Mobile App Design Document (UFCF7H-15-3)

BMI Calculator

Student Names and Numbers: Farah Gomaa (21065718), Farhan Zakir (22027036), Sandra Sahnoune (21039366)

Table of Contents

Requirements

Context / High Concept:

The BMI Calculator app is an easy-to-use fitness and health application for Android users that aims to assist users in tracking and comprehending the effects of their body weight on their general health. When users enter their height, weight, gender, and age, the software uses the common formula to determine their BMI. A dynamic, color-coded circular indication provides a rapid and clear visual depiction of the BMI result, allowing for an easy understanding of the individual's weight condition.

To improve user engagement, the app includes interactive features like age and gender adjustment buttons. By tracking changes in their weight status on a regular basis, people can use the BMI Calculator to become more self-aware and make healthier lifestyle choices. The app's value is increased by the addition of educational content regarding BMI categories, which turns it from a useful tool for determining weight to a useful resource for users looking to learn more about the health effects of their body mass index. Given the circumstances, users who are trying to reach and stay at a healthy weight will find the BMI Calculator app to be an instructive and inspirational tool.

Target Users:

The BMI Calculator app is intended for a broad user base that includes people of different ages and backgrounds who are interested in tracking and controlling their body weight for fitness and health reasons. Because of its adaptability, it may be used by a wide range of people, including seniors and teenagers, as well as fitness enthusiasts and those looking to lead better lifestyles.

1. Teenagers and Young Adults:

Age Category: Adolescence and early adulthood are crucial times for developing healthy behaviors since they frequently go through major physical changes. The software encourages an initiative-taking attitude to health and fitness by giving this group an easy-to-use and entertaining tool for tracking their body weight.

2. Adults:

Age Group: Considering that keeping a healthy weight is essential throughout adulthood, the app is designed with adults of all ages in mind. The BMI calculator is a useful tool for determining and controlling a user's weight status, regardless of age, whether they are in their 20s or 50s.

3. Fitness Enthusiasts:

Demographic: The BMI Calculator is useful for people who are actively involved in fitness-related activities, such as gym-goers, athletes, or sports participants. By giving them a quantifiable assessment of their body fatness, it enhances their exercise regimens and enables them to customize their diets and fitness objectives.

4. Health-Conscious People:

Demographic: People who value living a healthy lifestyle and are health-conscious will benefit from the app. This group comprises people who are dedicated to making well-informed decisions regarding their health, even though they may not be actively participating in strenuous physical activity.

5. Weight Loss or Weight Gain Seekers:

Demographic: The BMI Calculator can help people who are starting weight loss or weight gain adventures create attainable targets. The software helps with progress tracking by providing a concrete indicator to assess the success of their efforts and modify their diet and exercise regimens as needed.

6. Seniors:

Age Group: Seniors who want to control their weight for general health and wellbeing will benefit from the app. It examines the potential impact of age on body weight, giving a user-friendly interface for older people to track and understand their BMI.

7. Educational Institutions and Health Programs:

Use of the App as a Teaching Tool is Possible for Wellness Initiatives, Health Programs, and Educational Institutions. It can be implemented into health education curriculum or wellness initiatives to enhance awareness about the necessity of keeping a healthy weight.

8. General Public: Demographic: The software is meant to be user-friendly and inclusive, aimed at anyone looking for a straightforward way to calculate their body mass index. Because it does not require specific knowledge, people with various levels of experience with health and fitness principles can use it.

Important Things to Think About for Various Demographics:

User-Friendly Interface: The app's design places a high value on simplicity, making it easy for users of all ages to browse and take advantage of its features. Users with different degrees of technological ability can use the BMI Calculator thanks to its clear instructions and straightforward entry areas.

Visual Appeal and Engagement: The app's visual components, such its interactive buttons and dynamic color-coded circular indicator, add to its appeal and draw in younger users while keeping older groups interested.

Instructional Content: Users of all ages are guaranteed to obtain knowledge about the health consequences of their body weight through the inclusion of instructional materials concerning BMI categories. This instructional element is beneficial for developing health literacy among various age groups.

Features that can be adjusted: Features like buttons for age adjustments acknowledge the effect of aging on body weight and offer a welcoming environment to people of all ages. This flexibility guarantees that the software will still be useful for a wide range of age groups.

In summary, regardless of age or certain demographic traits, the BMI Calculator app is designed to be accessible and adaptable to a broad spectrum of consumers. The software transforms into a flexible tool for raising health awareness and assisting people in their quest to maintain a healthy weight and general well-being by catering to the specific needs of various user groups.

User Stories:

Consider Jane, a professional in her mid-thirties who is concerned about her health and wants to fit a healthy lifestyle into her hectic schedule. To find a handy tool for tracking her body mass index and making well-informed decisions on her fitness path, she recently downloaded the BMI Calculator app to her Android device.

User Story: Jane's Journey with the BMI Calculator App

1. An Overview of the App

Jane comes into the BMI Calculator app on the Google Play Store and is drawn in by its well-reviewed content and approachable layout. To find a straightforward yet efficient method of determining and monitoring her body weight, she downloads the app.

2. The process of onboarding:

When Jane launches the app for the first time, a friendly onboarding procedure greets her. She is introduced to the app's main functions, which include entering her age, gender, height, and weight to get an accurate BMI calculation. Jane finds the process to be easy to follow and values the detailed directions.

3. Entering Private Information:

Jane inputs her age, weight, and height with ease after navigating to the input screen. She can choose her gender with the gender toggle buttons, adding a personalized touch. The user-friendly layout and responsiveness of the software facilitate a smooth data input process.

4. Instantaneous BMI Estimation:

The software calculates Jane's BMI in real time as she finishes entering her data. Her BMI category is displayed instantly by the dynamic color-coded circular indicator. Jane finds the visual depiction helpful since it gives her a quick and clear idea of where she stands with her weight.

5. Perspectives on Education:

Jane looks through the app's instructional materials, curious about the health consequences of her BMI category. It describes various BMI ranges, related health risks, and advice on how to keep a healthy weight.

6. Creating Fitness Objectives:

Jane makes the decision to create reasonable exercise goals after reading the educational insights. She is motivated to meet these objectives by the gamified aspects of the software, which makes the fitness journey pleasurable and fulfilling.

7. Monitoring Development Over Time:

Jane is grateful that the software can track her BMI over time. Her dedication to leading a healthy lifestyle is strengthened by the historical data, which helps her to see how far she has come. Because of its simplicity, Jane can use it consistently, which fits perfectly with her hectic schedule.

8. Highlighting Successes:

When Jane reaches a major fitness milestone, she chooses to post about it straight from the app on social media. She can communicate with friends and family thanks to the social elements, which create a welcoming online community.

9. Making Age Adjustments:

The age adjustment buttons on the app come in helpful as Jane becomes older. They enable her to modify the BMI computation in response to modifications in her body composition over time, guaranteeing a more precise evaluation appropriate for her stage of life.

10. Safeguarding Security and Privacy:

Jane is concerned about her privacy and is grateful for the app's strong security features. It increases her confidence to use the app to manage her health information since she knows that it is managed safely.

11. Offering Input:

Jane chooses to utilize the app store to submit comments after using it for a few weeks. She emphasizes how the app's excellent reputation is a result of its user-friendly design, informative content, and useful tracking functions.

This user story demonstrates Jane's experience using the BMI Calculator app and how easily it fits into her daily routine. By providing a comprehensive and user-centered experience, the app meets Jane's demands from her initial inquiry to reaching fitness milestones. The app becomes Jane's indispensable travel companion for her health and fitness journey, whether she is charting her progress, setting objectives, or keeping herself updated.

Initial Research:

Examining other apps—not just those in the same category but also those in other genres—can be a useful way to find ideas, evaluate user experiences, and spot innovative features while creating a new app. While the BMI Calculator app may appear basic, insights from previous apps can contribute to improving design, enhancing functionality, and assuring a competitive edge. Let us examine some crucial areas to glean concepts and information from a range of current apps:

1.User Experience (UX) and User Interface (UI):

Examine Apps for Health and Fitness: Apps like MyFitnessPal, Fitbit, or Lose It! offer insights into excellent UI/UX designs for health-related applications. Their design, usability, and utilization of visual components can serve as inspiration for developing the BMI Calculator app.

Examine Generally Productive Apps: Todoist and Evernote are two examples of productivity apps that can offer guidance on designing a user-friendly interface. These programs have concepts of user-friendly design, logical workflows, and clear labeling.

2. Visual Components and Animation: Examine Weather App Animation: For aesthetic appeal, weather apps like Weather.com and AccuWeather frequently use dynamic components. Inspired by their use of animations to communicate ideas, the BMI Calculator app has dynamic color changes and fade-in effects.

Take a Cue from Fitness Tracking Wearables: Fitbit and Apple Watch, for example, use animations to keep people interested. Choosing which animations to add to the BMI Calculator app can be influenced by examining how these animations enhance the user experience overall.

3. Examine educational apps and gamification in content: Apps for education such as Khan Academy and Duolingo show how to effectively transmit knowledge. The BMI Calculator app's teaching component may change depending on how they deliver instructional material.

Examine Apps for Gamified Health: Apps that combine gamification and fitness, such as Zombies, Run!, and Nike Training Club The addition of gamified aspects to the BMI Calculator app could potentially enhance user satisfaction and motivation.

4. Social Elements: Examine Social Media Sites: Social media sites such as Facebook and Instagram are examples of how social elements can improve user interaction. Even though the BMI Calculator app might not be social by nature, features like sharing successes or advancements might be motivated by these online communities.

Take a Cue from wellness Communities: Websites such as MyFitnessPal have fostered communities centered on fitness and wellness. It is possible to produce ideas for community-building features for the BMI Calculator app by analyzing how these groups encourage participation and assistance.

5. Inclusivity and Accessibility: Examine Inclusive Design in News Apps: Accessibility is frequently given priority in news apps like Flipboard and BBC News. These applications teach us how to include features that meet the needs of a wide range of users, like changeable text sizes and color contrasts.

Examine the Accessibility Features of Mobile Platforms: Advanced accessibility features are available on both the iOS and Android platforms. Complying with current app development standards, the BMI Calculator app incorporates features that make it usable by users of all abilities.

6. Reviews and Ratings from Users:

Examine comments and reviews: App store reviews offer insightful information about the preferences and problems of users. During the BMI Calculator app's development and iteration stages, judgments can be made based on user preferences for existing apps, even ones unrelated to health.

Examine E-commerce Apps' Feedback Mechanisms: Amazon and other e-commerce applications frequently offer strong feedback mechanisms. By putting in place efficient feedback systems, the BMI Calculator app can improve user happiness and quickly resolve issues.

7. Security and Privacy Observations: Review Financial and Banking Applications: Applications like banking apps, which manage confidential financial data, frequently have strict security protocols. If the BMI Calculator app stores user data, then modifying some of these metrics may improve the app's overall credibility.

Apps that Put Privacy First: Apps that put user privacy first include Signal and ProtonMail. It is essential to extract user consent and data protection rules from these kinds of apps, particularly when dealing with health-related data, as the BMI Calculator app does.

Conclusion:

In conclusion, a key component of app development is gathering knowledge and inspiration from a range of pre-existing apps. Developers can acquire important insights regarding successful UI/UX, captivating visual elements, instructional content delivery, social features, accessibility, user feedback mechanisms, and security measures by extending the scope beyond apps that are directly relevant. This all-encompassing strategy guarantees that the BMI Calculator app not only fulfills but also surpasses user expectations, providing a competitive and well-rounded user experience in the ever-changing world of mobile applications.

Functional / Non-functional Requirements:

A robust system architecture, external libraries, assets, APIs, and other technical elements are necessary for the BMI Calculator app to accomplish its objectives. Furthermore, for effective functionality and user data permanence, a local database must be implemented.

1. BMI Calculation Logic: Algorithm: Create an algorithm for the BMI calculation to precisely determine the Body Mass Index using the height and weight entered by the user. The main functionality of the app is based on this concept.

2. Components of the User Interface (UI):

UI Elements for Android: To design the user interface, use the Android UI components. To gather user input and show the results, EditText fields, Buttons, ToggleButtons, and TextViews will be used.

3. Animations and Visual Components: Drawable Materials For visual components like the dynamic, color-coded circular indicator that represents various BMI categories, create drawable resources. Android's animation APIs will be used to implement animations, including the fade-in effects.

4. Handling User Input: Validating Input: To guarantee that users submit accurate numerical values for height, weight, and age, apply input validation. By doing this, computation errors are avoided, and the user experience is improved overall.

5. Gender Adjustment and Age Toggle: Logic for Gender Toggle Buttons: Create logic for gender toggle buttons to record the gender preferences of the user. Provide age-adjustable buttons so that consumers of varying age ranges can be served.

6. Instantaneous BMI Calculation and Display of Results:

Trigger for Calculations: Create a system that allows the user to enter their height, weight, gender, and age and has the system calculate their BMI in real time. The outcome will be dynamically displayed in the associated TextView and circular indicator.

7. Color Resources for Dynamic Color Coding: Describe the color resources for every BMI range. Make use of these resources to color the circular indicator dynamically according to the user's BMI category.

8. Approach to System Architecture and Development:

MVC Structure: Put the application's Model-View-Controller (MVC) architecture into practice. The View takes care of the UI elements, the Controller controls user interactions, and the Model represents the data and logic.

Iterative Development: Use a looping, testing, and user input approach to develop software. This guarantees a user-centric result and permits gradual improvements.

Conclusion:

In conclusion, careful consideration of algorithmic logic, user interface (UI) components, visual elements, instructional content, handling of user input, system architecture, implementation of local storage/database, security measures, and optional integrations with APIs and advanced design patterns are all necessary to accomplish the goals of the BMI Calculator app. This all-encompassing technical approach guarantees the creation of a reliable, user-friendly application that meets the functional and visual needs of the user.

UI Requirements:

Developing an exceptional user interface (UI) is essential to the BMI Calculator app's success. The app's functionality is based on the Kotlin code you provided, so now is the time to concentrate on improving the usability and appearance. The essential UI components that will improve the app's appearance and set it apart are listed below, along with connections to other resources and documentation.

1. BMI Result Circular Indicator:

A visually pleasing circular indicator that shows the user's BMI reading.

2. BMI Category Color Coding That Is Dynamic:

Description: Show various BMI categories with dramatic color changes.

3. Labels Floating in Input Fields:

Description: Add floating labels to the input fields to give them a more contemporary and approachable appearance.

4. Gender Toggle Buttons: Summary: Add toggle buttons to the gender selection feature to make it easier to use.

5. Buttons for Age Adjustment:

Add buttons to make it simple for users to change their age.

6. Animation of the Result (Fade In):

Description: Display the BMI result and comment with a soft fade-in animation.

7. Display of instructional Content: This section describes how instructional content is dynamically displayed according to the user's BMI category.

8. Explicit User Guidance (Onboarding):

Implement a new user onboarding procedure that includes detailed instructions.

9. Personalizing Fonts:

Description: Adapt typefaces to complement the app's visual style and logo.

10. Feedback Mechanism: Described as follows: Provide a way for users to leave comments and make suggestions within the app.

11. Features that Make Accessible:

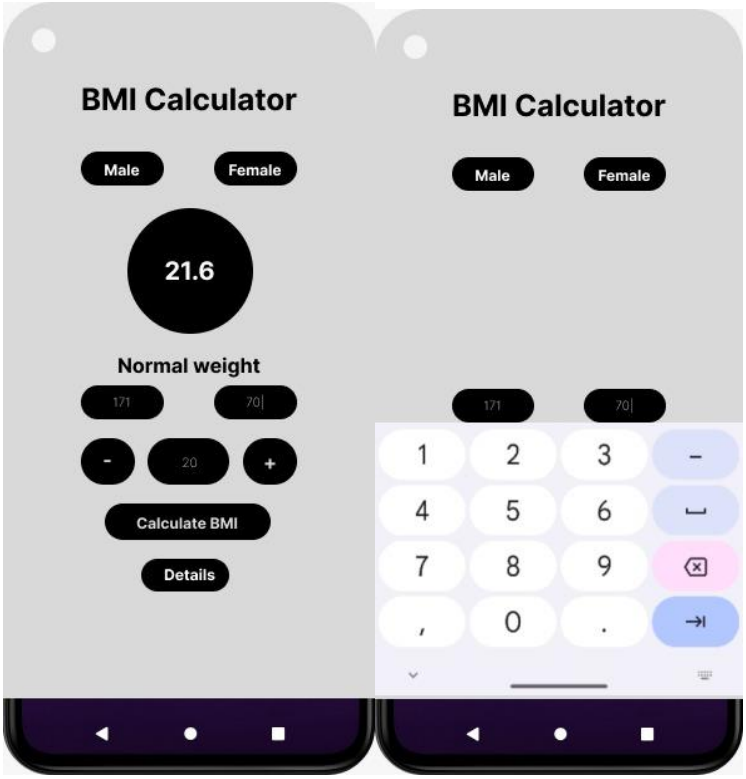
Description: Make sure that features like changeable text sizes and color contrasts are included.

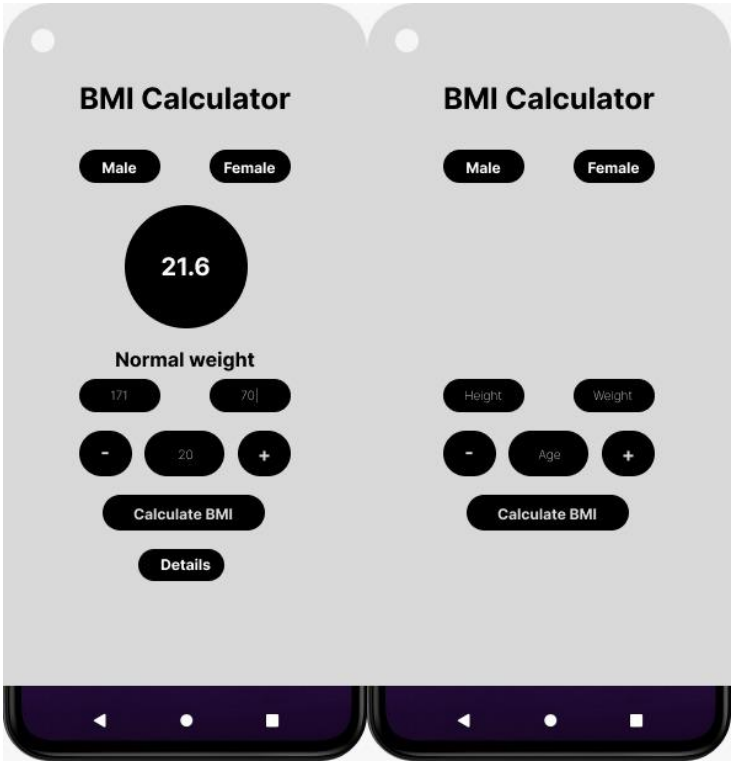
Conclusion:

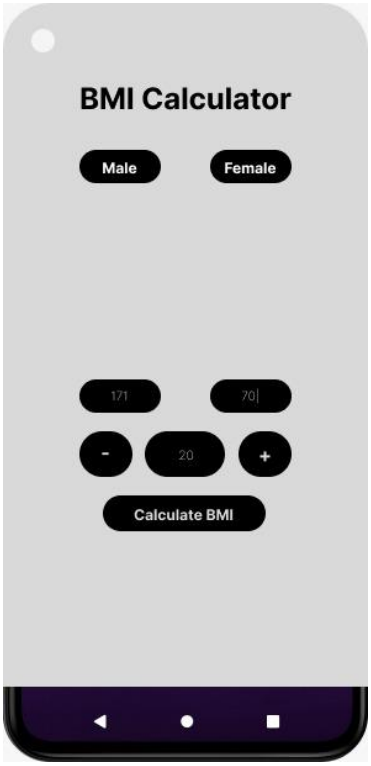
In conclusion, utilizing these UI components can help the BMI Calculator app stand out in the crowded field of health and fitness applications by making it aesthetically pleasing and easy to use. The app may provide an amazing user experience and meet the expectations of modern mobile app users by integrating interactive elements, clear user instructions, and modern design concepts. The consistent and efficient implementation of these UI components can be ensured by routinely consulting Android's official documentation and design guidelines.

Wireframes

Technical Diagrams:




BMI Calculator
Male
Female
21.6
Normal weight
171
70
-
20
+
Calculate BMI
Details
BMI Calculator
Male
Female
Height
Weight
-
Age
+
Calculate BMI


BMI Calculator
Male
Female
171
70
-
20
+
Calculate BMI

The BMI Calculator app's four main views are represented by the wireframes:

First Input View: In this view, the user can enter their age, weight (in kilograms), height (in centimetres), and biological sex (male or female). The Body Mass Index (BMI) cannot be calculated without these parameters.

View of Numeric Keypad: This view appears when the user concentrates on the input fields for weight or height. It has a numeric keypad that the user may readily utilize to enter values. Input navigation and clearing controls, a decimal point, and numerals 0 through 9 are all included on the keypad.Results View: After entering their information and selecting "Calculate BMI," the user's screen appears in the results view. In this view, the computed BMI is shown as a sizable central circle, with a textual explanation (such as underweight, normal weight, overweight, or obese) displayed beneath the circle.

Details Button: Pressing the "Details" button should lead the user to a more thorough breakdown of their BMI, along with guidance and data specific to their BMI category.

User Flow / Navigation:

Biological Sex Selection: First, users choose their biological sex. As it is a toggle switch, you can only have one choice selected at once.

Data Entry: Individuals input their age, weight, and height. For convenience of entry, a numeric keypad appears if they tap on the input areas.

Calculation: The user clicks the "Calculate BMI" button after entering the data.

Presentation of Results: A category name and the computed BMI are shown.

Extra Information: The user can access an extra page with more thorough recommendations and guidance depending on their BMI category by clicking the "Details" button if they want more information.

Scale / Orientation:

The straightforward architecture of the software is encouraging for scalability. The user experience is kept simple with the use of a numeric keypad for input and a results view that shows valuable information without requiring page navigation. It would be simple to scale the program to support more features, like:

Conversion of units from imperial to metric.

Storing user profiles so that BMI can be tracked over time.

Including thorough health recommendations and guidance straight into the app, eliminating the need for outside resources.

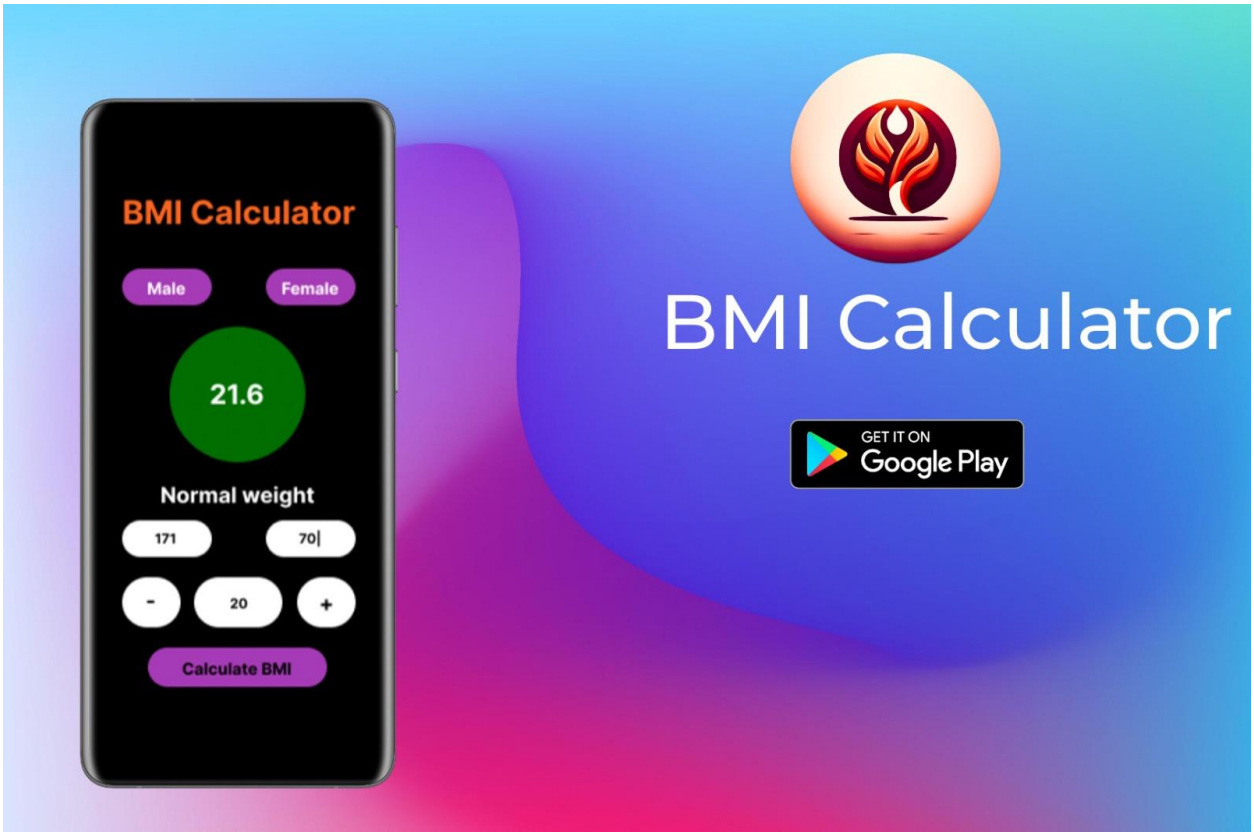
Integrating with health databases or APIs to deliver personalised health suggestions.

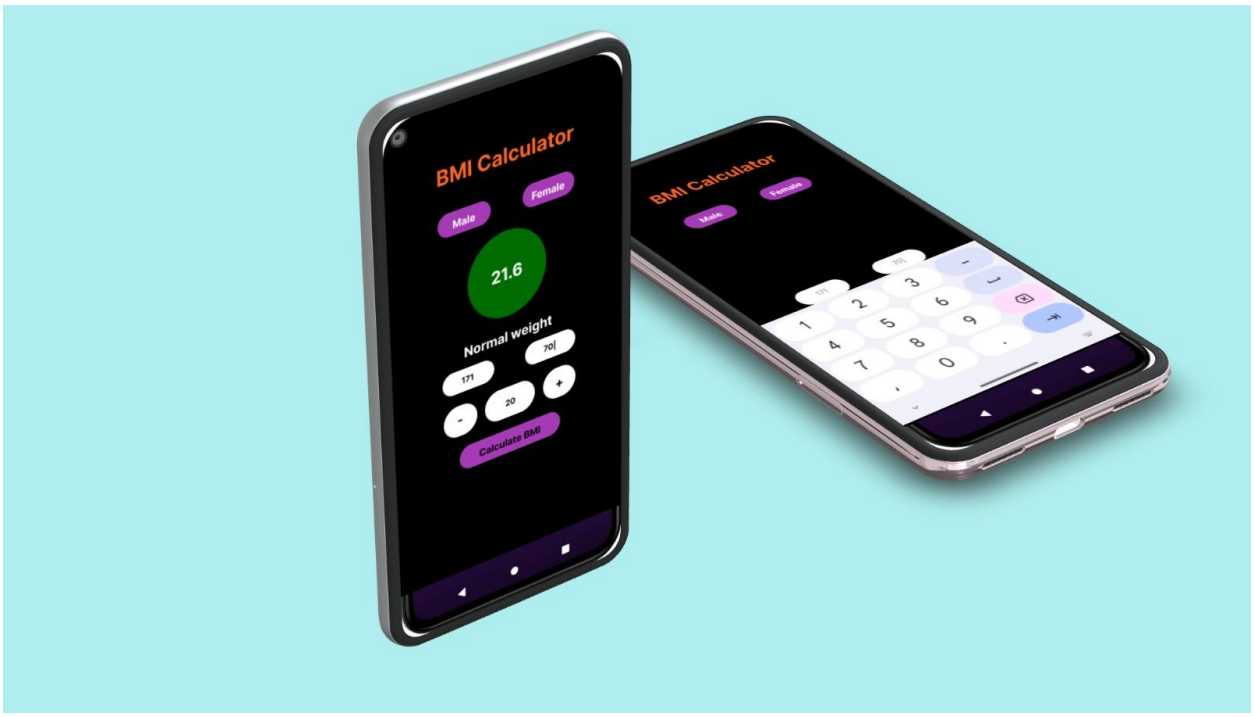
As the app develops, new features should be easily integrated with ease thanks to the technical architecture's support for modular additions.

It is also necessary to take the user interface's scalability into account. To provide a consistent experience across several devices, it must be responsive to varying screen sizes and orientations.

Composites

Mock-ups:





The BMI Calculator application's user interface is shown in these wireframe mock-ups. Several important screens are included:

Home Screen: This screen has a "Calculate BMI" button, toggle buttons for selecting gender, and input boxes for weight and height.

Keypad Screen: The user can enter values in a bespoke keypad that displays when they pick the height or weight input. The keypad's sleek, contemporary appearance complements the whole scheme.

Screen of Results: Following computation, the user is shown a screen with a label identifying their weight category (e.g., underweight, normal, overweight, or obese) and their BMI value shown inside a large circle.

Composite View: Suitable for marketing or promotional materials, the composite view merges the app symbol and the key screen into a single image. This view suggests that the software is ready for market launch because it has a call-to-action to download it from Google Play.

App Icon:

The app's emblem is a straightforward yet eye-catching flame pattern that transitions from orange to pink. It alludes to vitality and energy, which is consistent with the application's concept of fitness and wellness.

Colour Schemes:

The application's main background colour is a dark theme (#121212), which gives it a sleek, contemporary appearance and is easy on the eyes in low light. The following are the accent colours:

Button and other interactive element colours are purple (#9C27B0).

The normal BMI category (#4CAF50) is green.

Orange for the overweight group (#FF9800).

The underweight and obese groups are indicated by red (#F44336).

The app's colour scheme not only enhances its visual appeal but also acts as a simple manual that helps users rapidly determine their BMI category.

UI Asset Scale:

The UI assets are made to work well with a range of device sizes. Input fields, toggle buttons, and the circular BMI result display are all proportionately proportioned to preserve both usefulness and visual appeal across a range of screen resolutions. A smooth user experience is ensured by the asset scale, which makes sure that all interactive features are clearly visible and accessible.