Health tracking and support for pregnant women

To make the software application specific

1. Fitness and health tracking for pregnant women
2. The entire program duration will be ~9 months until delivery and 1 year of Post pregnancy care and support for Woman and her child/children.
3. Complete care and tracking for nutrition and medication.
4. Scheduled reminders for relevant tests.
5. Built in log-book for reference of the woman's medical history and prescriptions.
6. SOS option to signal closed-ones in case of emergency.
7. Quick contact handles for emergency services.

Related apps in the market - references
https://www.healthline.com/health/best-pregnancy-apps
https://www.womenshealthmag.com/health/g23337257/best-pregnancy-apps/
https://www.cosmopolitan.com/sex-love/a17887712/best-pregnancy-tracker-app/

Application of ML

1. Web app will work on the idea of feedback for each action by the user
2. Active and passive feedback will be taken into consideration to make changes within the software to help with customizability.
3. Applying **supervised learning** on most crucial aspects of the **tracking** and **support** whereas **reinforced learning** in places of nutrition planning and recipe-building.
4. Rating mechanism for all the advised meal-plans will drive the algorithm to understand what a user likes/dislikes.

App features

1. **Full cloud support,** The user can **switch between various devices** and carry their **details, personalised nutrition model, medical history vault and settings.**
2. The web app will support authentication using **OAUTH2** using **GOOGLE and FACEBOOK authentication APIs.**
3. The app will be **light weight** with potential to be a **hybrid app** so that it can be used like a native app while all the **data stays on the cloud.**

Additional features which can be added.

1. Chat support for symptom analysis (to achieve partial human intervention).
2. Activity tracking using hardware integration (for passive feedback measurements).
3. Personalised Fitness coach support (if we work on a business model).

Calculations

Required calculations for nutrition:

BMI
BMR (Basal Metabolic Rate)
Caloric needs (based on constant weight change)
Nutritional Needs (macros+micros)

Required calculations for fitness:

Heart rate zone for fat burning
Ideal weight at BFP
Ideal running pace
1RM calculation

Required calculations for Health risks:

Heart attack risk
Risk of chronic disease

Required details for suggesting nutrition plan and recipes:

Doctor recommendations
Personal preferences
Cultural preferences (vegetarian, vegan, non-vegetarian)
Availability
Fixed sources of calories
Conflicting drugs/ medication

References:

https://www.acefitness.org/education-and-resources/lifestyle/tools-calculators/
https://www.calculator.net/fitness-and-health-calculator.html
https://www.active.com/fitness/calculators/pace

For the recipe-building part:

Apps which output recipes for given ingredients:
https://www.escoffieronline.com/top-apps-for-finding-recipes-for-ingredients-you-already-have/

1. SUPERCOOK: https://github.com/jch28/Super-Cook

   Works as an ingredient to recipe reverse search engine. It allows you to search for common recipes based on a list of Ingredients that you already have at home.
   Works with a predefined NO-SQL JSON DB (firestore) with 10,000 recipes currently. Uses an ADT with a custom algorithm providing search results with time complexity of O(n).

2. BigOven API and source code: https://sitewiki.co/report/bigoven.com/code

   Provides features such as meal planning, grocery list, using left-overs. Can add additional recipes to their database. Also Provides a usable API.

3. Epicurious source code: https://github.com/scross7/Epicurious

   The Epicuriousity project analyzes the epirecipes dataset found on Kaggle (https://www.kaggle.com/hugodarwood/epirecipes) that contains over 20k Epicurious recipes. Great documentation with the source-code.

APK decompiler to get codes out of android apps: https://www.apkdecompilers.com/

Similar projects:

https://github.com/allygator/dietician
https://github.com/rajujha373/Dietician-For-Health
https://github.com/smrutipaldiwal7/Artificial-Intelligence-Dietician