

The background is a dark blue gradient with a subtle pattern of white dots. Overlaid on the left side are several concentric circular patterns. A large circle features a scale from 140 to 260 in increments of 10, with tick marks and arrows pointing outwards. Other smaller circles and arcs are scattered across the left and top portions of the image, some with arrows indicating a clockwise direction.

# FITNESS TRACKER SYSTEM

BY : DIVYA SHREE K

# 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.

My Fitness

☒ Sign Up

☐ Log In


☐ Dashboard

☐ Predict My Calories

☐ Reports

☐ Fitness record

Fitness Tracker



Create Your Account

Email

Password

Sign Up



## 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



Log In to Your Account

Email

kavya@gmail.com

Password

.....

Press Enter to apply

Log In

## 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!](mailto: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

## My Fitness

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

## Fitness Tracker

### Calorie Burn Prediction

Predict calories

You are estimated to burn [250. 500.] calories in your session!

mean absolute error :  $1.7053025658242404e-13$

r2 score : 1.0

mean square error :  $3.2311742677852644e-26$

### Weight loss Prediction

Predict weightloss

# PREDICTION SYSTEM

## My Fitness

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

## Calorie Burn Prediction

Predict calories

## Weight loss Prediction

Predict weightloss

You are estimated to weight loss [0.08 0.03] calories in your session!

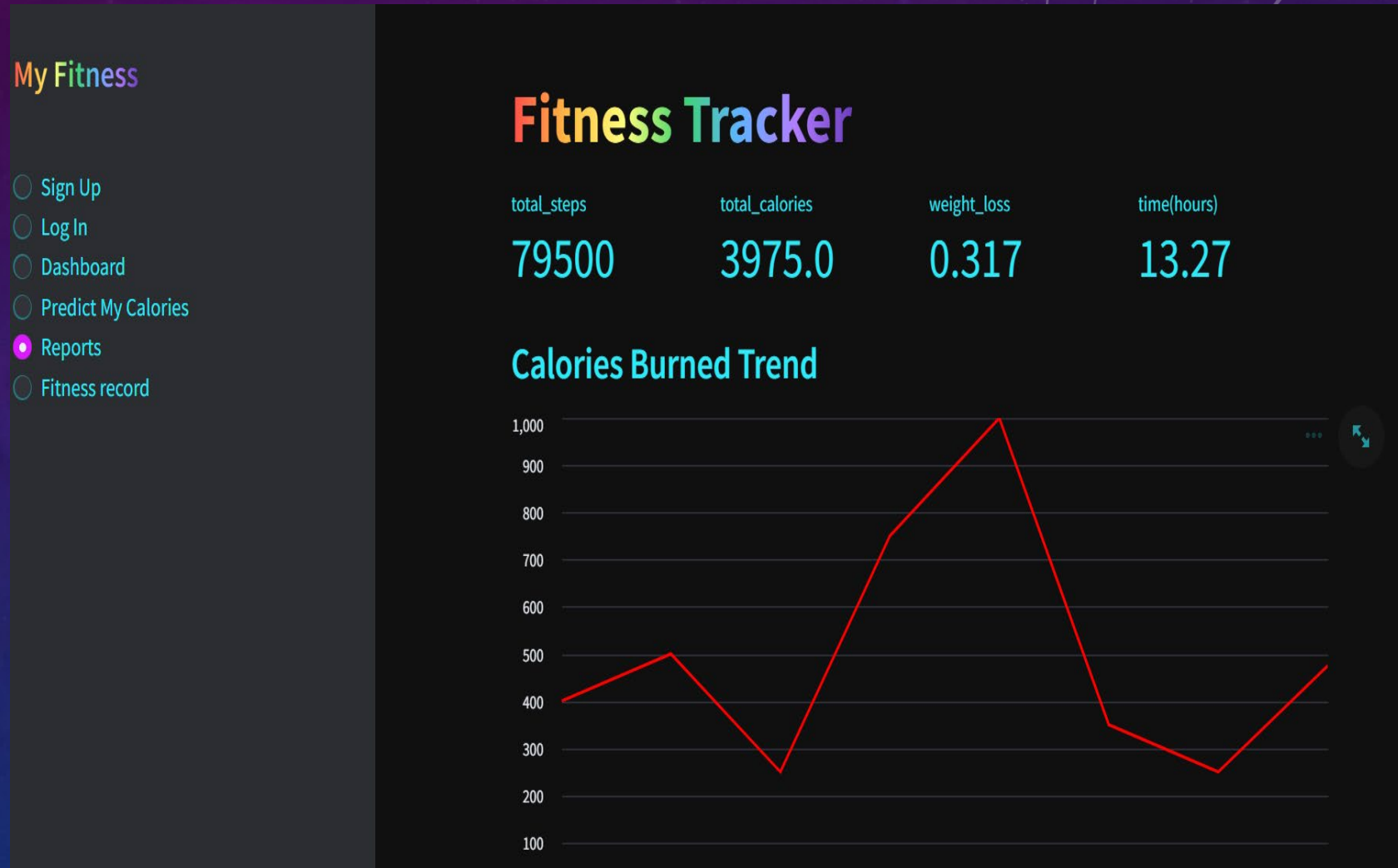
mean absolute error : 0.0003472405598098933

r2 score : 0.9998091574483886

mean square error : 1.604985859051938e-07

# REPORTS

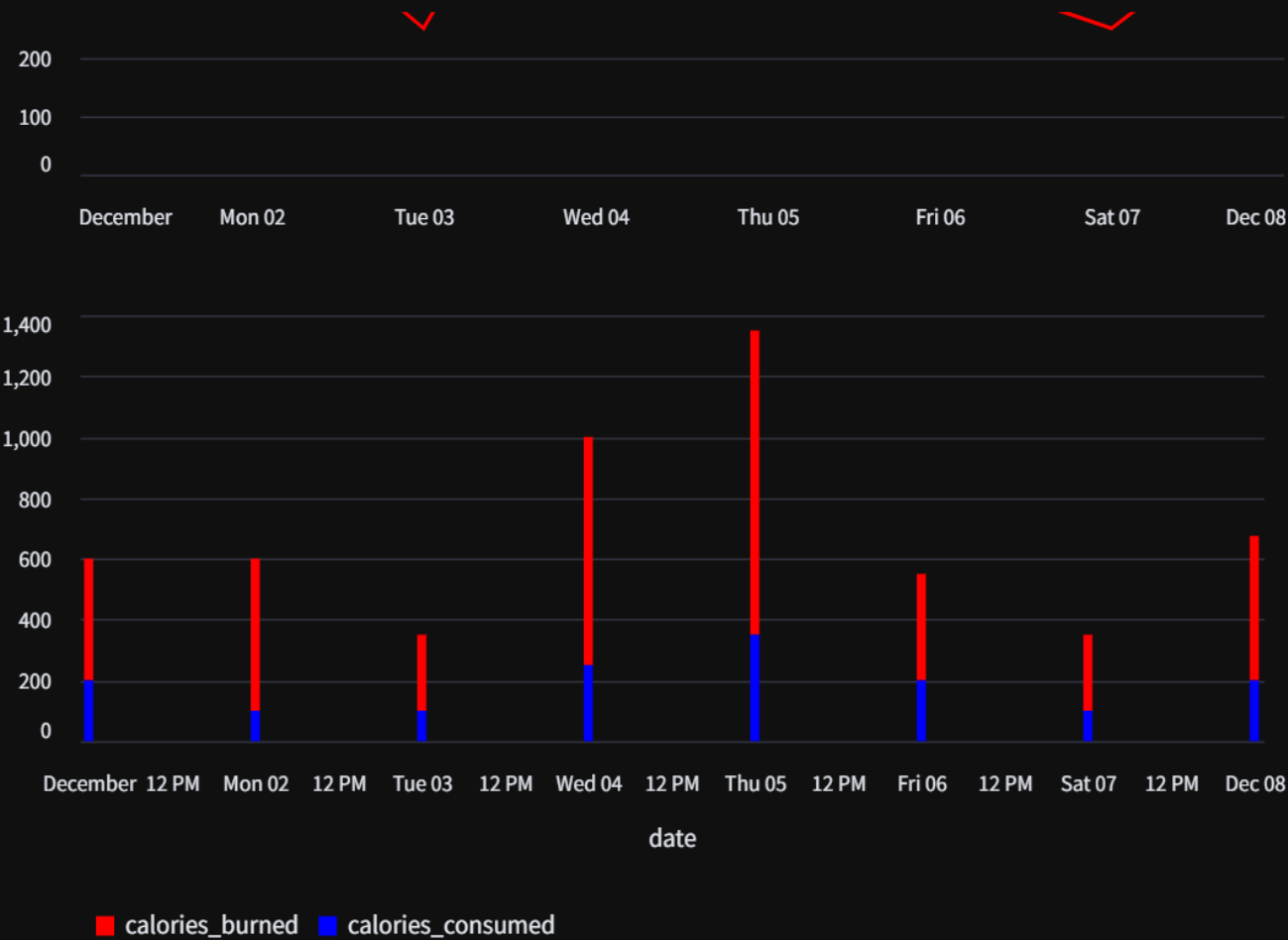
- Keys metrics: total steps, calories burned weight loss session duration.
- Displays : line and bar chart to showcase calories total steps over a duration.



# 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.

My Fitness

Sign Up

Log In

Dashboard

Predict My Calories

Reports

Fitness record

Fitness Tracker

Your Fitness Records:

	height	calories_burned	date	age	total_steps	calories_consumed	user
3	1.7	400	2024-12-01 00:00:00	30	8,000	200	divis@gmail.cc
5	1.7	500	2024-12-02 00:00:00	30	10,000	100	divis@gmail.cc
0	1.7	250	2024-12-03 00:00:00	30	5,000	100	divis@gmail.cc
1	1.7	750	2024-12-04 00:00:00	30	15,000	250	divis@gmail.cc
4	1.7	1,000	2024-12-05 00:00:00	30	20,000	350	divis@gmail.cc
7	1.7	350	2024-12-06 00:00:00	30	7,000	200	divis@gmail.cc
6	1.7	250	2024-12-07 00:00:00	30	5,000	100	divis@gmail.cc
2	1.7	475	2024-12-08 00:00:00	30	9,500	200	divis@gmail.cc

Download data as CSV

# 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