**UNIVERSITY OF HUDDERSFIELD**

**DEPARTMENT OF COMPUTER SCIENCE**



**PROJECT DOCUMENTATION**

**MODULE: Team Project**

**PROJECT: Fitness Exercises Recommender Website - Work.it**

**UNDER THE GUIDANCE OF**

Mr. Jim Woodhead

**TABLE OF CONTENTS**

[I) INTRODUCTION 3](#_Toc158596574)

[1) Team Members 3](#_Toc158596575)

[2) Short Introduction 3](#_Toc158596576)

[3) Inspiration and Conceptualisation 3](#_Toc158596577)

[II) DEVELOPMENT 7](#_Toc158596578)

[1) Website Features 7](#_Toc158596579)

[2) What does our app look like? 8](#_Toc158596580)

[III) VISUAL MOCKUPS 9](#_Toc158596581)

[IV: PROJECT MANAGEMENT 10](#_Toc158596582)

[1) Intended Approach 10](#_Toc158596583)

[2) Development Plan 10](#_Toc158596584)

[IX: Bibliography 12](#_Toc158596585)

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# I) INTRODUCTION

## Team Members

**Group 4 – Team 4:**

|  |  |
| --- | --- |
| **Full name** | **Student ID** |
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## Short Introduction

This report details the creation of Work.it.com, a revolutionary fitness app dedicated to delivering personalized workout plans. Through advanced algorithms, the app tailors exercise recommendations to each user's preferences and fitness goals.

The report encompasses the project's development stages, from initial requirements to design implementation, highlighting its commitment to enhancing user fitness experiences.

## Inspiration and Conceptualisation

The ideas:

* Exercise Recommender (algorithm will process user preferences and provide a curated list of the top 10 exercises that match their criteria algorithm will process user preferences and provide a curated list of the top 10 exercises that match their criteria).
* 67% Users are Female. App will be oriented towards the female audience but will not explicitly exclude anyone from using the app. (Primary Goal is fitness coaching) (Possibly??)
* Information will be stored about the user’s goals and will be used to recommend tailored exercises.
* A database of exercises will be stored that the algorithm will use. Each entry will link to a video of a specific workout which will be displayed to the user.
* App will be free to enter and there will be in app purchases that will generate revenue within the app (partnership with other brands etc)
* Recommend the 10 most popular exercises there are?
* If user does not want to use AI then they can customise their own workouts throughout the week and have a chance to either use AI on the day or use their own customise workout.
* Mostly centred towards women but the colourway does not show that really.
* Gamified fitness uses video game-like elements like points, badges, leaderboards, and rewards to motivate and engage users. Give a chance to compare and compete with friends in workouts. Or even with people who match in competition (20-year-old males, UK, Huddersfield, University Students)
* Try and push and keep out distractions. Include timed workouts if user wants to and turn an alarm on when he leaves for too long.

Fitness App Market Size Statistics:

* The market for fitness apps has been expanding rapidly, offering enormous growth potential.
* Global fitness app market is expected to reach $14.7 billion by 2026 (Source: [Market Research Future](https://www.marketresearchfuture.com/reports/fitness-app-market-1405)).
* Revenue in the Health & Fitness Apps segment is expected to reach $1,298 million in 2021 (Source: [Statista](https://www.statista.com/outlook/268/100/health-fitness/worldwide)).
* The average revenue per user (ARPU) in the Health & Fitness Apps segment is projected to amount to $3.90 (Source: [Statista](https://www.statista.com/outlook/268/100/health-fitness/worldwide)).
* North America holds the largest share of the fitness app market, followed by Asia-Pacific and Europe (Source: [Market Research Future](https://www.marketresearchfuture.com/reports/fitness-app-market-1405)).
* The fitness app industry has grown by approximately 330% in the last three years (Source: [Flurry Analytics](https://www.flurry.com/))
* The market for fitness apps has been expanding rapidly, offering enormous growth potential.
* Global fitness app market is expected to reach $14.7 billion by 2026 (Source: [Market Research Future](https://www.marketresearchfuture.com/reports/fitness-app-market-1405)).
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* North America holds the largest share of the fitness app market, followed by Asia-Pacific and Europe (Source: [Market Research Future](https://www.marketresearchfuture.com/reports/fitness-app-market-1405)).
* The fitness app industry has grown by approximately 330% in the last three years (Source: [Flurry Analytics](https://www.flurry.com/)).
* Who will use it?
  + Primarily targeted towards females however not explicitly female only. Males can also work out with a program that is tailored towards them.
  + People who are already motivated to improve themselves + people who have the motivation for self- improvement (EG Category 1: already works out but would like a specific program. Category 2: People who don’t currently work out much but are determined to get in shape etc)
* Why is there a need for it?
* We primarily targeted females as we saw that they make up around 75% of the fitness app market.
* The fitness app industry is a growing industry, picking up popularity since COVID and we feel our inclusion of AI gives us a cutting edge, allowing two popular sectors to collide (AI and Fitness).
* Revenue model
  + **Global Fitness App Market Value**: The global fitness app market is expected to reach $14.7 billion by 2027, growing at a CAGR of 21.6% from 2020 to 2027. (Source: [Allied Market Research](https://www.alliedmarketresearch.com/fitness-app-market))
  + **U.S. Fitness App Market Share**: The United States holds the largest share of the fitness app market, accounting for more than 30% of global revenue. (Source: [Statista](https://www.statista.com/statistics/625034/mobile-health-app-revenue/))
  + **In-App Purchases**: Over 55% of fitness app revenue comes from in-app purchases and subscriptions. (Source: [Business of Apps](https://www.businessofapps.com/data/app-revenues/))
  + **Top Grossing Fitness App**: As of 2021, MyFitnessPal was one of the top-grossing health and fitness apps in the U.S., generating around $25.8 million in annual revenue. (Source: [Sensor Tower](https://sensortower.com/))
  + **Average User Spend**: The average revenue per user (ARPU) for fitness apps in 2022 is expected to be $20.56. (Source: [Statista](https://www.statista.com/statistics/499091/health-and-fitness-app-revenue-per-user-usa/))
  + **Year-Over-Year Growth**: The health and fitness app industry saw a 28% year-over-year growth in revenue in 2020. (Source: [TechCrunch](https://techcrunch.com/2021/01/13/global-app-revenue-jumps-to-111b-in-2020-with-more-to-come-thanks-to-vaccine-impact/))
  + **COVID-19 Impact**: During the COVID-19 pandemic, revenue for fitness apps increased by 46% in the first half of 2020. (Source: [Business of Apps](https://www.businessofapps.com/data/app-revenues/))
  + **Female Fitness App User Spend**: Female users contribute to 67% of the total revenue for health and fitness apps. (Source: [Mobile Marketer](https://www.mobilemarketer.com/ex/mobilemarketer/cms/news/research/13967.html))
  + **Wearable Integration**: Fitness apps that integrate with wearables see a 15% increase in user engagement and revenue. (Source: [Jabil](https://www.jabil.com/blog/connected-health-and-wellness.html))
  + **Fitness App Ad Revenue**: Free fitness apps with in-app ads are expected to generate $1.5 billion in advertising revenue by 2025. (Source: [eMarketer](https://www.emarketer.com/Article/US-Health-Fitness-App-Users-Jump-27-This-Year/1013114))
* What problems are we solving?
* We saw a lot of fitness apps and websites but we didn’t see many with AI inclusion which is where we feel we can make an impact.
* We want to motivate people by adding features that allow users to stay on the app and avoid distractions whilst keeping it realistic.
* We want to the app to be easily accessible and keep the design simple, so users don’t divert themselves from the main idea of keeping fit.

Languages for web development:

* Front-end web development focuses on what users see and interact with on a website. It includes:
  + HTML, used to create documents and the page layout
  + CSS, used to style text, colors, and layout and make web pages responsive
  + JavaScript, used to add interactivity and dynamism to websites
* Back-end web development focuses on the server-side of websites and includes:
  + Python, used for data transfer, processing, and communicating with databases
  + PHP, used for database connection and known for its speed
* Databases are essential for websites, especially e-commerce. MySQL is a widely-used SQL-based relational database known for its efficiency in storing data.

# II) DEVELOPMENT

## Website Features

Main Features:

- Users will be prompted to input details such as fitness level, exercise preferences, and any specific fitness goals they may have.

- A database of exercises, categorized by type, body part, and equipment, will be accessible to users. Each exercise will feature detailed instructions, demonstration videos, and information on muscle groups targeted. (Gym Exercise Dataset, n.d.)

A screenshot of a computer

Description automatically generated

- Preference Analysis: A detailed questionnaire will help users define their preferences, covering exercise type, target body parts, preferred equipment, and current fitness level. This data will serve as the foundation for personalized recommendations.

- FitnessMatch algorithm will process user preferences and provide a curated list of the top 10 exercises that match their criteria. The engine will continuously learn and refine recommendations based on user feedback and engagement.

- Can click on 1 of the exercises and display the instruction video of the exercise.

Other Features:

- Reminder when close the website

- Account system: Create account and allows users to rate an exercise by their own, comment on an exercise,…

- Feminist Aesthetics Version: Emphasis will be placed on creating a welcoming and supportive environment for women

- Educational Resources: educational resources blogs on topics such as nutrition, mental health

## What does our app look like?

Open with AI asking preferences, body details and goals

Have header options including customise workout, timed workouts, frozen workout (user can’t leave without notifications), workout with others, charts for competitive fitness. Or keep just a regular workout based on what AI has recommended. This will be the default option.

TYPE OF EXERCISE (STRENGTH CARDIO), BODY PART, EQUIPMENT USING, LEVEL OF EXERCISE. These are part of the database and will be part of the application.

I think logo should have Work.IT with a search bar underneath to show AI inclusion

Need to keep a neutral colourway unless you want to change colours for both males and females.

The AI needs to be obvious and revealing as it is the main feature.

Latest Trends:

* When looking across the market we saw a lot of different trends such as simplicity and easy-to-use apps. Therefore, we thought not to overwhelm our app either. Even with a big database we’d rather slim our options to top 10 exercises even when we had 100, for example.
* Something that we haven’t seen however was the inclusion of AI in fitness apps. Inclusion of AI is a rapidly growing trend across businesses, education and now we feel it would be good in AI also. We used it by including it to understand the customer better and cater to their needs when it comes to workouts/exercises.
* Although not implemented at the time of presentation we found that something that
* Gamified/Competitive fitness -
* Virtual Fitness -
* Paid fitness apps
* Simplicity is key

# III) VISUAL MOCKUPS

**Wire Frames (Screen/interface design):**

# IV: PROJECT MANAGEMENT

## Intended Approach

The team will be divided up the team to work on different aspects and technologies of the project. The roles for each team member are as follows:

- Backend Development (SQL, Web Server, Backend Scripts etc): Tyler & Muiz

- AI Development (Python): Tom

- Frontend Development (HTML, CSS, Frontend JS etc): Sulaiman & Fanik

Each member will collaborate with one another by communicating effectively to ensure that each technology will integrate seamlessly with one another.

To Ensure collaboration and effective communication within the team we will be using the following systems:

• Teams – This will be used as a central hub where all team members can contact each other to ask questions and collaborate to ensure that each feature is integrated to a high standard.

• Trello – This will be used to break the project down into smaller tasks that can be assigned to each team member. Comments and notes can be made to each task to flag potential issues (EG function not returning correct value, Backend scripts/database errors, bugs etc)

• Visual Studio Code + GitHub: This will allow each members IDE to be synchronised with each other and allows modifications to code to be reviewed and allows the creation of revisions so that if something goes wrong the code can be reverted to a known good state.

## Development Plan

A screenshot of a calendar

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* + Top Line Tech Requirements (What technologies will be used in the project)

# IX: Bibliography

Pandit, N. (n.d.). *Gym Exercise Dataset*. Retrieved from Kaggle: https://www.kaggle.com/datasets/niharika41298/gym-exercise-data