Artificial Intelligence Powered Workout Companion

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

Project by:
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PROBLEM STATEMENT

Fewer than 16% of older adults meet the recommended guidelines, which are 150 minutes of moderate aerobic activity and 2 muscle-strengthening sessions per week.

Low physical activity among older adults is linked with disability, difficulty managing chronic conditions, and increased falls and related injuries.

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WHY WE MADE CHATTY KATHY

Older adults who talked with peers about their exercise program were able to increase and sustain physical activity levels much better than those who focused on self-motivation and setting fitness goals.

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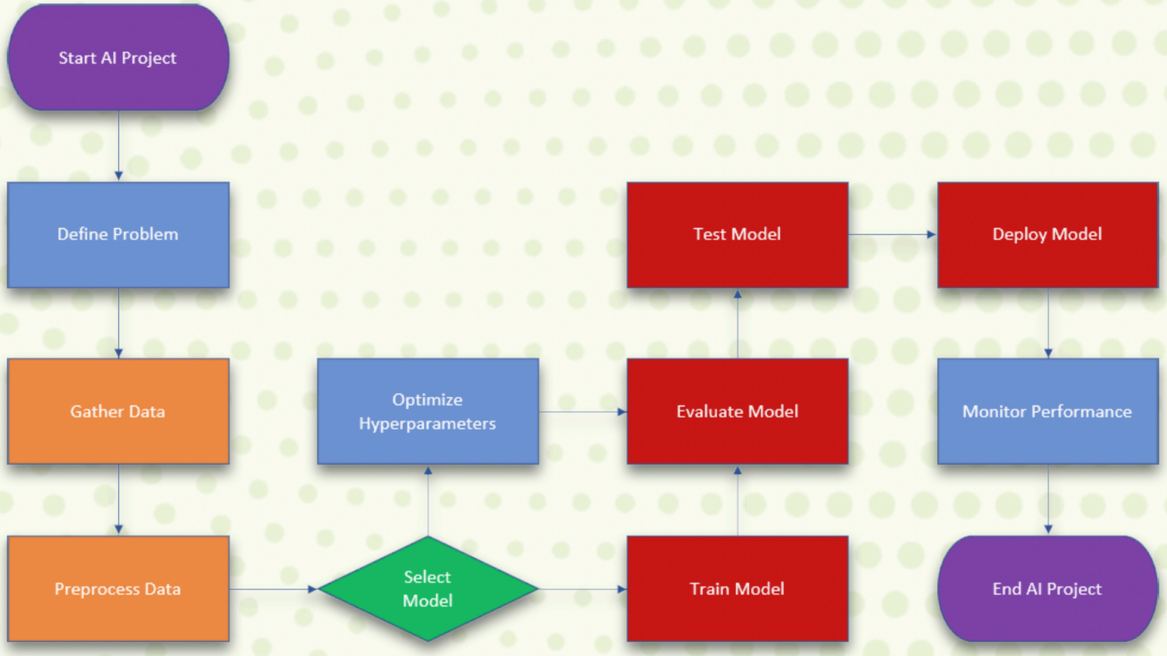
DATA COLLECTION

Data Sources: Synthetic data generated to simulate user behavior and preferences.

Data Extraction: Automated extraction of relevant data points.

Data Cleaning: Removal of noise and inconsistencies to ensure data quality.

Data Transformation: Converting data into a usable format for model training.



JUPYTER NOTEBOOK OVERVIEW

Our Jupyter notebook details the entire process from data extraction to transformation. The cleaned data is exported as CSV files for further analysis and model training.

```
def check_weather():
    q = f"What is the current weather at {CITY},{STATE}?"
    weather = agent_executor.invoke({"input": q}, config={"configurable": {"session_id": "ck-session"}})['output']
    query = f"I have the weather data as such for my city: '{weather}.' Recommend me to walk outside if the weather is nice, and vice versa.
    I don't need any verbose information about the weather itself though."
    return answer(query)
```

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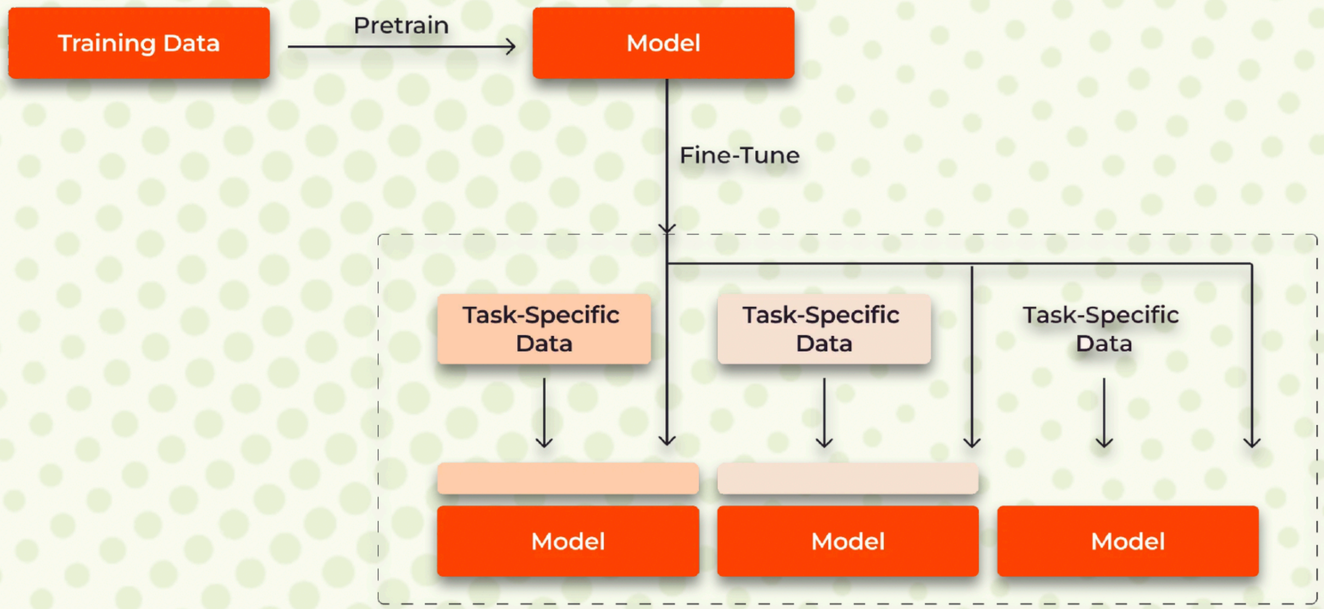


MODEL MANIPULATION

Model Initialization: Setting up the AI model using Python.

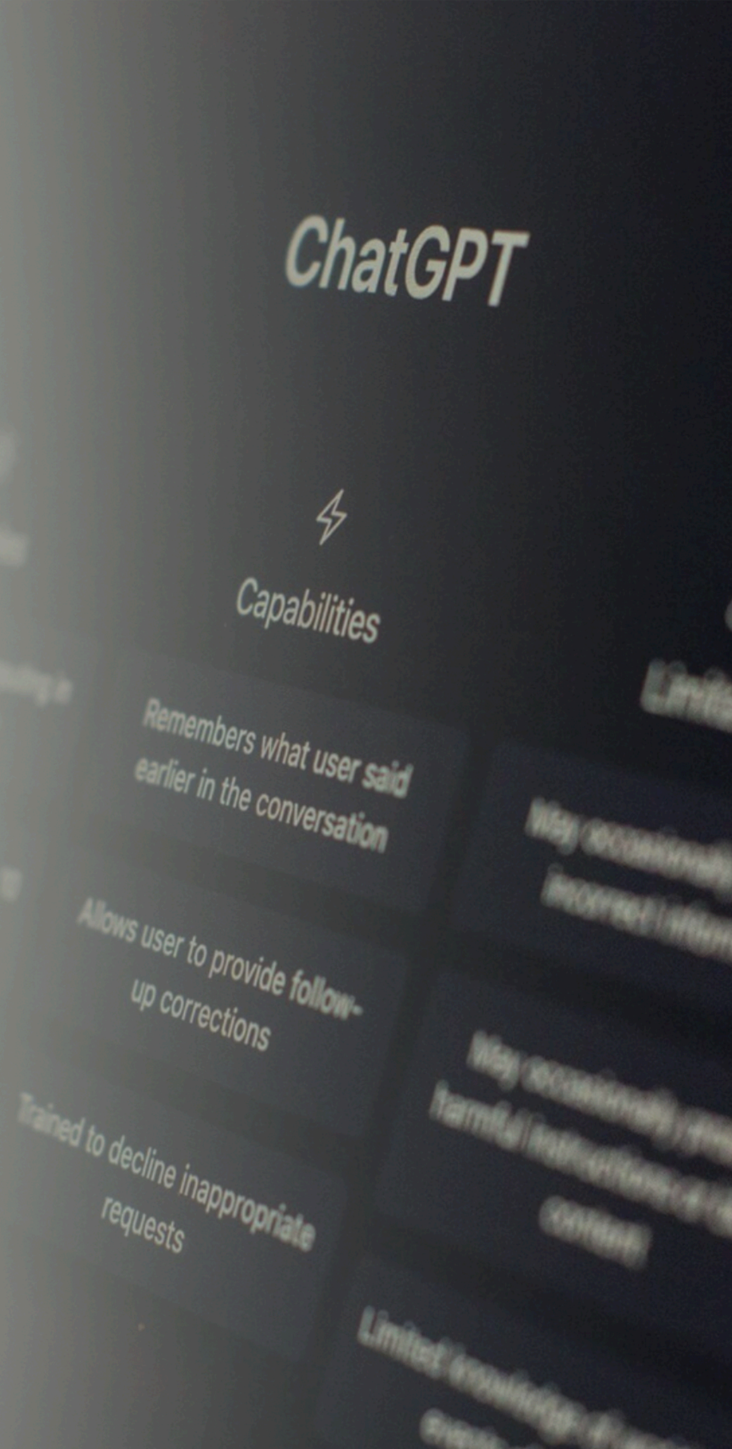
Training and Evaluation: Iteratively training the model and evaluating its performance.

Pre-trained Model: Integration of pre-trained models for enhanced accuracy.

ADDITIONAL TECHNOLOGY

We integrated OpenAI's GPT-3.5 to generate synthetic data, a technology not covered in our coursework, to enhance the model's capabilities.

CHATGPT



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SYNTHETIC DATA TRAINING PERSONAS

Generated with ChatGTP 4

Synthetic Data: Generated diverse user profiles to train and test the AI model.

Personas: Develop detailed personas to simulate real users and there interactions.

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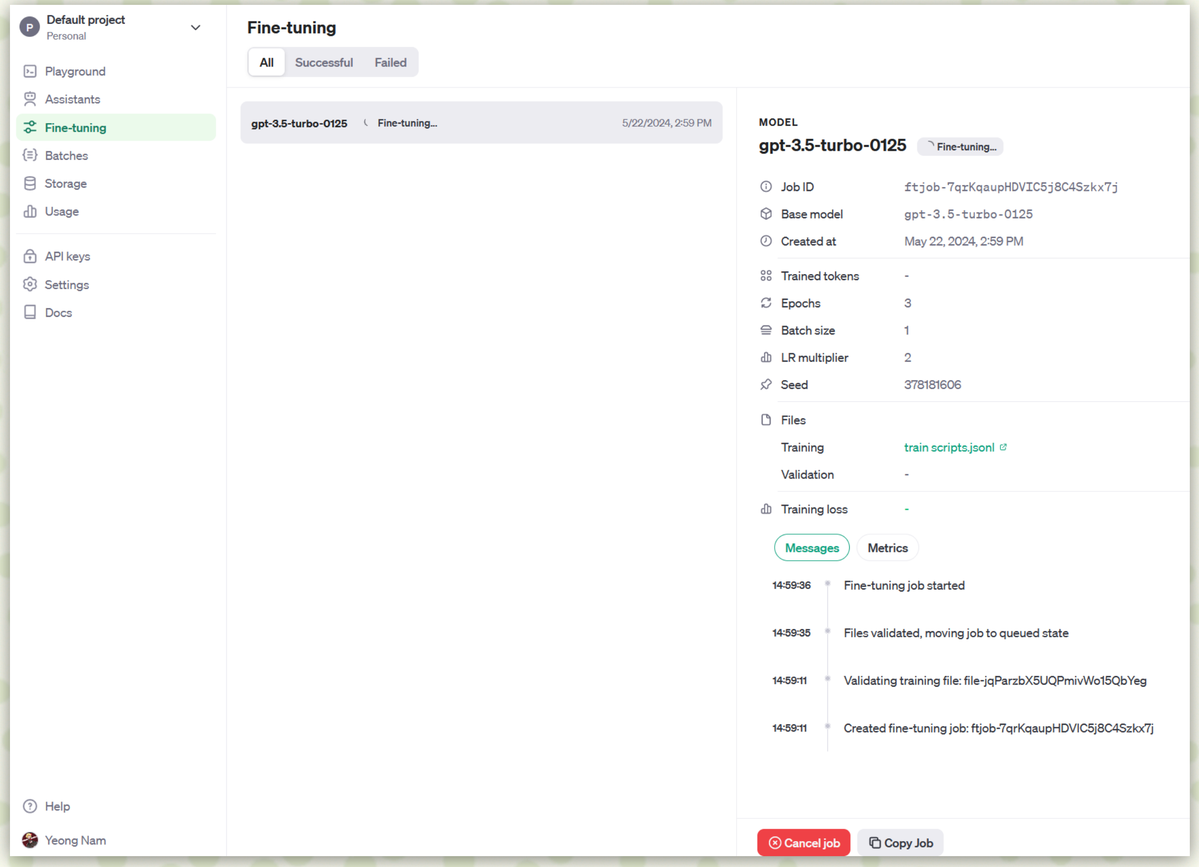

MODEL OPTIMIZATION

Optimization Process: Iterative changes and enhancements to improve model performance.

Evaluation Metrics: Continuous evaluation using various metrics to track performance improvements.

Documentation: Detailed records of the optimization process in CSV, Excel, and Python script.

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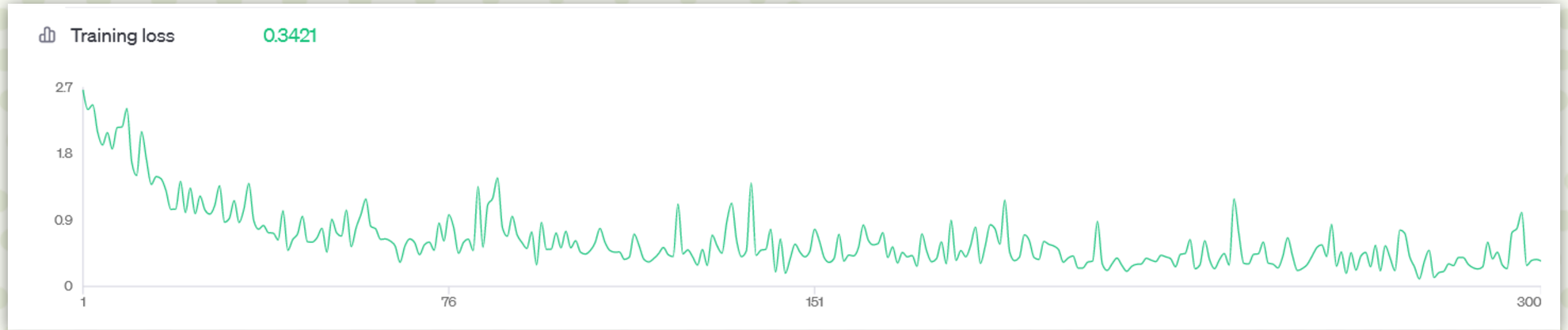
MODEL PERFORMANCE

Final performance metrics are based on accuracy, precision, recall and other relevant metrics demonstrating the model's effectiveness.



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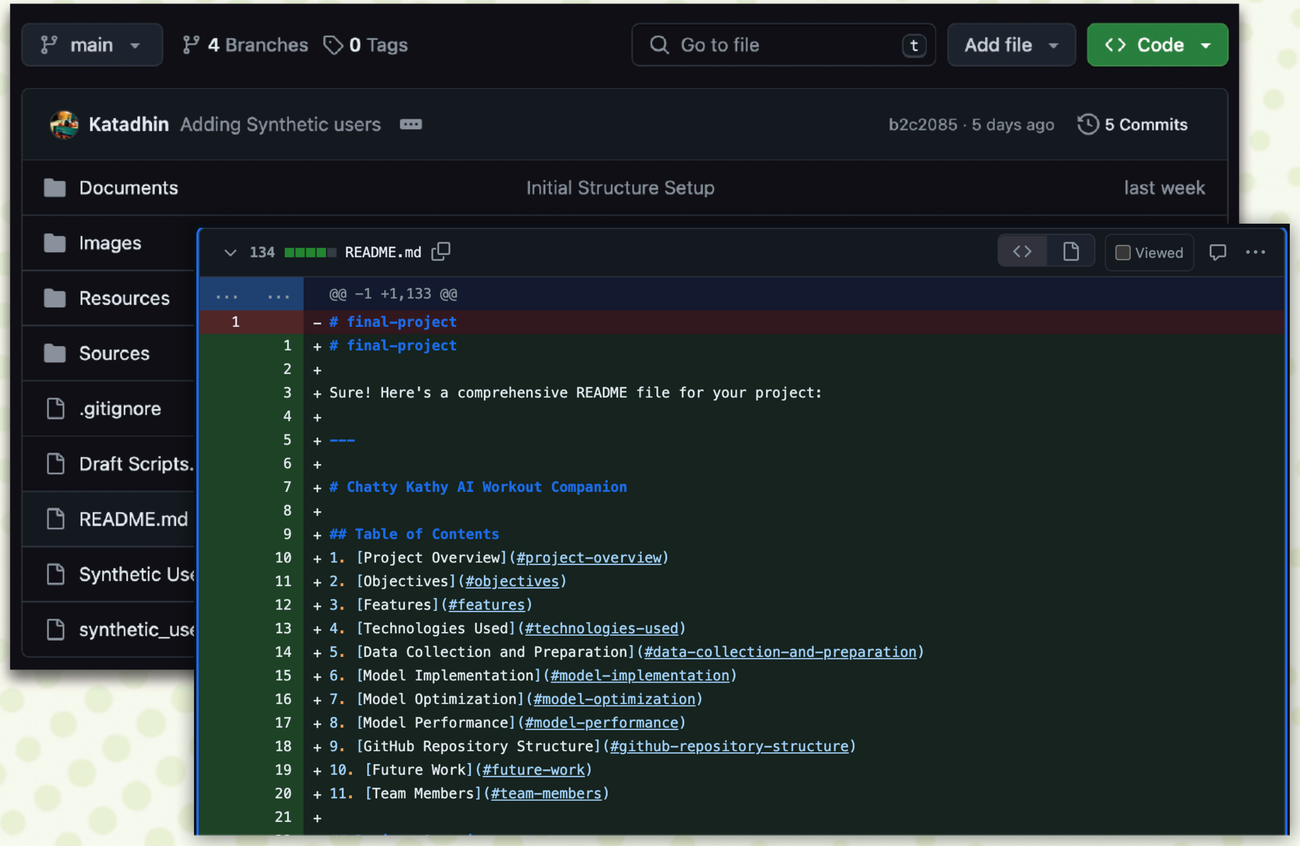

GITHUB DOCUMENTATION

Our GitHub repository is well-organized with a clear structure and an appropriate .gitignore file.

The README file provides a polished presentation of the project

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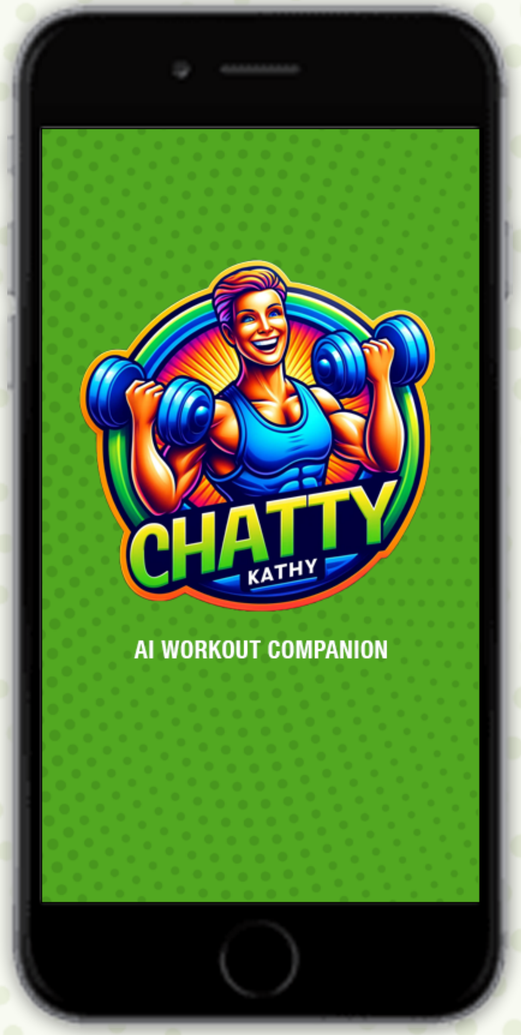
VISUAL DEMONSTRATION

Project Demo: A glimpse of Chatty Kathy in action, showcasing its features and user interface.



FUTURE WORK

POTENTIAL AREAS FOR EXPLORATION AND DEVELOPMENT

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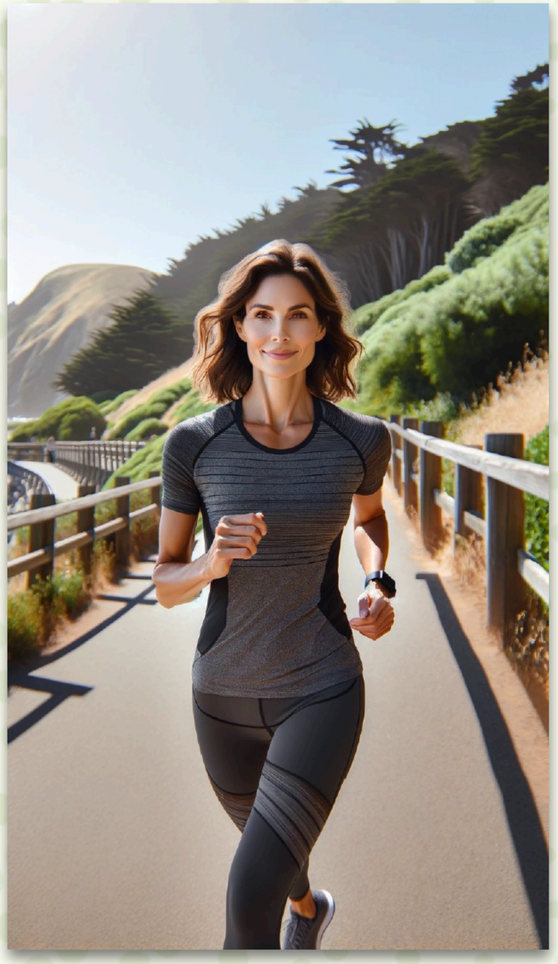

PERSONA ATTRIBUTES

Generated with Dalle AI Technology

Persona: Emily - The Active Professional

Age: 40

Gender: Female

Occupation: Marketing Executive

Health Conditions: Hypertension

Past Exercise Habits: Low

Response Rate: 0.7

BMI: 28

Heart Rate: 80

Sleep Hours: 6

Motivation Level: Medium

Stress Level: High

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HEALTH COACHING STRATEGY

Generated with Dalle AI Technology

Personalized Exercise Plan: Develop a flexible exercise plan that fits into Emily's busy schedule. Includes short, effective workouts that she can do at home or in the office.

Stress Management Techniques: Introduce stress management techniques such as mindfulness, meditation, and breathing exercises.

Positive Reinforcement: Use motivational messages that celebrate small victories and progress.
Regular Check-Ins: Schedule regular check-ins to track Emily's progress.

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Q&A

Question & Answers:

Open the floor for any questions from the audience.

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