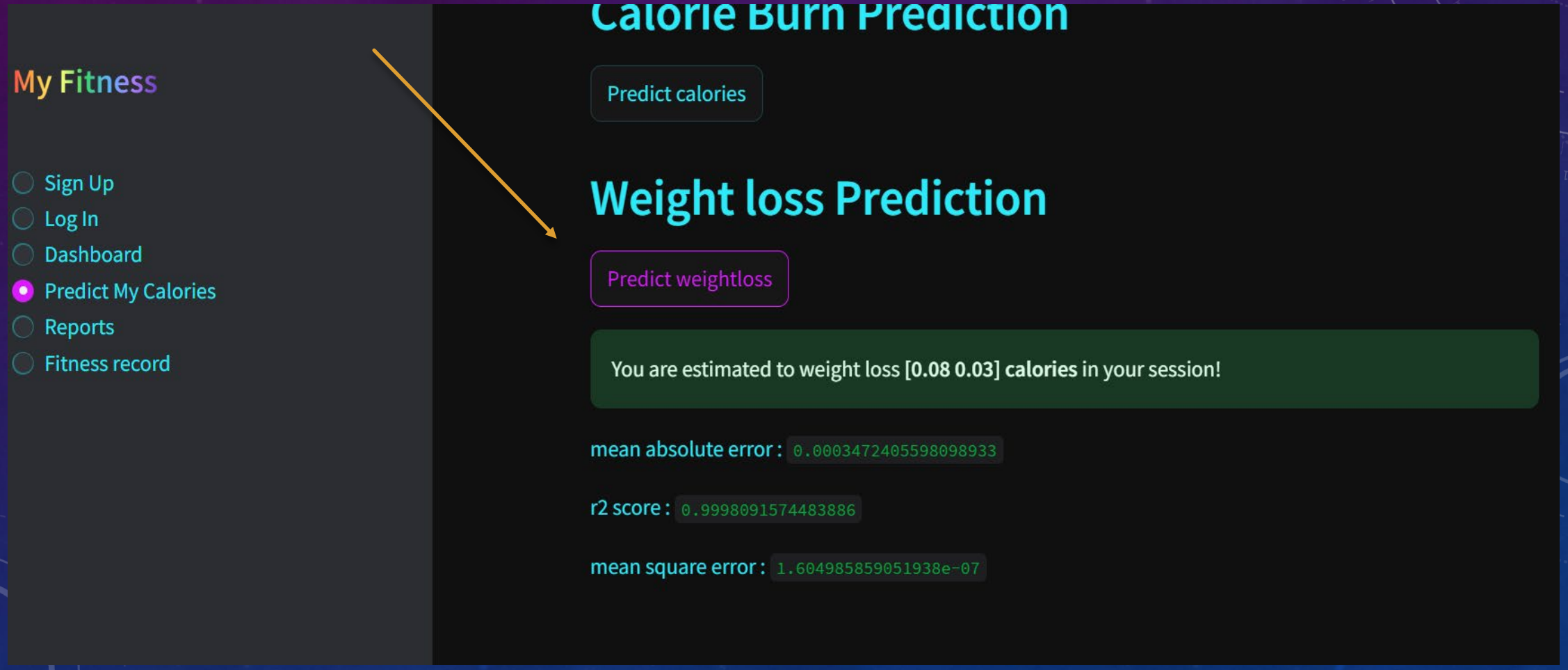
DASHBOARD


My Fitness
Sign Up
Log In
Dashboard
Predict My Calories
Reports
Fitness record
Total Steps
10000
calories consumed
300
Save
Record saved!
Estimated Calories Burned: 500.0
Estimated weight loss: 0.026
Calories Burned Trend

PREDICTION SYSTEM

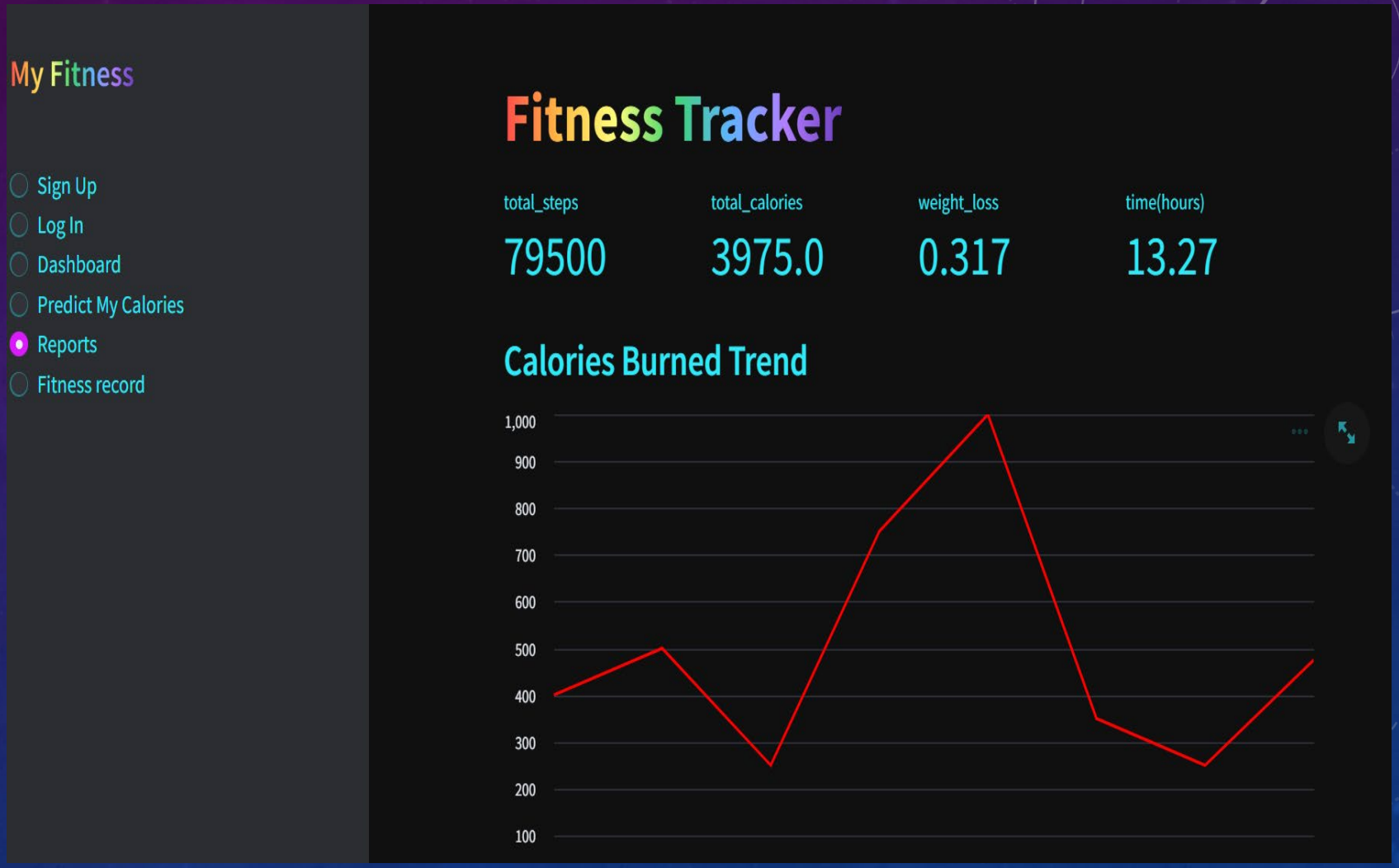


PREDICTION SYSTEM



REPORTS

- Keys metrics: total steps, calories burned weight loss session duration.
- Displays : line and bar chart to showcase calories total steps over a duration.



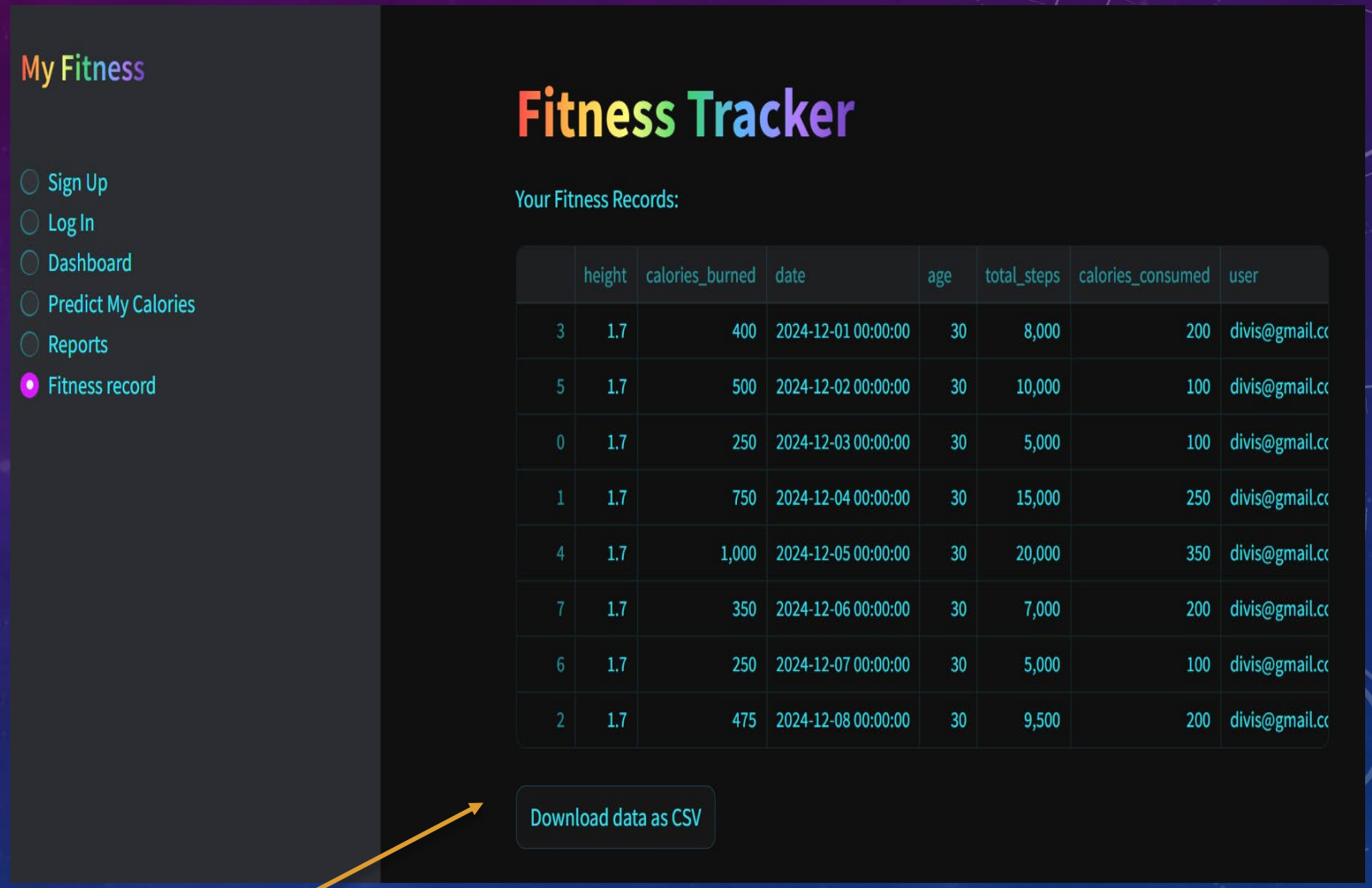
REPORTS

My Fitness

- Sign Up
- Log In
- Dashboard
- Predict My Calories
- Reports
- Fitness record

FITNESS RECORDS

- User can view detailed fitness records in tabular format.
- Records can be downloaded as CSV file for offline analysis and personal records.



Technical Overview

- Frontend : streamlit
- Backend : firebase Firestore
- Machine Learning : Linear regression(Scikit-learn)
- Programming language: python
- Data Visualizations: Streamlit Charts (Line and Bar)

Work flow

- **User interaction** : users log in and input fitness data.
- **Data storage :** data is securely stored in firebase firestore.
- **Data processing** : calculations(ex: calories burn, weight loss) are performed.
- **Data cleaning** : improve data quality which leads to more accurate and reliable results in data analysis.
- **Predictions:** Machine learning models predict outcomes based on user inputs.
- **Reports:** Summarized insights and visual trends are generated.

CHALLENGES

- **Data Dependency** : predictions improve with more user data.
- **Model simplification** : Linear regression might not capture complex patterns.
- **Scalability** : system needs optimization for a larger user base.

FUTURE ENHANCEMENTS

- **Advanced Machine Learning** : Use more complex models for predictions.
- **Mobile App** : Develop a mobile version for on-the-go tracking.
- **Wearable Integration** : Sync with fitness devices(ex : Fitbit , Apple Watch).
- **Community Features** : Enable users to participate in challenges and share progress.

THANK YOU