PARSHVANATH CHARITABLE TRUST'S
A. P. SHAH INSTITUTE OF TECHNOLOGY
Department of Information Technology
(NBA Accredited)

Semester: VII **Class / Branch: BE IT/A**
Academic Year: 2023-24
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Title: FitGeek: Modelling ML Based Recommendation System for fitness and wellness

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Project Proposal

ABSTRACT

FitGeek, a revolutionary wellness platform, transcends conventional fitness websites by offering a transformative experience designed to empower individuals in their journey towards optimal health and fitness. This platform goes beyond generic solutions, providing personalized wellness recommendations tailored to individual needs, preferences, and objectives. FitGeek guides users every step of the way, ensuring their actions align with specific goals, thus enhancing the effectiveness of their fitness endeavors.

TECHNICAL SPECIFICATIONS

Frontend : WEB X.O

1. HTML : for structure
2. CSS : for styling
3. JavaScript : for interactive elements
4. Bootstrap : CSS framework for responsive and attractive designs

Backend:

1. Django : framework for web application development
2. Python : for backend logic

Libraries/Dependencies: DATA ANALYSIS

1. Pandas
2. Numpy
3. Matplotlib
4. Google Maps API, FastAPI

Machine Learning Algorithms:

1. K-Nearest Neighbors (K-NN): K-NN is used for both classification and regression tasks in the diet recommender system. It works by identifying the k-nearest data points to a given input and making predictions based on their labels or values. In the diet recommender, K-NN may be used to suggest appropriate dietary choices based on the preferences and dietary restrictions of individuals, considering the choices of similar users.

2. Support Vector Machine (SVM): SVM is employed for classifying individuals into one of two classes, such as diabetic or non-diabetic, in the diabetes predictor. It is a powerful machine learning method for binary classification. SVM finds the optimal hyperplane that maximizes the margin between two classes, making it effective for tasks like disease prediction, where distinguishing between two states is crucial.

3. Content-Based Filtering: Content-Based Filtering is utilized in the exercise rec- ommendation system. This technique recommends exercises based on the content or attributes of the exercises and the user's preferences. For instance, it may recommend specific workouts based on a user's fitness level, goals, and exercise preferences.

4. Natural Language Processing (NLP): NLP is applied to determine the stress levels of the user based on the inputs provided. NLP techniques process and analyze text data, in this case, input from the user, to extract insights about their stress levels. NLP can identify patterns, keywords, or sentiments in the text to estimate the user's stress level.

5. Logistic Regression: Logistic Regression is used to predict stress levels categorized into different classes, such as low, moderate, and high. It's a statistical method for binary and multiclass classification. In this context, it categorizes users into different stress level classes based on relevant features or indicators, providing insights into their stress levels.

OBJECTIVES

• **To Provide Convenient and Economical Fitness Guidance**: To offer affordable and easily accessible fitness guidance.

• **To Offer Instructional Exercises with Animations**: To provide exercises with clear instructions, animated demonstrations and on a timer.

• **To Raise Awareness About Healthcare Updates**: To inform and raise awareness about recent healthcare updates.

• **To Enable Remote Access to Exercises and hydration calculator**: To facilitate remote access to exercises via web.

• **To Implement Disease Predictors**: To include disease predictors for conditions like diabetes and stress, along with relevant recommendations.

• **To Offer Personalised Diet Recommendations**: To provide tailored diet recommendations based on the person's body statistics.

• **To calculate stress levels of the user**: To create a tab where the user can get access to various mental health practices.

SCOPE

- **Enhanced Fitness Progress**: AI-powered recommendations adapt as users progress, ensuring optimal workout plans.
- **Calorie Intake Tracker and Analysis**: Implement algorithms for analysing calorie intake against individual goals and dietary preferences.
- **Personalised Diet Plans**: Incorporate nutritional analysis to ensure users receive balanced and tailored dietary recommendations.
- **Hydration Calculator**: Develop a hydration calculator that calculates daily water intake needs based on user profiles, activity levels, and environmental conditions.
- **Stress Level Assessment**: Implement stress assessment tools, such as surveys or wearable device integrations, to measure users' stress levels.