

Sleep App - Improve Sleep and Meditation

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Abstract: More than 70 Million US Adults face Sleep disorders like Insomnia, Sleep apnea, Restless legs syndrome, Narcolepsy, Sleep walking and many more... Our main goal is to make people feel relaxed while they go asleep or prepare for short naps. Having such short naps at work or taking proper sleep can help a person focus, breathe, stay calm, and create more head space, the conditions for a better night's sleep by practicing meditation and mindfulness. The perfect guide to health and happiness. To counter the issue we came up with this idea and successfully developed an app which would provide users a peaceful Sleep using Nature Sounds, Stories and Meditations

Keywords: Sleep App, Meditation, Sleeping disorder, Better Sleep, Sleep Stories

I. DEVELOPMENT

There are various components that can be used to build the application. The techniques can be generally divided into the following categories: Development of UI, Backend Development, Frontend Development.

A. Frontend

The application will be built on Kotlin using the MVVM model. Various open-source libraries will be used like Retrofit, AppCompat, Firebase, LiveData, etc

B. Backend

Backend would be written on Ktor which is built on Kotlin and Coroutines. This is also a multiplatform language which is being used for Flexible and easy development.

C. Server

Amazon Web Services will be used as Server. Various modules like S3, EC2 will be used while building the product which will help in maintaining data files and keeping the server active 24*7

II. BACKGROUND

Sleep disorders are conditions that impair your sleep or prevent you from getting restful sleep and, as a result, can cause daytime sleepiness and other symptoms. Everyone can experience problems with sleep from time to time. However, you might have a sleep disorder if:

- You regularly experience difficulty sleeping.
- You are often tired during the day even though you slept for at least seven hours the night before.
- You have a reduced or impaired ability to perform regular daytime activities.

There are people of all ages who are not getting an adequate amount of sleep. Sleep is very important. Not getting enough sleep can have untoward consequences on school and work performance, interpersonal relationships, health and safety.

III. PROJECT MODULES

A module is a collection of source files and build settings that allow you to divide your project into discrete units of functionality. Your project can have one or many modules, and one module may use another module as a dependency. You can independently build, test, and debug each module.

Additional modules are often useful when creating code libraries within your own project or when you want to create different sets of code and resources for different device types, such as phones and wearables, but keep all the files scoped within the same project and share some code.

Add a new module to your project by clicking File > New > New Module.



A. Modules

Android app module: Provides a container for your app's source code, resource files, and app level settings such as the module-level build file and Android Manifest file. When you create a new project, the default module name is "app".

Feature module: Represents a modularized feature of your app that can take advantage of Play Feature Delivery. For example, with feature modules, you can provide your users with certain features of your app on-demand or as instant experiences through Google Play Instant.

Library module: Provides a container for your reusable code, which you can use as a dependency in other app modules or import into other projects. Structurally, a library module is the same as an app module, but when built, it creates a code archive file instead of an APK, so it can't be installed on a device.

Android Library: This type of library can contain all file types supported in an Android project, including source code, resources, and manifest files. The build result is an Android Archive (AAR) file that you can add as a dependency for your Android app modules.

Java Library: This type of library can contain only Java source files. The build result is a Java Archive (JAR) file that you can add as a dependency for your Android app modules or other Java projects.

B. Architectural Design

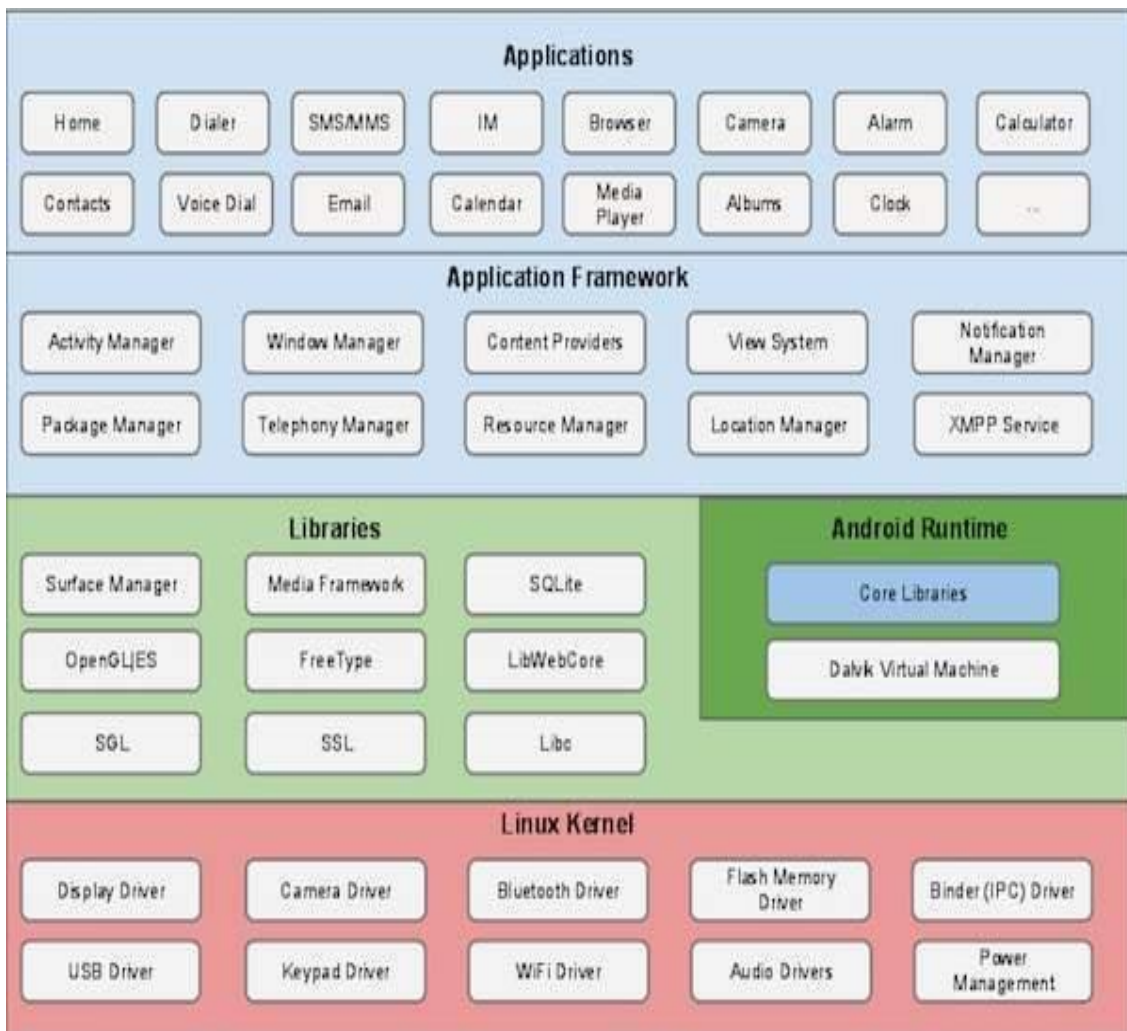
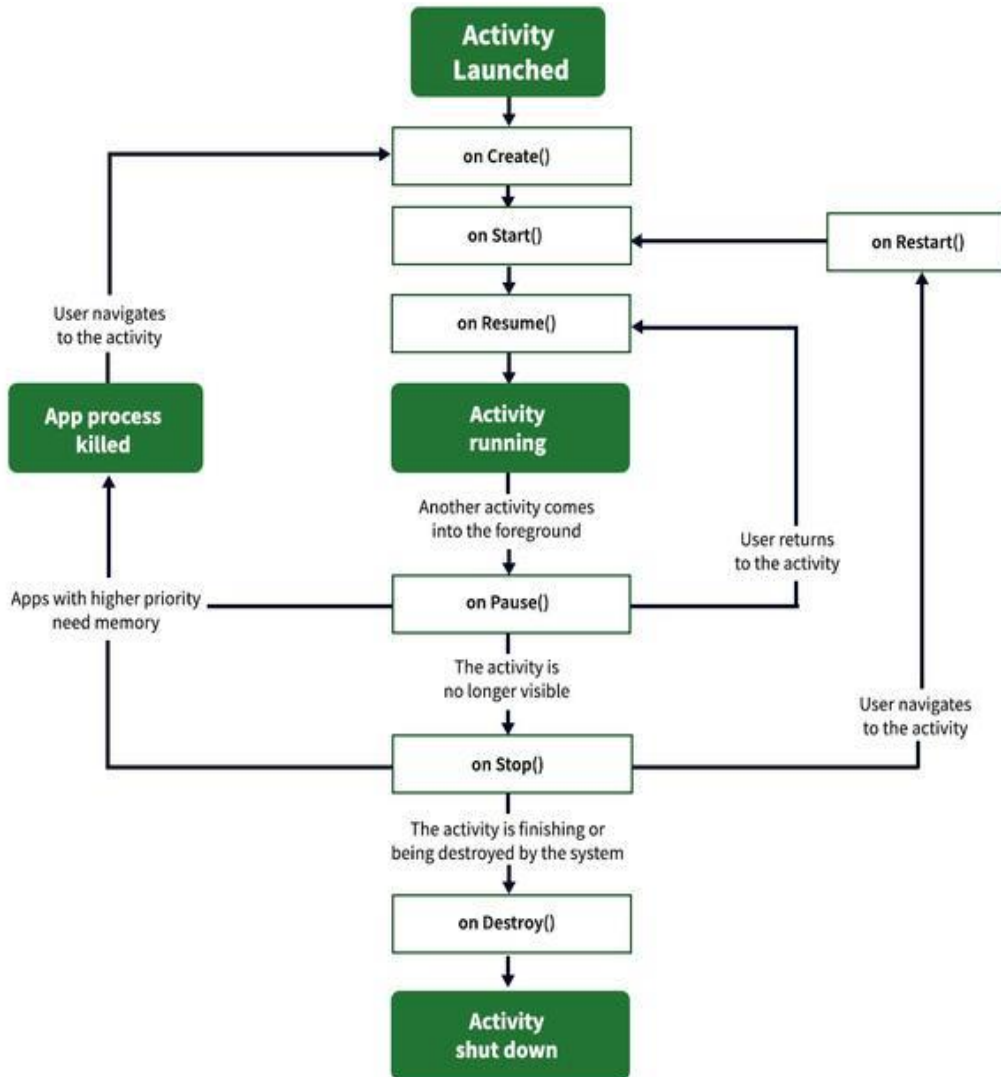


Fig. 1 Architecture of the app



C. Android Lifecycle



Activity Lifecycle in Android

Fig. 2 Lifecycle

IV. NEED

Experts generally recommend that adults sleep at least seven to nine hours per night, although some people require more and others require less.

A recent National Sleep Foundation Sleep in America poll found that adults (ages 18-54) sleep an average of 6.4 hours per night on weekdays and 7.7 hours on weekends. The poll showed a downward trend in sleep time over the past several years. People sleeping less hours tend to use the internet at night or bring work home from the office.

The National Sleep Foundation also reported that older adults (age 55-84) average seven hours of sleep on weekdays and 7.1 hours on weekends. Sleep is most often disturbed by the need to use the bathroom and physical pain or discomfort in older adults.

A downward trend in sleep time has also been observed in children. Optimal sleep time varies by age. An earlier Sleep in America poll found a discrepancy between recommended and actual sleep time in children, with actual sleep time 1.5



to two hours less than recommended. Caffeine consumption caused a loss of three to five hours of sleep and having a television in the bedroom contributed to a loss of two hours of sleep each week in children.

V. CONCLUSION

People suffering from sleep disorders or for those who want to meditate for a peaceful mind. Apps currently available across iPhones and Android devices have been made only for those who can afford those. These apps work on the Premium model whereas we are working on a freemium model where a wide range of content would be available for free to consume and for folks who want more can get a premium version of the app.

ACKNOWLEDGMENT

This project is the sole property of **Nindra Technology Private Limited** and the authors only have the rights to modify and contribute to the codebase. Thanks to **Nindra Technology** for trusting us and the guide for guiding us with the development process.

REFERENCES

- [1]. Sleep Statistics: Data About Sleep Disorders Available: <https://www.sleepassociation.org/about-sleep/sleep-statistics>
- [2]. AWS EC2 Tutorial — A Beginner's Guide To Amazon EC2 Available: <https://medium.com/edureka/aws-ec2-tutorial-16583cc7798e>
- [3]. Android Basics in Kotlin course Available: <https://developer.android.com/courses/android-basics-kotlin/course>
- [4]. Kotlin Programming Language Available: <https://kotlinlang.org>