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PERSONAL TRAINER MANAGER APP
PROJECT OUTLINE

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SOFTWARE ENGINEERING (G600)

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VERSION 1.2

Project Description

The Personal Trainer Manager App project will develop a mobile app for Android that helps personal trainers and their clients interact with each other to develop the most optimal workouts for the client. It provides an interface for personal trainers to create workout routines of variable length for their clients, and allows clients to view these workouts.

This project will include different modes for personal trainers and clients, giving different specific features for each demanding group. It will feature the ability for trainers to "link up" with clients via an authentication method, such as the passing of unique user identifying or randomly generated codes/tokens.

This project will also provide a way to create and modify workout routines across a wide range of possible timespans, such as weekly or monthly, so that all possible client needs are catered for, as well as features to automatically increase the time, distance or weight of an exercise over a given period to improve the workout over time.

This project will also allow clients to progress through their workouts in real-time, providing live information and timing for exercises where possible. This will allow clients to easily keep track of what they are meant to be doing at the time on their app. The personal trainer will also be able to see this progress on their app, so they can keep track of the client and ensure the workout is being followed correctly.

The project will be developed using a form of Kanban/Lean development to manage and break down each individual task into manageable pieces. The Kanban board will be digitally hosted on the Gitlab service that has been set up for this project.

Proposed Tasks

The following tasks represent the aims the project is set to achieve:

- **Setting up the build environment and the version control system (VCS)**
  A GitLab repository has been decided to host the VCS service, as it is provided by the department and provides additional features such as issues and issue boards, which shall be used as Kanban boards. It also gives access to automatic testing pipelines, as well as potential Jenkins integrations for alternative pipeline testing.
- **Analysis of possible cloud storage solutions**
  There are multiple available cloud storage solutions that could be used for this app. Amazon offers AWS[1], Microsoft offers Azure[2], and Cloudflare[3] offer an object storage option. These services are less specialised and often come with additional costs depending on how much data is stored and the frequency of access. There is also Firebase[4] by Google, which can be integrated with Android to include Google authentication.
  A document listing the pros and cons of each solution as well as a final decision will be produced to show the analysis results.
- **Gathering survey data from personal trainers and clients**
  Data will be gathered from personal trainers and possible clients about what features they want in the app and how they would most effectively use it and benefit from it. Two different groups will be established: personal trainers, and clients. Each group will have questions specific to their needs for higher quality feedback.

- **Development**
  The development of the project will be split into a few major tasks:
    - **Saving, loading, and editing trainer and client data from cloud storage**
      This part of the development will be focused on establishing connections to the cloud storage service of choice and interacting with it to ensure data is being uploaded, downloaded, and modified correctly with the client or trainer data.
    - **Creating the personal trainer interface**
      This stage of development involves providing the personal-trainer-specific content for the users to utilise with ease. This includes ways to manage clients and their workouts and schedule/reschedule events and meetings with clients.
    - **Creating the client interface**
      This stage is focused on developing the client-side content to be paired alongside the personal trainer content. It should feature content tailored to clients rather than trainers, such as an upcoming schedule and an easy way to contact a personal trainer.
    - **Implementing the connections between trainers and clients**
      The focus of this step is to allow trainers and clients to interact with each other through the app, so that they can communicate about many subjects such as what the client is after in their workout or possible workout routines. This may include a chat function that includes the embedding of workouts, or it may be more of a mailing system, depending on the implementation.
    - **Programming the methods the client will use to run through their workout**
      The client needs to be able to work step-by-step through their workout to guarantee they stay on-task. The personal trainer also needs to be able to see this progress in real-time so they can keep track of the client and factor what they see into any future decisions.
- **Project meetings**
  This project involves weekly meetings with the supervisor who set the task. Each meeting will have notes made throughout to keep track of what has been discussed so far, what has been completed, and what to aim for in the coming weeks. Progress will also be recorded on the GitLab Kanban board as tickets in-progress or completed.
- **Demonstration preparation**
  This project has two scheduled demonstrations, one scheduled for the week starting 11th March, and another set for the end of the project between the 13th and the 31st of May. By the point of the second demonstration, the app should be able to demonstrate all that it was designed to do with little to no errors and with fast operating speeds.

Project Deliverables

- **Mid-Project Demonstration Notes**
  A set of notes will be produced to summarise the presented work during the demonstration, to be included as an appendix on the final report. A draft will be discussed before the demonstration with the supervisor.
- **Cloud Storage Solutions Analysis**
  A document will be produced to analyse a range of cloud storage solutions to determine which will be best suited to the project's requirements. It will discuss the different aspects of each solution, and compare different storage types to determine what type would fit the

project the most. This may be provided as an appendix of the final report, or as a standalone document.

- **Android Application**
  The primary deliverable of the project is a mobile application for personal trainers and clients to use. There may also be instructions on how to install and use the app. This will be provided as part of the technical submission.

- **Coded Tests**
  The code used to test the app will be provided as part of the technical submission, aiming to cover any testing the app may require. Some of the tools that may be used include Junit and Cucumber.

- **Story Cards**
  A document will be produced that summarises the stories defined on the project. This will form an appendix in the final report.

- **Final Report**
  This document will represent the report and any appendices that may be associated. It will discuss the work, and note any 3rd party tools used on the project.

- **Final Demonstration**
  This demonstration will have no produced documentation, but is still considered a deliverable for the project.

Initial Annotated Bibliography

[1]   Amazon, "Start Building on AWS Today", 2024. [Online]. Available: https://aws.amazon.com [Accessed 04/02/2024]

Offers free and pay-as-you-go cloud storage solutions for a wide range of different storage types, such as Windows file servers or the S3 (Simple Storage Service) for object storage.

[2]   Microsoft, "Azure. Limitless innovation", 2024. [Online]. Available: https://azure.microsoft.com/en-gb/ [Accessed 04/02/2024]

Offers a wide range of services for AI, machine learning and data containers such as Kubernetes (AKS) and a wide range of storage solutions for different storage types.

[3]   Cloudflare, "S3-Compatible Object Storage with $0 Egress Fees", 2024. [Online]. Available: https://www.cloudflare.com/en-gb/lp/pg-r2-comparison [Accessed 05/02/2024]

Offers an R2 object storage solution compatible with Amazon's S3 buckets at a lower cost than most providers. It has one of the most generous free solutions.

[4]   Firebase, "Make your app the best it can be", 2024. [Online]. Available: https://firebase.google.com [Accessed 05/02/2024]

A storage solution and app development platform specifically designed to be partnered with Android applications. Also provides authentication services alongside Firestore (storage solution).