TalkOut : Protecting Mental Health Application With A Lightweight Message Encryption

Gavin Teo Juen
BI18110239, gavinteo1998@gmail.com

Dr Tan Soo Fun
soofun@ums.edu.my

UMS
UNIVERSITI MALAYSIA SABAH

FAKULTI KOMPUTERAN & INFORMATIK

Abstract

The rise of technology and the Internet has changed how people communicate in society and virtual counselling development since the 1970s. It offers an effective way to seek psychotherapy and consultation services without physically presented by exploiting accessibility, ease of use, comfort and convenience of Internet features. However, the increased security breaches of recent mental health applications that leaked the patient's profile. This project proposed a virtual mental health mobile application, called TalkOut, with a lightweight message encryption algorithm to protect patient's profile, conversation messages and treatment history. The expected outcome of this project provides an alternative way for campus students to seek psychotherapy and consultation services and sharing platform, especially during distance online learning and covid-19 pandemic.

Problem Statement

- Leakage of User's Privacy on recent Mental Health and Instant Messaging apps
- Insecure of Chat Message History
- Lack of Lightweight Message Encryption Algorithm

Objectives

- To investigate lightweight message encryption algorithms by benchmarking their efficiency in terms of computation speed and generated ciphertext size.
- To design and develop the TalkOut mobile application with lightweight message encryption by using prototype software development model.
- To evaluate the usability performance of the developed TalkOut mobile application using the System Usability Scale (SUS) approach.
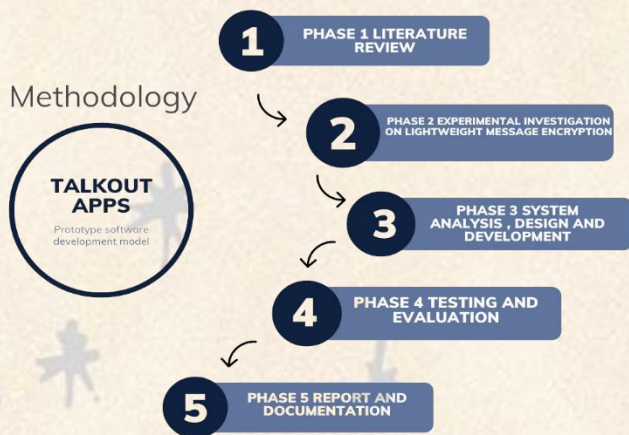
Methodology

Methodology

TALKOUT APPS
Prototype software development model

1. **PHASE 1 LITERATURE REVIEW**
2. **PHASE 2 EXPERIMENTAL INVESTIGATION ON LIGHTWEIGHT MESSAGE ENCRYPTION**
3. **PHASE 3 SYSTEM ANALYSIS , DESIGN AND DEVELOPMENT**
4. **PHASE 4 TESTING AND EVALUATION**
5. **PHASE 5 REPORT AND DOCUMENTATION**

Figure 1 : Prototype software development model

Conclusion

- TalkOut apps able to protect patient's profile and conversation messages using lightweight message encryption algorithm
- TalkOut offers psychotherapy and consultation services and sharing platform.

Implementation

Login Page	Home Page	User Profile

Appointment	Video Call	Individual Chat	Group Chat

Virtual Morale	Encrypted Data in Firebase