Software Requirements Specification

for

Taskeeper

Version 6 approved

Prepared by
Dhruvin Kothari (22SOECE21030)
Keyur Bhut(22SOECE21006)
Pradip Jadav (22SOECE21021)
Viraj Kothari (22SOECE21031)

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Revision History

Name	Date	Reason For Changes	Version
Keyur Bhut	25/03/2022	Studied and started preparing SRS	1.0.0
Pradip Jadav Dhruvin Kothari	28/03/2022	Reviewing SRS Completed the Introduction part of SRS	1.0.1 1.0.2
Viraj Kothari	29/03/2022	Reviewed previous content and started Overall Description	1.0.3
Keyur Bhut	09/09/22	Completed Overall Description	1.0.4
Pradip Jadav	10/09/22	Studied System Features	1.0.5
Dhruvin Kothari	11/09/22	Started and completed upto 3.2	1.0.6
Viraj Kothari	11/09/22	Reviewed System Features and completed it	1.0.7
Keyur Bhut	13/09/22	Completed External Requirements Interface	1.0.8
Pradip Jadav	14/09/22	Reviewed SRS and go for non-functional requirements	1.0.9
Dhruvin Kothari	15/09/22	Reviewed and completed non-functional requirements	1.0.10
Viraj Kothari	16/09/22	Reviewed and started for other requirements	1.0.11
Dhruvin Kothari	17/09/22	Completed other requirements	1.0.12
Keyur Bhut	18/09/22	Reviewed and added wireframe in document after preparation in figma	1.0.13
Pradip Jadav	18/09/22	Added Layouts	1.0.14

1.Introduction

1.1 Purpose

The purpose of the document is to collect and analyze all assorted ideas that have come up to define the system, its requirements with respect to consumers. Also, we shall predict and sort out how we hope this application will be used in order to gain a better understanding of the project, outline concepts that may be developed later, and document ideas that are being considered, but may be discarded as the application develops.

Task keeper application is an Android project. It allows the user to manage their day-by-day task report. This whole project has only one concept, that to record your daily task and to do lists. You will add a task and set it to its priority. Also, you can schedule your task list with the use of the calendar button. You have to provide the task description. Nonetheless, in other words it helps any designer and developer to assist in software delivery lifecycle (SDLC) processes.

1.2 Document Conventions

The main heading for software requirements specification, application name, version number, prepared by, organization and date are written in right handed alignment.
Apart from this, the entire document for software requirements specification is justified.

Convention for Main title:

- Font face: Arial
- Font style: Bold
- Font Size: 32

Convention for Sub title:

- Font face: Times New Roman
- Font style: Bold
- Font Size: 14

Convention for Body:

- Font face: Arial
- Font style: Regular
- Font Size: 11

1.3 Intended Audience and Reading Suggestions

The document is intended for all the stakeholder customers and the developers –designers, coders, testers and maintainers. The reader is assumed to have basic knowledge of Mobiles, databases and user accounting along with knowledge and understanding of DFDs and various other diagrams such as Use case diagrams, sequence diagrams, activity diagrams, ER diagrams and class diagrams. User must understand the flow of the applications and various redirections too.

1.4 Project Scope

A scope of work document is an agreement on the work you're going to perform on the project. A scope of work in project management includes deliverables, a timeline, milestones and reports. Let's look closer at each of these elements below.

This is what your project delivers, of course. Whether it's a product or a service, it's the reason you're executing the project for your customer, stakeholder or sponsor. Whatever that deliverable is, and it can be some sort of document or report, software, product, build (or all of the above), you need to have each item clearly identified here. Creating a work breakdown structure can help with this step.

Think of a timeline as a road leading from the start of a project to its end. It's a section of the document that delineates the major phases across the schedule of the project's duration. It should also mark the points in the project when your deliverables are ready. As you can guess, it's essential to scoping out the overall plan of any project. This is best presented visually, like a rolled-up Gantt chart plan, so the stakeholders can see the high-level timeline.
With Project Manager, you can build a timeline in seconds with our online Gantt chart maker. Create a budget, assign tasks, add dependencies and more. Then present to your team and stakeholders to get the project moving on the right foot. Try it free today.

1.5 References

For our application development as well as for the preparation of the software requirements specifications, we took various references from various websites and even a reference of an existing application is taken into consideration. The websites which we refer are as follows:

https://developer.android.com
https://ijcsmc.com/docs/papers/October2019/V8I10201915.pdf
https://www.youtube.com/watch?v=w5tBeeFJ9Ws
https://taskeeper.app/

Other references are taken from such similar applications of Taskeeper. The one which are taken into consideration are as follows:-

- Work Break - Break Reminder
- To-Do List - Schedule Planner
- TickTick:To-do list & Tasks
- ToDodo: To Do List & Reminder
- Simple to-do and shopping list

2. Overall Description

2.1 Product Perspective

A product requirements specification establishes a bridge between product/application management and development. It defines a product/application in terms of stakeholder requirements, containing all those requirements that sensibly should be described explicitly and be available permanently.The product perspective defines the product from the stakeholders' viewpoints, which is an external, "outside" view. Where the product perspective addresses relations to adjacent systems, it focuses again on those properties of the product's interfaces that are relevant externally.
Product perspective defines what the product does, not how it does so. This corresponds with the external view of the product. Moreover, it also imposes clear conditions and criteria on the formulation of product requirements.

Women's Safety Nest is an application that does or shows various functionality regarding locations, not only current location but also nearby police stations as well as nearby hospitals. Calling facility, Texting facility and an informatory section for the laws related to taskeeper.This will provide an ease to the user or say women to access all these functionalities handy within clicks. As far as product perspective is concerned, it deals with the user's point of view and user's analysis technique. Here the user might find it easy and handy to access the functionalities in our application.

2.2 Product Features

Product features are a product's discrete areas of new and upgraded functionality that deliver value to your customers. You can think of these as little gifts. Broadly, product features can refer to capabilities, components, user interface (UI) design, and performance upgrades.

If we talk about the Taskeeper App Nest application, its capabilities are its working functionality which must be useful on time. The application must satisfy the need and it must be worth working at the times of use. So these capabilities of the application can be considered as the strength as well. On the other hand if we talk about the components of the application **Add Task, Update Task Delete Task, Remove Task,** Texting component which is direct text message to the guardians with current locations.

Furthermore, talking about UI(User Interface) design, we tried out to keep it simple as well as attractive at the same time by using lavender-pink combination background, suitable logos using image buttons with color contrast in the dashboard as well as in the navigation menu. Apart from that, Women's Safety Nest has its own logo called "TaskLogo" with some artistic touch ups in it. Talking about performance upgrades, Task Keeper Nest will experience various performance upgrades in near future as various new features need to be introduced and even applications may face modifications if any. And for that it is mandatory to go for upgrades.This upgrades may include the features which are presently not available in our application but can be introduced soon on the basis of the reference which we took from the existing system or say application and various other websites too.

2.3 User Classes and Characteristic

A user class is a set of developer-defined attributes (characteristics) and methods (behaviors) that can be used to refer to multiple data items as a single entity. If we talk about the Taskeeper App Nest application, the classes and characteristics are defined on the basis of the functions they show. So keeping that concept in mind, the class we defined are a total seven in numbers. But mainly it focuses on users, that is employee,admin or say system and guardians which are the ones who are registered by the user but play a vital role.

Users or say women can access every feature of the application and even by performing login or registration activities, she can update and edit her account too and even connect to the system as the system stores her information in the database. So by accessing the features women are indirectly connected to the guardian in many ways such as via calling, texting and sharing the locations so the guardian here plays an important role and can be considered as an important class with attributes (characteristics) and methods (behaviors). The various other classes which are defined and can be viewed in our class diagram are SOS,GPS(locations),laws, and calls which itself have certain methods which can be performed.

2.4 Operating Environment

An operating environment or integrated applications environment is the environment in which users run application software. The environment consists of a user interface provided by an applications manager and usually an application programming interface (API) to the applications manager.
The operating environment for Taskeeper Nest is as follows:

- Client/server system
- Operating system: Windows
- Database: Firebase database
- Platform: Android studio
- Preferred language: Java

2.5 Design and Implementation Constraints

System or implementation constraints describe how the product operates inside various circumstances and limit the options designers have if building the product/application. This section specifies design constraints imposed by other standards, hardware limitations, communication interface limitations, etc.It also includes the constraints regarding the databases. Here in Women's Safety Nest, we are using the firebase database to maintain and store the data of our users. So here we are facing constraints such as:

- The size of data downloaded from the database at a single location should be less than 512 MB for each read operation.
- Due to the online community of the firebase, no offline entries can be done. Network here, can be considered as a constraint.
- It is normal to know the fact that such applications use Many systems but on the other hand we cannot neglect the reality that there still exists keypad type phones where GPS facilities will not be enabled.
- Application must be multilingual including all the common languages such as hindi,gujarati, English etc. so here we can consider it as a language constraints.

2.6 User Documentation

User Documentation is the part where we describe how we're going to distribute our documentation to our customer and application users.While talking about our Taskeeper App Nest application, we would like to distribute our application via apk's as of now as currently it is in it under development mode. As soon as the application gets complete with all the testing and development, we would wish to keep the application at such a platform where users can easily install and use it. Apart from that a quick and short description or one-liner's help are planned to be provided wherever required. For example : during registration and login, fields such as email and password are compulsory, So the keyword "Mandatory" is written over there in order to help the user.Also section called "Disclaimer" is there under the navigation menu where the users can read the important and main permissions as well as what all requirements are needed from their side for using application. For example: Users must have to add a maximum five guardians soon after the registration process in order to gain the advantage of each feature of the application.
For user manual and help, visit, https://play.google.com/store/apps/details?id=com.aksharatips.womansafety. This link is of a similar type of women safety application and we too have referred to this link during the preparation of our application. So for user documentation purposes, this link should be referred to.

2.7 Assumptions and Dependencies

Assumptions and dependencies could affect the requirements/functionality stated in this SRS. These requirements are affected if these assumptions are not shared, are incorrect or change.If we talk about the Taskeeper application,we have to work keeping various assumptions in it. This can be better understood by the following example:

Though this application is not that complex, if it was so, many more dependencies as well as assumptions take place in the SRS documentation. Say suppose audio as well as video recorder feature is to be added in the application then the dependencies and assumptions are stated accordingly.

3. System Features

The entire system features consists of functional requirements as well as user-interfaces.By understanding these requirements, entire system features can be understood easily. Talking about Taskeeper App application, the functional requirements consists of the following:

- ➢ The user shall be able to update her profile including information like emergency contact information which is nothing other than add guardian.
- ➢ Users shall have four options on the main screen i.e the dashboard and they are SOS alert, women and law, emergency call to prior registered number and tracking of locations i.e the current one, hospitals and police stations
- ➢ Just on clicks the redirections as well as messages and calls should be passed to the registered numbers.Talking about the user-interfaces which include the information about front-end, back-end as well as database, Taskeeper application have the following in context of this:
- ➢ Front end: It is usually referred to as the application's "client side." The frontend consists of everything that the user sees when interacting with the application, such as text colors and styles, photos, graphs and tables, buttons, colors, the navigation menu, and much more.
- ➢ Back end: It is generally the logical part or say the coding criteria which is determined on the basis of the functionalities of the front-end. While talking about android studio, we can use java as well as java language for coding purposes but widely java is used. In this application also, java language is preferred for the back-end.
- ➢ Database: While talking about the Taskeeper application, we have used firebase database connectivity for the purpose of storing the data of the user. The Firebase Realtime Database is a cloud-hosted NoSQL database that lets you store and sync data between your users in real time.

3.1 Taskeeper Application

3.1.1 Description and Priority

Indian Taskeeper app is developed for protecting lives of people in any emergency situations. In case of any unsafe situation, just the Add button to add task,Delete button to delete task,Update button to update task

3.1.2 Stimulus/Response Sequences

Stimulus: User opens application and if she is already logged in or registered she will be redirected to dashboard only on opening the application again.
Response: Application detects the operation.

Stimulus: User presses the Add, Delete,Update button (just a click).
Response: Application will send the text messages with an alert message as well as Store.

3.1.3 Functional Requirements

Functional requirements are product features or functions that developers must implement to enable users to accomplish their tasks. So, it's important to make them clear both for the development team and the stakeholders. Generally, functional requirements describe system behavior under specific conditions.In Women's Safety Nest, various functional requirements are seen which are must or mandatory while using this feature of the application.

REQ-1: The foremost requirement is authentication. Users must enter valid id and password to log in or even while registering; this is worth to note. After entering correct credentials only, she will get access to any of the features.Though it will be one time log in or registration process, user is advised to do this well in advance

REQ-2: To use the SOS alert feature, it is necessary to register a maximum of five phone numbers while doing the registration process for the very first time.Because whenever you will press the SOS alert button, the alert message in the form of text will be received by those five registered numbers which are you guardian.So it is mandatory to register maximum of five numbers in order to receive the messages.

3.2 Add,Update,Delete,Save Task

3.2.1 Description and Priority

Emergency task means simply a application request for service or help which requires immediate action as well as attention to prevent or reduce the danger and be in safe mode. Talking about Task , we have a main interface called "emergency add" on our dashboard only so that users can go and get the shortlisted emergency contacts which she has added during her registration as her guardians. This will help her to reduce her time and she can be in contact with her guardian as soon as possible. Our application also shows one more section of employee details under the navigation menu.
This will show sub category as:

3.2.2 Stimulus/Response Sequences

Stimulus: User opens application and if she is already logged in or registered she will be redirected to dashboard only on opening the application again.
Response: Application detects the operation.

Stimulus: User presses the add button (just a click).
Response: Application will open the page with the registered number written on it. Users just need to press the call button again in order to call. This will call the guardian.

3.2.3 Functional Requirements

Functional requirements for the emergency calling functionality is nearly similar to that. To access the features users need to do certain process in advance which is to be done in advance and are termed as requirements which are listed below:

REQ-1: In this case also,the foremost requirement is authentication. Users must enter valid id and password to log in or even while registering; this is worth to note. After entering correct credentials only, she

will get access to any of the features.Though it will be one time log in or registration process, user is advised to do this well in advance

REQ-2: To use the emergency call feature, it is necessary to register a phone number while doing the registration process for the very first time.Because whenever you will press the emergency call button, you will be able to call any of your guardians from the registered ones.

4. External Interface Requirements

4.1 User Interfaces

The Taskeeper App user interface has been specifically designed with their customers in mind, giving them convenience while they are using it. The application makes sure at every point that the user spends most of the time using the device rather than figuring out how to use it.The dashboard offers a menu with a list of functions that the application performs.The user can select one of the options from the dashboard, and is taken to the respective screen. Every screen displays the back button too if the user wants to get back to the previous page. The user can click on any one of the options and is taken to the screen of their choice. The device offers easy landscape in order to use it efficiently. If the user does not know how to use any functionality or has any queries,then software requirements specification documentation can be referred .

While talking about our application, in designing the xml file, we used various layouts to make it more attractive and convenient. Mostly constraint layout and linear layout of android studio are in use for the purpose of front-end that is designing. There are also various activities present where other layouts are used with linear and constraint. For example, in our application for designing login and registration pages, we have used linear and constraint layouts. Also linear have further two types and they are : horizontal and vertical.So these both sub-types are seen in use.Now there also exists an activity where we have used another layout with linear and constraint and it is the navigation page of the application. Here we used a drawer layout with linear and constraint. So there are sufficient combinations of the layouts in our application which makes application UI a satisfactory factor.

4.2 Hardware Interfaces

While dealing with our application that is Women’s Safety Nest, the hardware should have the following specifications or say interfaces:

- ➢ Ability to exchange the data
- ➢ Touch screen for convenience. (on clicks events are possible)
- ➢ Ability to take input from the user.
- ➢ Keypad. (while redirecting the user to action perfome)
- ➢ Ability to redirect the user to other links.
- ➢ Should be user friendly.

4.3 Software Interfaces

Software interfaces (programming interfaces) are the languages, codes and messages that programs use to communicate with each other and to the hardware.Taskeeper App too have the software interfaces just like all other applications Following are the software interfaces used for the Taskeeper App Nest application:

- ➢ Database: Firebase database is used in the Women's Safety Nest application to save the record of the

users. It is most commonly used as well as a convenient database to use. Also it is the most

preferable database compared to SQLite.

- Operating System: We have chosen Windows operating system for its best support and user-friendliness.

- Android Studio: This platform is chosen for the development of our application called Taskeeper Application.

- Java: To implement the project we have chosen the Java language for its more interactive support.

4.4 Communications Interfaces

Communications Interfaces are the interface that belongs to any communications functions that are required and are used in our software.The communication interfaces in Women's Safety Nest are as follows:

- Add Task:

  Here, in this application communication also takes place via text messages between the user that is a woman and the guardian that are registered numbers. Here, in this application it is seen in the format of an Add button but the main purpose is to save task.

- Update Task:

  The application provides an interface called "update data". To use it, the user must have registered her guardian's phone number in order to call them as soon as possible during the situations where it is most necessary.

- Delete Task:

  Users can share the locations to their guardian via messages so that their guardian can reach out to them as soon as possible. So it can be said that communication can also be done via sharing the current data complete after task is deleted of the user.

- View Task:

  So it can be said that all task can also be done via sharing the current data complete after task is deleted of the user.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

Performance requirements define how well the application accomplishes certain functions under specific conditions. Examples include the application's speed of response, throughput, execution time, and many such. The service levels comprising performance requirements are often based on supporting end-user tasks. Like most quality attributes, performance requirements are key elements in the design and testing of an application.The performance requirements of our Women's Safety Nest include the following :-

- ➢ Scalability: It should be able to provide instant messaging services to the user. It is the most important performance requirement as this application can be used in real time only. Women will use the application feature of text messaging that is SOS alert only when she is in need or facing any unwise activity or any such situation. So at that specific time, if she is using the application then the performance requirements should be completely working and satisfactory at the same point.
- ➢ Performance ability: Application must be lightweight and must have the ability to send messages along with the locations, though here constraint regarding network may occur but in such cases at least text message or say alert message should be reached to the guardian's. Here it is highly dependent on the user's current location that whether the tracker will be able to track the locations and send them to the guardian. We can consider this as a requirement as well as constraint too.
- ➢ Usability: The usability refers to the usage of the application. Usability of application depends on the ease of accessibility. Accessibility again, should be considered as an important aspect of the performance requirement. Application should be easily accessible as well as it must be easy to use also.
- ➢ Flexibility: Flexibility is the ease with which the application can respond to uncertainty in a manner to sustain or increase its value delivery. Uncertainty is a key element in the definition of flexibility. Uncertainty can create both risks and opportunities in a system, and it is with the existence of uncertainty that flexibility becomes valuable.The application should be flexible enough to deal with the uncertainties.
- ➢ Portability: Our application can be used on any android phones and tablets.

5.2 Safety Requirements

Safety requirements specifications are specifications that describe every required safety function that must be performed by a safety instrumented system. Here while dealing with our application, there is no requirement of any back-ups of data at user side as this application is just for the purpose of sending alerts messages, doing calls, or searching for the locations. This search history or messages and calls which took place are stored in our mobile phone itself. There seems no requirement of storing such data in an application interface. Still talking about safety aspects, the user should be well aware about her password's which she set during the registration process. This is the way she can go for safety measures or safety requirements. In addition to it, safety requirements also include that no other person than you can use this application as it is registered by your name and account so if by chance some other person will use it and access the features, your guardian might receive missinformation and can misguide. Even some other people misuses it by continuously sending SOS alerts messages, or by continuously calling emergency contacts such as police or say ambulance. So these safety requirements are assumed to be handled by the

user. And users are also advised to take care that no one by knowingly or unknowingly access the features and misuse it which then creates a problem to the user.

5.3 Security Requirements

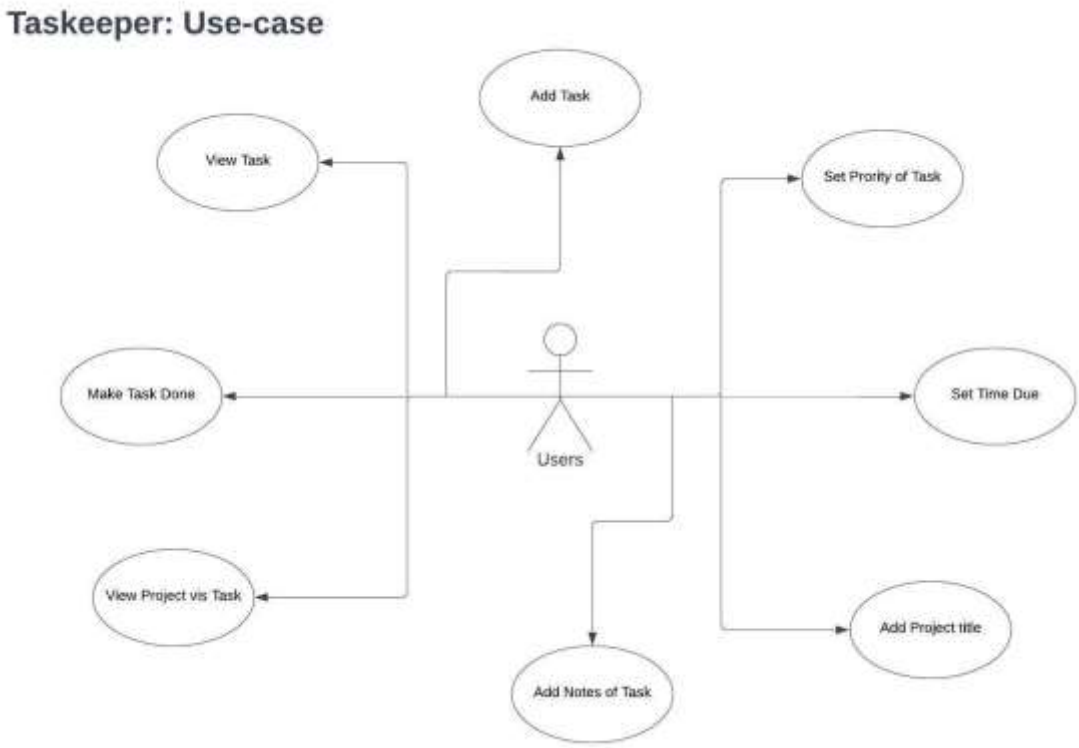
A security requirement is a goal set out for an application at its inception. Every application fits a need or a requirement.Security vulnerabilities allow software to be abused in ways that the developers never intended.Requirements related to access control, data integrity, authentication, and wrong password lockouts fall under security requirements. If the user is logged out due to some reasons and now wishes to log in or sign in again, then she must have to do the proper authentication. Passwords which she set during registration for the very first time, should match now,as this authentication information of the user is recorded in admin's database which is firebase database. In other words, again using a firebase database we are looking forward to the best security aspect as it is the most preferable and capable one to store the data of the user.
Security principals also include Confidentiality, integrity and availability. Users should preserve the access control and disclosure restrictions on information.Moreover users should avoid the improper (unauthorized) information modification or destruction.

5.4 Software Quality Attributes

Software Quality Attributes are features that facilitate the measurement of performance of a software product by Software Testing professionals, and include attributes such as availability, interoperability, correctness, reliability, learnability, maintainability, readability, extensibility, testability, efficiency, and portability. High scores in Software Quality Attributes enable software architects to guarantee that a software application will perform as the specifications provided by the client.Software quality attributes for this application are as follows:

- Usability: The usability refers to the usage of the application. Usability of application depends on the ease of accessibility. Accessibility again, should be considered as an important aspect of the performance requirement. Application should be easily accessible as well as it must be easy to use also.
- Portability: Our application can be used on any android phones and tablets.
- Maintainability: Maintainability is defined as the probability that a failed component of application will be restored or repaired to a specified condition within a specified period or time when maintenance is performed in accordance with prescribed procedures. So the application remains maintained.
- Reusability: An application that can be adapted for different customers without changing the source code of the system. Application systems have generic features and so can be used/reused in different environments.
- Readability: Readability is a measure of how easy a piece of text is to read. The level of complexity of the text, its familiarity, legibility and typography all feed into how readable your text is.The readability of our application is simple and sobar. Users can easily understand without any difficulity .
- Extensibility: Extensibility is a measure of the ability to extend a system. Our application shows high extensibility as many new features are yet to be introduced and much modification might take place soon in the application.

ER Diagram



For clarity, refer to the link:

https://lucid.app/lucidchart/89bd7840-c21e-4364-994c-8304c767001e/edit?invitationId=inv_72acea42-e25d-41dc-99ed-78bb94facaea

- Layouts

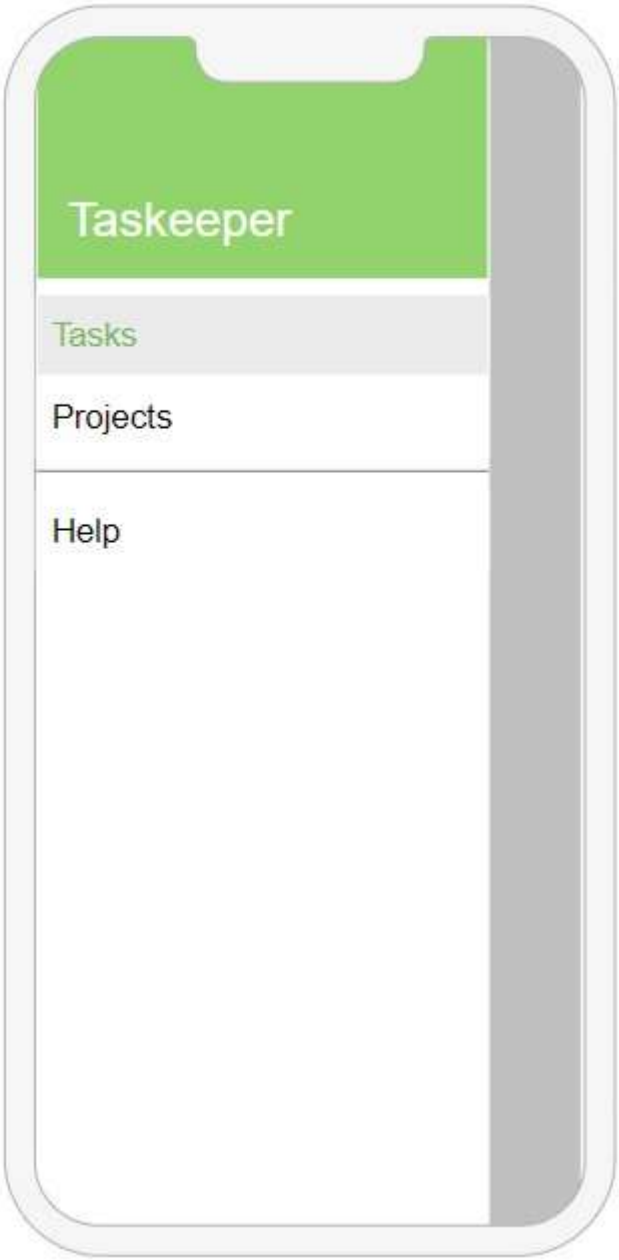
https://app.moqups.com/w0sHwSYCxc3JZOCYbE8uh6nzugOU60YM/view/page/ad64222d5?ui=0&fit_width=1

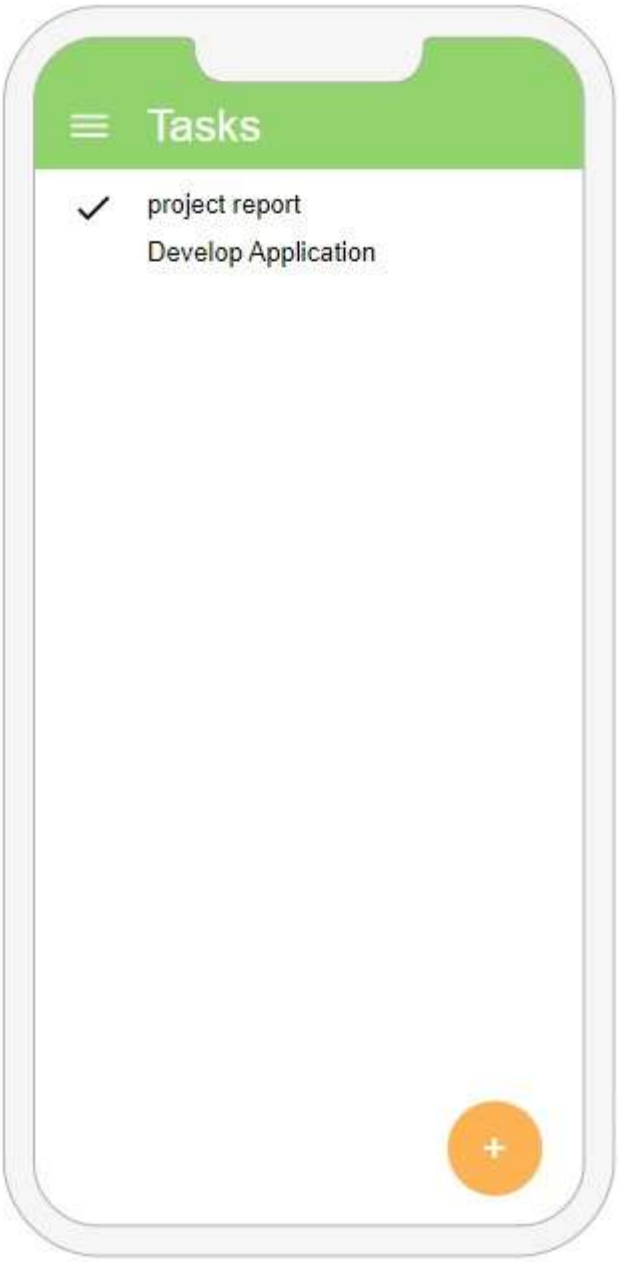
Task Screen

- ➢ Task screen is the first graphical notification which is received when we visit any app.
- ➢ It also signifies that you can add the task. Or it contains drawer to show menu.
- ➢ Task screen contains list of tasks, in starting it doesn't show you any task. So, it shows us "No tasks"
- ➢ Using plush sign, we can add the task.

Drawer Screen

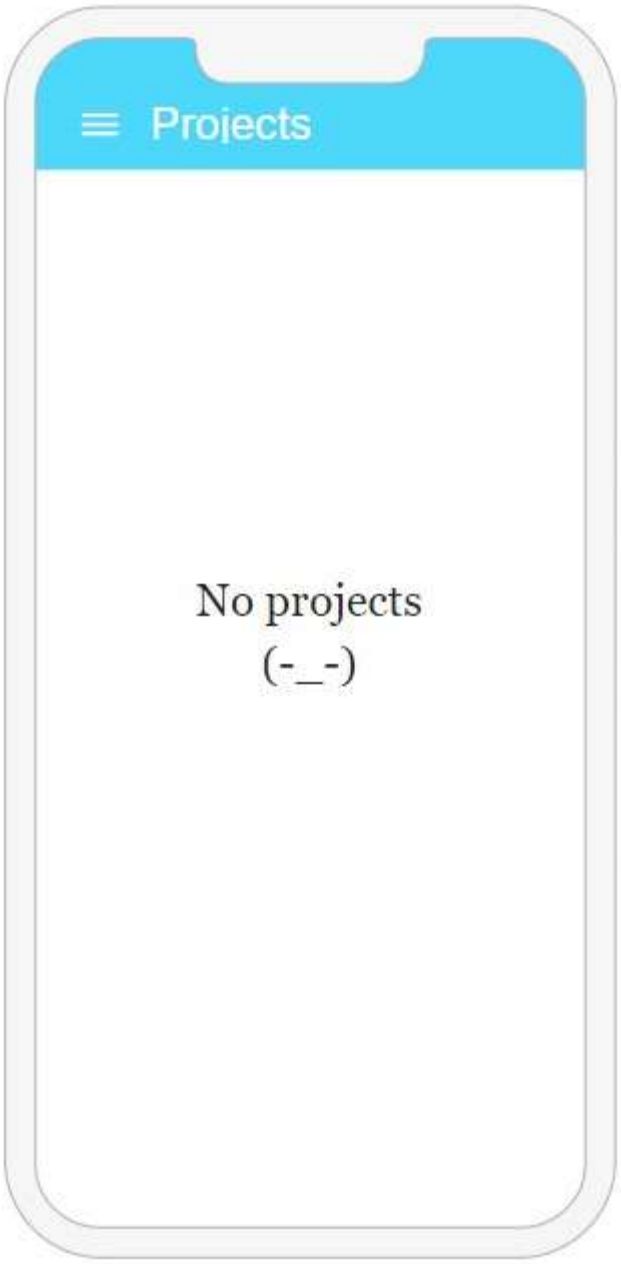
- Drawer contains menus like Tasks, Projects and Help of the application.

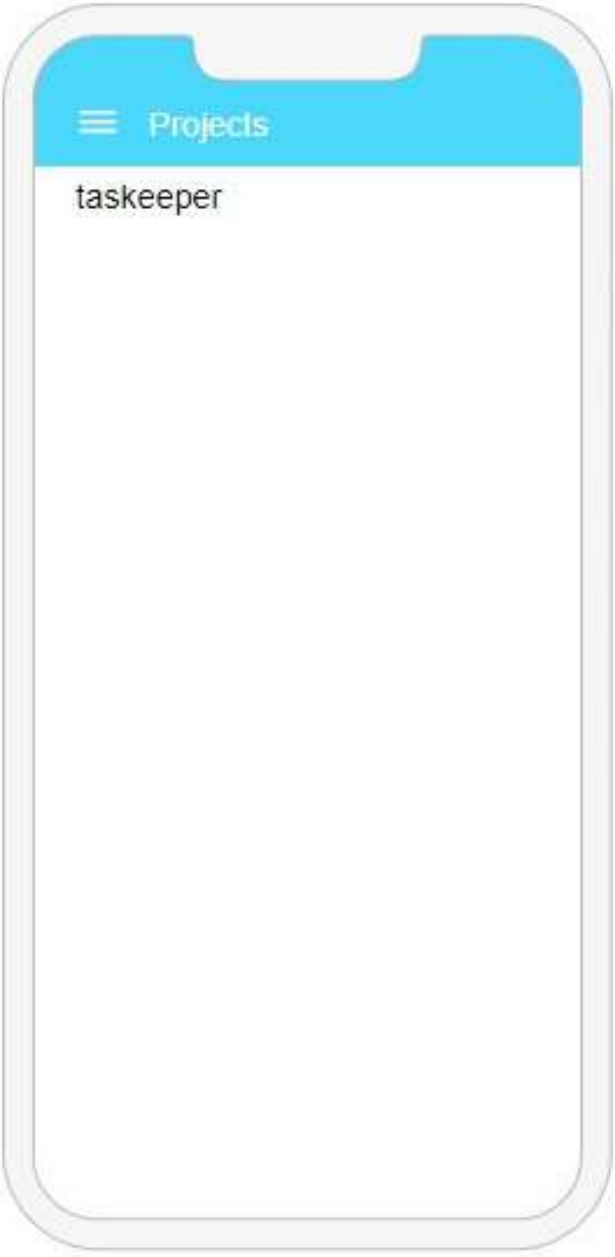




Projects Screen

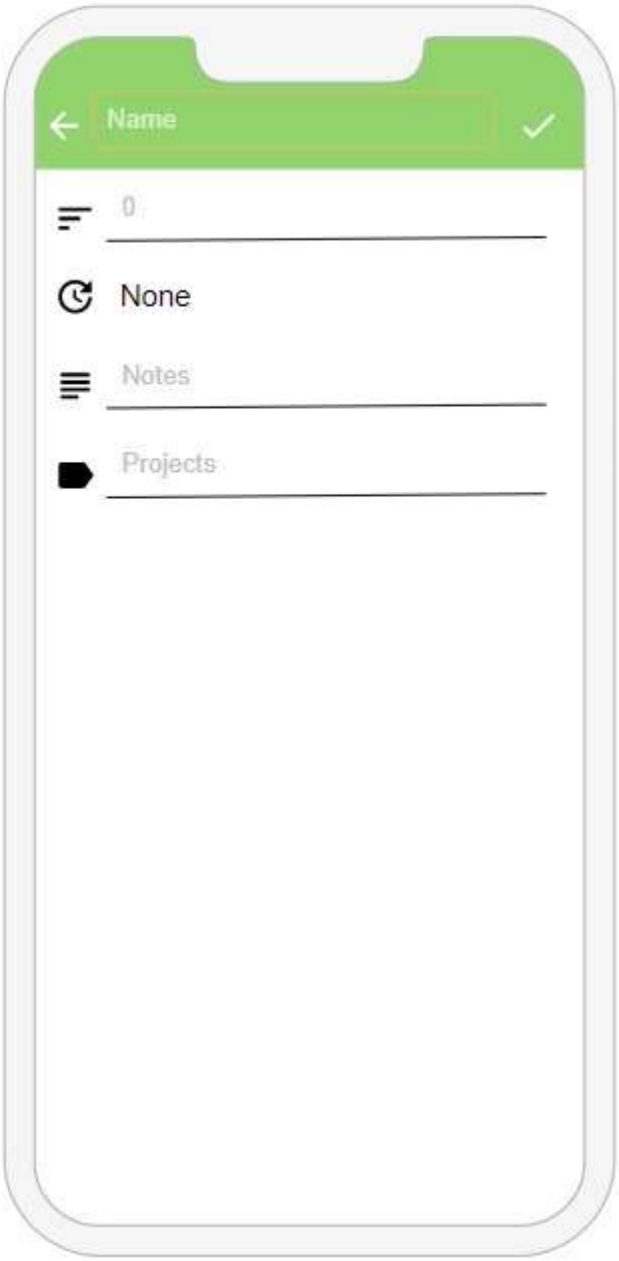
- Projects screen graphical notification which is received when we click on projects in menus.
- It also signifies that you can add the task of the projects.
- Projects screen contains list of Projects, in starting it does not show you any task. So, it shows us “No tasks”
- Using plush sign, we can add the Projects.





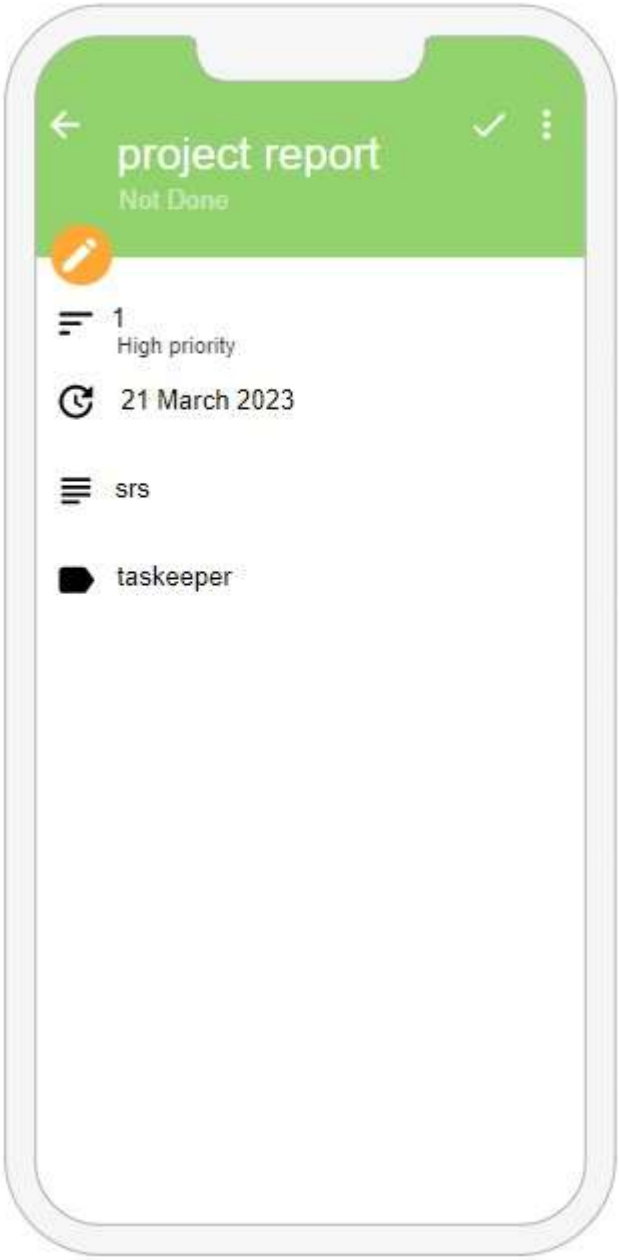
Add Task Screen

- This page will open during the click on plush sign in task screen process by user.
- This screen contains title, Task Priority, Date of the task, Notes of task, and project name.
- Clicking “true” sign we can save the task.
- After clicking “true” sign it will shown in task list of the task screen.



Show Task Details Screen

- Task Details Screen contains details of the task.
- In this screen we can edit our task and make the done task.
- Using three dot action button we delete our task.



Show Projects Details Screen

- Project Details Screen contains details of the task of the project.
- In this screen we can edit our task of the project and make the done task.
- Using plush button, we can add