



Physiotherapist Exercise Estimator

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Project Guide
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1. Introduction

- Problem Identified :
 - Lack of supervision may lead to improper execution of exercises, potentially worsening the injury.
 - Inability to assess progress in person may result in missed complications or the need for adjustments in treatment.
- Solution Proposed :
 - The System we have designed is to treat the patient without visiting the hospital or clinic of physiotherapist.
 - The patient will start feeling better after doing proper exercises from the system and with proper posture and will eventually recover from the injury.

2. Objectives

1. To create a user-friendly interface for patients to estimate suitable exercises prescribed by physiotherapists.
2. To ensure patients understand and perform exercises correctly through clear instructions.
3. To enhance patient compliance and motivation by providing feedback.

3. Scope

1. Can be used to create personalized exercise plans tailored to individual needs.
2. Can be integrated with wearable devices for real-time monitoring of progress.
3. Can be expanded to include teleconsultation features for remote guidance.
4. Can be adapted for various conditions, from sports injuries to chronic pain management.

4. Literature Survey

Sr No.	Author	Title of the paper	Year	Technology stack	Description
1.	Garcia	Gamification in Physiotherapy: A Systematic Review	2023	Python,Java,MongoDB,TensorFlow	The review aims to identify the current state of AI applications in physiotherapy for designing personalized exercise plans. It likely discusses various AI techniques, such as machine learning and natural language processing, and their potential benefits and challenges in this context.
2.	Jones et al	Sensor-Based Monitoring Systems for Physiotherapy: A Review of Recent Advances	2024	Python,MySQL, Spreadsheets	It likely discusses various aspects such as the effectiveness of telehealth in treating different conditions, patient satisfaction, and challenges faced by physiotherapists in using telehealth. This review aims to provide insights into the benefits and limitations of telehealth in physiotherapy and may suggest ways to improve its implementation for better patient care.

5. Feature /Functionality

1. Feature 1 :- User Inputs:

Users can input their existing medical conditions.

2. Feature 2 :- Exercise Recommendation:

Based on the user's profile and specific needs, the system suggests a set of exercises recommended by physiotherapists.

3. Feature 3 :- Feedback:

Users can provide feedback on exercises.

6. Technology Stack

- Programming languages:

Python, JavaScript, HTML, CSS

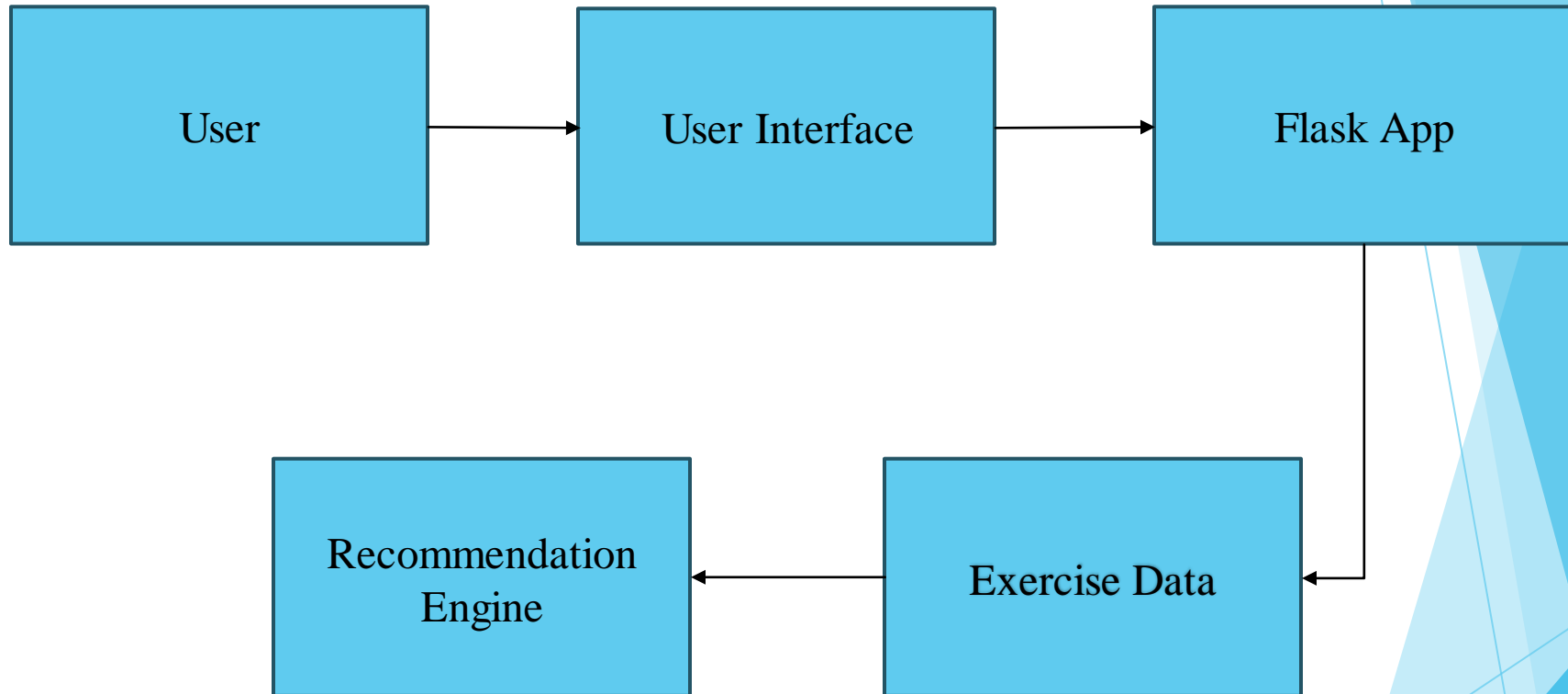
- Frameworks:

Flask framework and TF-IDF vectorizer for the machine learning model.

- Database:

MongoDB for storing user data and progress.

7. Block Diagram



8. Use Case Diagram

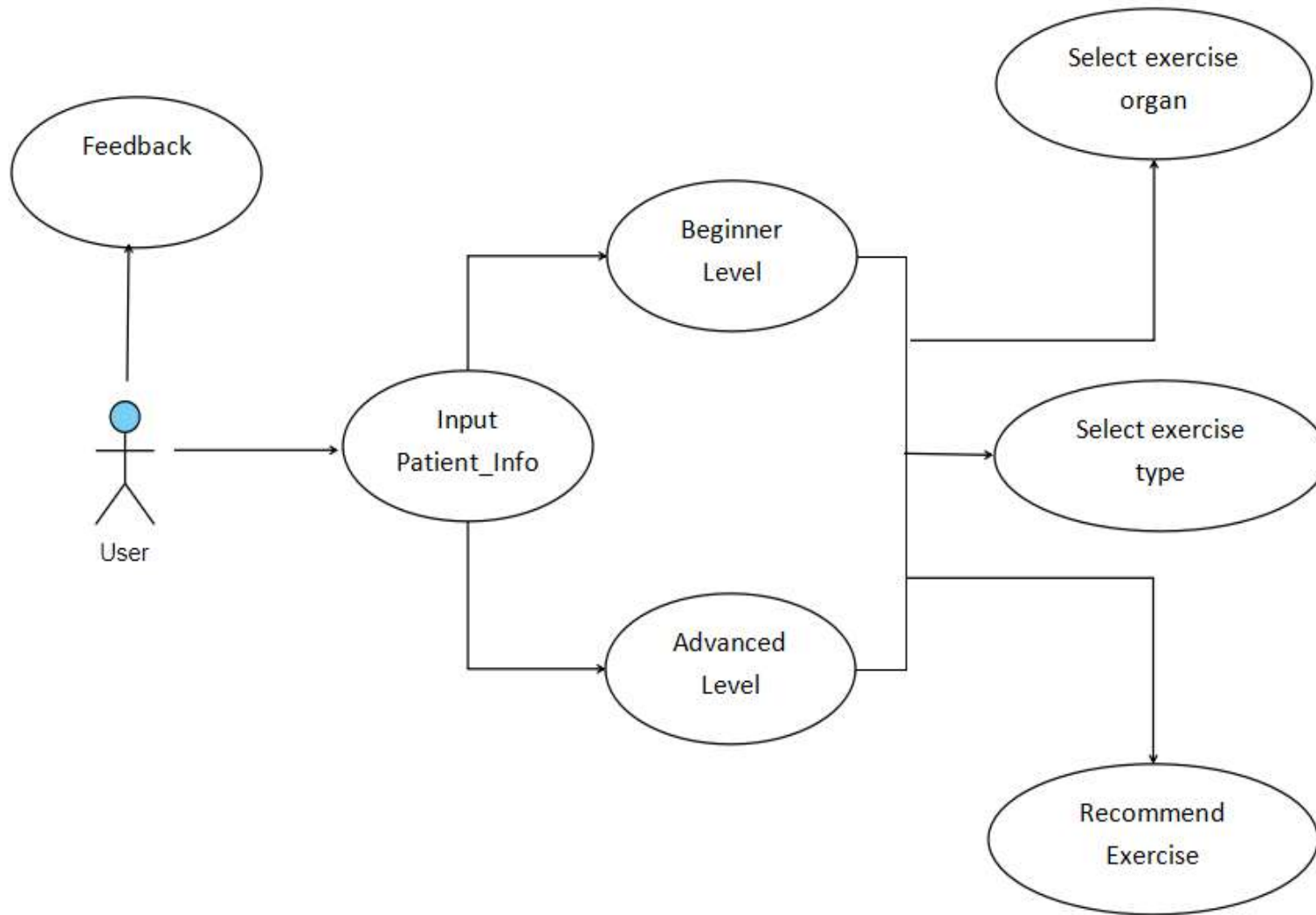


Fig 8.1 Use Case Diagram

9. Suggestions in Review-1

- ▶ Objectives starting from To.
- ▶ Literature Papers of recent years.
- ▶ Change the block diagram.

10. Result and Discussion

- ▶ Creation of a user-friendly digital platform for patients to access physiotherapy exercises.
- ▶ Incorporation of ML algorithms to tailor exercise plans based on individual needs and injury type.
- ▶ Empowerment of patients to manage their recovery independently, reducing reliance on frequent clinic visits.
- ▶ Provision of progress tracking tools to monitor improvements and adjust exercise plans accordingly for optimal recovery.

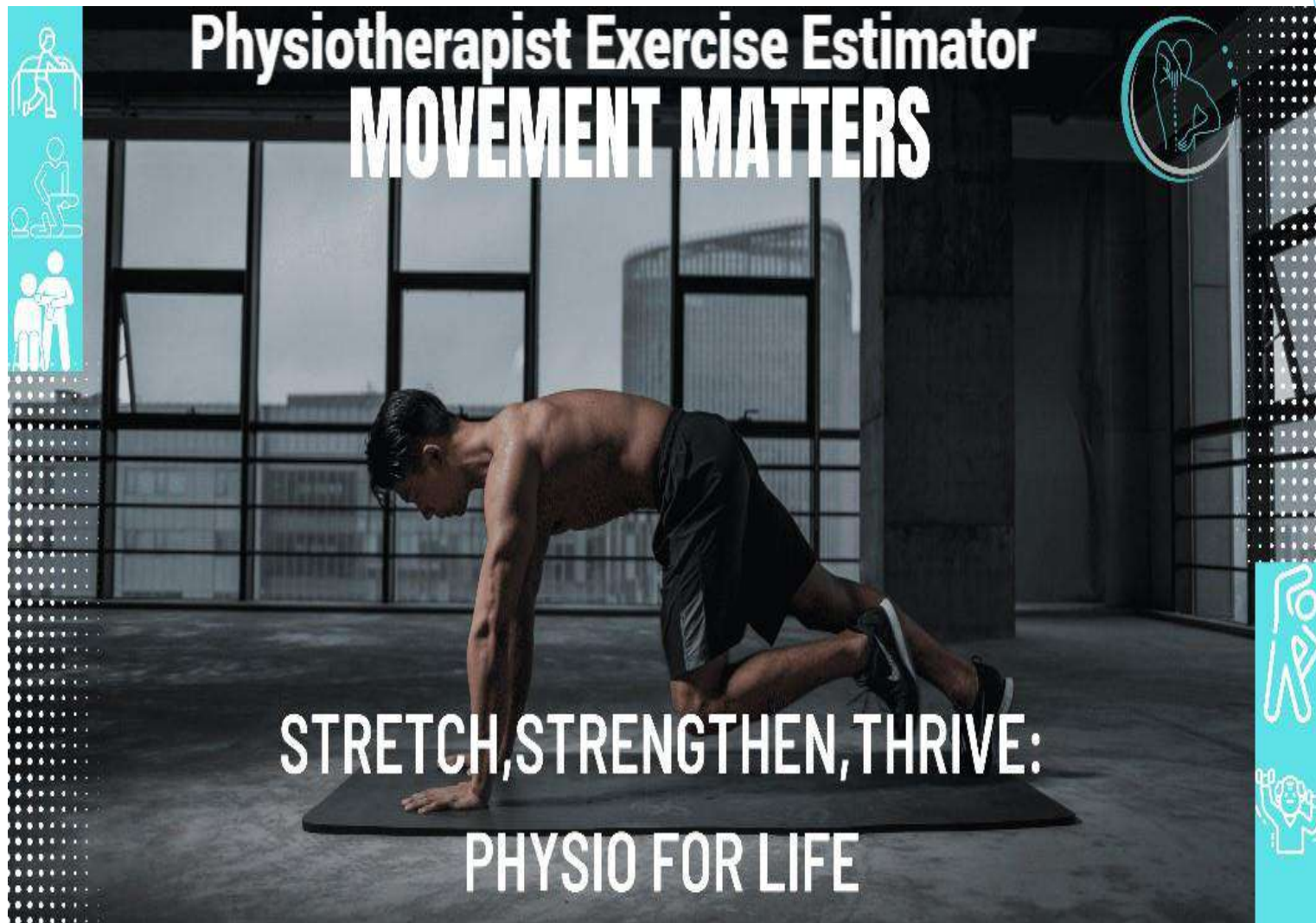


Fig 10.1:Home Page



Select Your Target Muscle And Equipment

[Home](#) [Beginner](#) [Advanced](#)

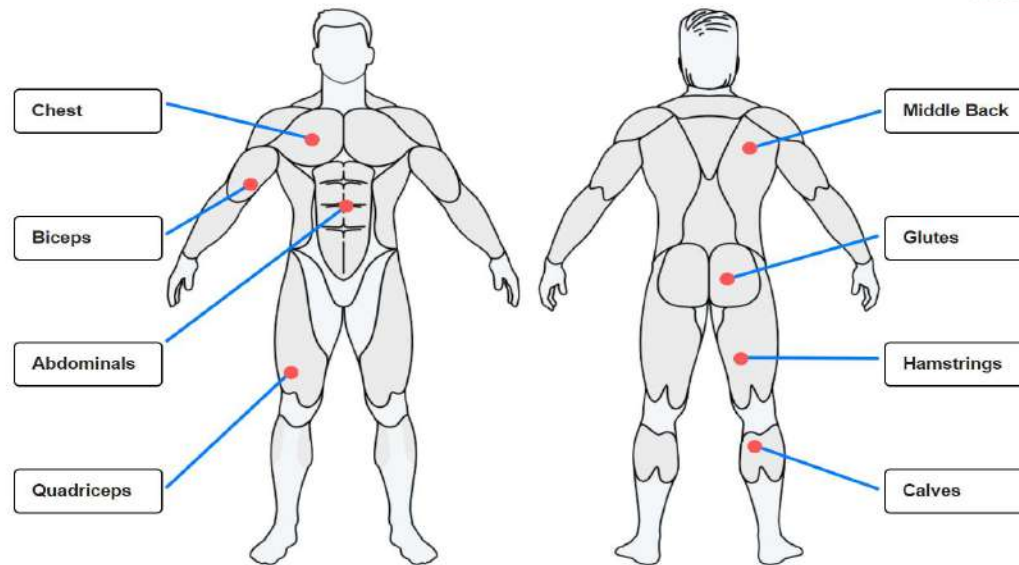


Fig 10.2 Beginner and Advance Level

FRONT SQUATS WITH TWO KETTLEBELLS



- 1 Clean two kettlebells to your shoulders. Clean the kettlebells to your shoulders by extending through the legs and hips as you pull the kettlebells towards your shoulders. Rotate your wrists as you do so
- 2 Looking straight ahead at all times, squat as low as you can and pause at the bottom. As you squat down, push your knees out. You should squat between your legs, keeping an upright torso, with your head and chest up
- 3 Rise back up by driving through your heels and repeat.

[More Recommend Exercise](#)

Fig 10.3 Recommended Exercises

Conclusion and Future Scope

The Physiotherapist Exercise Estimator project represents a significant step forward in leveraging technology to improve healthcare outcomes. Through the development of a user-friendly application, this project aims to assist physiotherapists in designing personalized exercise plans for their patients, thereby enhancing the effectiveness of rehabilitation and injury prevention programs.

- **Increased Efficiency:** Physiotherapists can save time by using this tool to quickly generate exercise plans based on patients' conditions and progress.
- **Improved Patient Care:** With personalized exercise plans, patients can receive more effective treatment that suits their specific needs, potentially leading to faster recovery and better outcomes.

References

- ▶ Smith et al- Development of a Physiotherapist Exercise Estimator App for Lower Back Pain Patients [2018] Mobile application development (iOS, Android), machine learning algorithms.
- ▶ Johnson et al- Integrating Wearable Technology in Physiotherapy: A Review of Applications [2019] Wearable sensors (accelerometers, gyroscopes), mobile applications.
- ▶ Rodriguez- A Systematic Review of Virtual Reality Applications in Physiotherapy and Rehabilitation [2020] Virtual reality (VR) systems, motion tracking sensors.
- ▶ World Health Organization. [2020] Global health risks: mortality and burden of disease attributable to selected major risks. Geneva: World Health Organization Press.

Thank You...!!