

Implementation of Personal Fitness Tracker using Python

A Project Report

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ABSTRACT

This project is about creating a **Personal Fitness Tracker** using Python to help people keep track of their daily physical activities, such as steps taken, calories burned, and workout sessions. The goal is to provide an easy-to-use platform where users can log their fitness data and see progress through charts and graphs. The project collects data, processes it using Python libraries like pandas and Matplotlib, and presents it in a user-friendly way. The results show that such a system can be very useful for individuals who want to improve their health and fitness.

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CHAPTER 1

Introduction

1.1 Problem Statement:

Many people struggle to keep track of their fitness progress because they don't have a proper system to record their daily activities. This project aims to solve this issue by providing a simple fitness tracker.

1.2 Motivation:

With growing awareness about health and fitness, having a personal tracker can help individuals stay motivated and improve their lifestyle. This project is designed to offer an easy and efficient way to monitor fitness goals.

1.3 Objective:

- Create a Python-based fitness tracker.
- Allow users to log workouts, steps, and calories.
- Display fitness progress through visual reports.
- Provide insights to help users stay on track.

1.4 Scope of the Project:

This project will focus on using Python to collect and analyze fitness data. It will not include real-time syncing with smartwatches but will allow manual logging and visualization of fitness metrics.

CHAPTER 2

Literature Survey

Wearable fitness trackers have gained popularity for monitoring physical activity, heart rate, and sleep. However, studies highlight challenges in adoption, sustained usage, and user satisfaction.

Coorevits & Coenen (2016) found that 30% of users abandon their devices within six months, mainly due to unmet expectations and usability issues. High costs, lack of awareness, and accessibility concerns also hinder adoption, particularly in lower-income groups (Holko et al., 2022).

Despite these challenges, fitness trackers show positive health impacts. Dubey (2019) reported that 71% of users increased physical activity, and 52% improved dietary habits. Additionally, many users find these devices helpful for stress reduction and weight management.

Consumer expectations play a crucial role in long-term engagement. The Technology Acceptance Model (TAM) suggests that ease of use and perceived usefulness determine adoption, but dissatisfaction leads to high attrition (Coorevits & Coenen, 2016). Demographic factors also influence adoption, with women showing higher interest than men (Holko et al., 2022).

In conclusion, while fitness trackers offer health benefits, high dropout rates and adoption barriers remain challenges. Future improvements should focus on user-centered design, affordability, and personalized features to enhance long-term engagement.

CHAPTER 3

Proposed Methodology

3.1 System Design

- A simple interface for entering fitness data.
- Backend processing with Python libraries like pandas and NumPy.
- Graphs and reports generated using Matplotlib and Seaborn.

3.2 Requirement Specification

Hardware Requirements:

- Computer/Laptop
- (Optional) Smartwatch for manual data entry

Software Requirements:

- Python
- Libraries: pandas, Matplotlib, Tkinter (for UI)

CHAPTER 4

Implementation and Result

4.1 Snap Shots of Result:

Deploy

User Input Parameters:

Age: 22

BMI: 20

Duration (min): 15

Heart Rate: 80

Body Temperature (C): 38

Gender: ☐ Male ☒ Female

Personal Fitness Tracker

In this WebApp you will be able to observe your predicted calories burned in your body. Pass your parameters such as Age, Gender, BMI, etc., into this WebApp and then you will see the predicted value of kilocalories burned.

Your Parameters:

	Age	BMI	Duration	Heart_Rate	Body_Temp	Gender_male
0	22	20	15	80	38	0

Prediction:

47.75 kilocalories

Deploy

User Input Parameters:

Age: 22

BMI: 20

Duration (min): 15

Heart Rate: 80

Body Temperature (C): 38

Gender: ☐ Male ☒ Female

Similar Results:

	Gender	Age	Height	Weight	Duration	Heart_Rate	Body_Temp	Calories
3339	female	56	174	69	9	91	39.7	44
9023	male	22	186	86	12	97	40.2	53
8089	female	66	173	71	9	92	39.9	46
1940	female	39	163	60	12	91	40.2	57
11738	female	57	158	55	9	103	39.9	57

General Information:

You are older than 7.000000000000001 % of other people.

Your exercise duration is higher than 86.8 % of other people.

You have a higher heart rate than 4.8 % of other people during exercise.

You have a higher body temperature than 3.8 % of other people during exercise.

4.2 GitHub Link for Code:

<https://github.com/Eshaambekar/Fitness-Tracker>

CHAPTER 5

Discussion and Conclusion

5.1 Future Work:

- Adding support for fitness APIs like Google Fit.
- Developing a mobile version.
- Providing AI-based health recommendations.

5.2 Conclusion:

This project shows how Python can be used to create a personal fitness tracker that helps individuals monitor their health. The system is simple, effective, and provides valuable insights for fitness improvement.

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