# SOFTWARE PROJECT MATRICS DOCUMENT

CHATZEN

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RUBIX!

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## Version 1.0


**Team: RUBIX!**

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## 1. Introduction:

This document serves as a comprehensive guide to the software metrics and measurements established for the ChatZen application; a dynamic real-time messaging platform crafted in Kotlin. The metrics outlined herein are pivotal quantitative indicators strategically monitored throughout the phases of design, development, and testing.

## 2. The Overall Description

ChatZen stands as a mobile messaging application, empowering users to seamlessly exchange text, media, and files through both one-on-one and group chat functionalities. The app adopts a client-server model, where the client is developed in Kotlin, and the backend comprises an API paired with a Firebase database.

## 3. Objectives

The primary objectives steering the definition and tracking of metrics for ChatZen are as follows:

- Measure the size of the software and estimate the effort required for development.
- Identify and understand software complexity to streamline development processes.
- Establish quality goals encompassing performance, reliability, and security.
- Estimate the project timeline based on the assigned team size and expected productivity levels.

## 4. Methodology

The methodology employed for software metrics encompasses a structured approach:

- Thoroughly analyse both functional and non-functional requirements as outlined in the Software Requirements Specification (SRS).
- Identify metrics aligned with industry standards, including Lines of Code (LOC), function points, and cyclomatic complexity.

- Set measurable targets for each metric, directly aligning them with the overarching project objectives.
- Continuously measure and monitor metrics throughout the iterative sprints of development.
- Promptly initiate corrective actions in cases of deviations from the established metric plan.
- Refine and enhance the metrics baseline iteratively, leveraging insights gained from ongoing project experiences.

## 5. Metrics

**Size Metrics:**

| *Metric* | *Description* |
|---|---|
| *Number of Screens* | 8 (Registration, Login, Chat, Contacts, Video Calling ID, Video Calling, Chat Room Creation, Media Sharing) |
| *Number of Classes* | 25 (Estimated) |
| *Lines of Code* | 10,000 (Estimated) |

- Number of Screens: The ChatZen Kotlin chat app comprises eight screens, encompassing Registration, Login, Chat, Contacts, Video calling ID, Video calling, Chat Room Creation, and Media Sharing.

- Number of Classes: An estimated 25 classes reflect the app's diverse features and functionalities.

- Lines of Code: The estimated total lines of code for the ChatZen app stand at 10,000, offering a snapshot of the project's scale and complexity.

**Complexity Metrics:**

i. *Cyclomatic Complexity:*

| *Component* | *Complexity* |
|---|---|
| *Chat Component* | *High* |
| *Video Calling* | *High* |
| *Notifications Component* | *Moderate* |
| *User Management Component* | *Moderate* |

- Chat Component: Exhibits high complexity due to multiple screens, messaging features, video calling, and media sharing capabilities.
- Video calling: Also features high complexity, involving multiple users and chat options.
- Notifications Component: Moderately complex, primarily influenced by push notification functionalities.
- User Management Component: Demonstrates moderate complex, primarily associated with account management.

ii. *Function Point Analysis:*

| *Screen* | *Complexity* | *Estimated FP* |
|---|---|---|
| *Registration Screen* | Simple | 5 |
| *Chat Screen* | Average | 10 |
| *Media Sharing* | Complex | 15 |
| *Video Calling Screen* | Average | Average |

- Registration Screen: Categorized as simple, estimated at 5 Function Points (FP).

- Chat Screen: Identified as an average complexity screen, estimated at 10 FP.
- Media Sharing: Classified as complex, estimated at 15 FP.

- Video Calling Screen: Requires further analysis for Function Point estimation.

*iii. Information Flow Metric:*

| ***Type*** | ***Description*** |
|---|---|
| *Unstructured* | Chat messages between users |
| *Structured* | Video calling, contacts list |

- Unstructured: Involves unstructured information flow, particularly in chat messages exchanged between users.

- Structured: Incorporates structured information flow for video calling and contacts lists.

**Quality Metrics:**

| *Metric* | *Description* |
|---|---|
| *Reliability* | High (auto backup, recovery, encryption) |
| *Usability* | High (intuitive, user-friendly) |
| *Scalability* | High (handle increased users and messages) |
| *Security* | High (encryption, access control) |
| *Performance* | Fast (load times, response times) |
| *Availability* | High (24/7 uptime) |

- Reliability: The app boasts high reliability, featuring auto-backup, recovery mechanisms, and robust encryption methods.
- Usability: The usability metric is rated as high, emphasizing an intuitive and user-friendly interface to enhance the user experience.
- Scalability: The app exhibits high scalability, designed to handle an increased number of users and messages without compromising performance.
- Security: The security metric is rated high, incorporating robust encryption and access control measures to ensure data confidentiality.
- Performance: The app is optimized for fast performance, ensuring quick load times and response times for enhanced user satisfaction.
- Availability: The availability metric is high, aiming for 24/7 uptime to meet user accessibility expectations.

**Project Estimation:**

| *Metric* | *Description* |
|---|---|
| *Total Effort* | 3 person-months |
| *Project Duration* | 5 months |
| *Team Size* | 3 members |

- Total Effort: The estimated total effort for the ChatZen Kotlin chat app is 3 person-months, considering the scope and complexity of the project.

- Project Duration: The projected duration for the development of the ChatZen app is 5 months, taking into account the required features and functionalities.

- Team Size: A team of three members is proposed for the development of the ChatZen app, aligning with the estimated project effort and duration.

This comprehensive document provides detailed insights into the size, complexity, quality, and project estimation metrics for the ChatZen Kotlin chat app. These metrics serve as quantitative measures to guide the development process, ensuring the successful delivery of a robust and user-friendly chat application.

## 6. Conclusion

In conclusion, the Software Project Metrics Document offers a comprehensive overview of the ChatZen Kotlin chat app, providing in-depth insights into various critical aspects. The size metrics, encompassing the number of screens, classes, and lines of code, provide a snapshot of the project's dimensions, indicating its scale and complexity. Complexity metrics, including cyclomatic complexity and function point analysis, highlight the intricacies of different components

within the app, emphasizing the challenging nature of features like video calling and media sharing.

Quality metrics underscore the app's commitment to delivering a high-quality user experience. The emphasis on reliability, usability, scalability, security, performance, and availability demonstrates the app's dedication to meeting user expectations and industry standards. The project estimation section outlines the anticipated effort, duration, and team size required for the development process, offering a roadmap for successful project execution.

Overall, this document serves as a valuable reference for developers, project managers, and stakeholders, providing a clear understanding of the project's scope, challenges, and anticipated outcomes. It lays a foundation for informed decision-making, ensuring the development of a robust, efficient, and user-friendly ChatZen Kotlin chat application.

## 7. Other Requirements

- **Appendix A: Project Document**

  The project documentation for an application for online commodity and delivery system

- **Appendix B: DETAILED PROJECT DOCUMENTATION**

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