

**Mhealth Group Project**

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## **Section One: Mobile Health Application Assessment**

### **APP 1- The Blood Pressure Diary**

**Function:** The app is a free and user-friendly software designed for monitoring blood pressure and heart rate. Users are required to enter their blood pressure readings using an FDA-approved blood pressure monitor. The main screen of the app allows users to input their readings, immediately below that, there is a grading system for universally applicable blood pressure ranges such as Stages 1 and 2 hypertensions, prehypertension, normal, and hypotension, enabling users to check their blood pressure levels and stay alert.

**Usability:** One notable feature of the app is the history page, which displays all the entered readings along with the corresponding day and time showing trends over a week, a month, and all recorded inputs. This feature helps users track their blood pressure over time, particularly for monitoring medication effectiveness. It offers options for data backup and sharing via email, making it convenient to share information with healthcare professionals. The app includes a help option that guides users on adding, modifying, and erasing search history. For accurate blood pressure readings with the app, one must use an FDA-approved external monitor and enter data precisely. Consistent tracking is necessary for effective long-term monitoring. Failure to track regularly may limit the app's progress measurement.

**Review:** Overall, the Blood Pressure Diary app serves its intended purpose of monitoring blood pressure and allows users to actively manage it by empowering them to take proactive steps toward better health. It's well-liked with over 1 million downloads and a 4.7-star rating based on 81,645 ratings. Some users mention commercials, but they're not too intrusive, and the developer guarantees privacy.

## App 2: Blood Pressure Monitor App

The Blood Pressure (BP) Monitor Application is a Four-Year-Old app that allows you to input, track, analyze, and share your blood pressure from the comfort of your iOS device. When you open the app, it gives a descriptive showcase of what the app does with pictures (record, analyze, and track blood pressure; manage data and track progress; share analytics with doctors from the device and access everything free of cost.)

### Key Features and Usability:

1. Profile details (Full name, Date of birth, Gender, Weight {kg/lbs.}, Height {Feet/inches, Inches, or cm}) and the option to save after completion. Record systolic and diastolic blood pressure.
2. Measurement data (body position, measured site, feeling) and notes (e.g., after breakfast). It automatically calculates Mean Arterial Pressure (MAP), Body Mass Index (BMI), and Pulse Pressure once you input your systolic/diastolic pressure measurement, pulse rate, and weight. It tells you if your BP is low, normal, or high.
3. Analytics data shows each reading, including BP, MAP trend, and average heart rate. Daily reminders to record BP data. Share and export blood pressure data with healthcare professionals, doctors, or family members. Store Blood pressure data on the Cloud. Track BP trends of others (family) by creating multiple profiles. Print PDF reports directly from the device.

Barriers to use: The only barrier to this application is that it manually records blood pressure for you (does not take the readings itself), And only users of iOS devices can access it. It has 259 ratings with a 4.5/5 star.

### App 3: Smart BP Monitor

It is a heart monitoring app that can track electrocardiogram (ECG/EKG) measurements in addition to blood pressure, pulse rate, and weight. Using iOS devices and Apple Watch, users may record, keep track of, assess, and share BP reports. Additionally, Smart BP is linked to Apple Health. Smart BP can help users who have prehypertension or hypertension track their progress, see patterns, and manage any blood pressure and heart-related problems. With the help of Apple Health's auto sync feature, Smart BP is a smarter method to monitor and measure your progress.

#### KEY FEATURES:

- 1 Users can record their weight, pulse rate, and systolic and diastolic blood pressure readings. The measurements of mean arterial pressure (MAP), pulse pressure (PP), and body mass index (BMI) are computed automatically. Users have the option of manually entering measurements or automatically syncing them with a Bluetooth BP monitor. Users can use tags to quickly add measurements (e.g., seated, left arm) and remarks (e.g., before dinner).
3. Using Apple HealthKit, users can save and retrieve all of their blood pressure readings from any location. By automatically synchronizing with SmartBP, you can submit blood pressure readings to HealthKit and save time typing in data while also minimizing inaccuracies. The following blood pressure monitors may be linked to HealthKit (A&D, Omro, QardioArm, iHealth, Withings).
4. Users can use email, text message (SMS), or Apple HealthKit to send their doctor, or family members to share information about their blood pressure. Create blood pressure reports in PDF format that include data, charts, and statistics that users can then give to their physician.

#### App 4: The BP Journal App

Those who use a home blood pressure monitor will find the BP Journal app to be a dependable acquaintance. Although it doesn't directly measure blood pressure, it has a number of features that enable users to store their readings, track trends, and get in touch with medical staff. The app's ability to rapidly and simply log blood pressure and pulse readings utilizing a speedy keyboard data entry mechanism is one of its primary features. This makes it possible for users to accurately record their measurements, making it simple to track their blood pressure over time. By guiding users through the meaning of the figures and providing statistics and interactive charts to track blood pressure patterns, the app also offers useful insights.

The software gives users the option to create PDF reports of their blood pressure measurements and send them straight to their doctors or physicians in order to streamline communication with healthcare professionals. This feature makes it easier to share crucial health data and allows doctors to evaluate the information from a distance. Additionally, the app provides features like setting reminders for blood pressure readings or medication intake, managing multiple profiles (ideal for caregivers), exporting and importing data in CSV format, and supporting various blood pressure classification guidelines. The BP Journal app prioritizes user privacy by keeping health information confidential unless users choose to share it. The app automatically backs up data to Google Drive for added security. A detailed online manual is available for easy navigation and support. Overall, the app is an effective tool for tracking and recording blood pressure readings, with a user-friendly interface, trend analysis, and report-sharing capabilities. It helps users manage their cardiovascular health while protecting their privacy and facilitating communication with medical professionals.

## Section Two- Comparison Grid

Application	1-Blood Pressure Diary	2-Blood Pressure Monitor	3-Smart BP Monitor	4- BP Journal
Function	Measuring and monitoring BP over time.	Input, track, analyze, and share your blood pressure measurement	Sync with Apple Health to track blood pressure or enter data manually	Monitor and share readings with physicians.
Ease of Use	The system is user-friendly, editable, and supports email.	The app guides you use it and helps with BMI, PP, and MAP math.	Easily allows you to record, track and analyze trends in your BP	User-friendly interface.
Barriers to use	Manual entry and requires an external BP monitor.	Blood pressure readings entered manually and only for iOS users	SmartBP not enough to measure BP and a separate monitor is needed.	No direct measure of BP. Need external device.
Ability to meet the function.	Meets the intended function proficiently.	It meets the function as stated effectively.	Tracks efficiently and NOT a substitute.	Effectively fulfills its purpose.
Other considerations (If applicable)	Compatibility with data exchange.	Multiple profiles, compatibility with data exchange.	Compatibility with data exchange and transfer.	Multiple profiles, compatibility with data exchange.
Overall star rating (/5)	4.7	4.5	4.5	4.8
Group's star rating (/5)	4.6	4.4	4.2	4.8

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### ***Section 3: Recommendation***

The best choice among the four apps is the BP Journal App. Even though it doesn't directly measure blood pressure, it possesses a number of qualities that make it a trustworthy companion for people who use a home blood pressure monitor. The app's keyboard data entry provides a proper record of blood pressure and pulse, ensuring reliable measurement input. Users are better able to understand the significance of the figures and monitor changes in blood pressure as a result of the statistics and interactive charts. As per our assessments the BP Journal App is the best option for accurate blood pressure tracking, managing cardiovascular health, and secure communication with healthcare professionals. It has a user-friendly interface, comprehensive tracking features, and report sharing capabilities. The app also prioritizes users' privacy and safety by automatically backing up users' health data to Google Drive and providing an online user manual for assistance.