



Academic Awareness Dictionary of Cyber Security

Meeras Salman Al-Shemarry^a, Elham Mohammed Thabit Alsaadi^a,

Maha Sabri Altememe^a, Azhar Ali Abbas^a

^aDepartment of Information Technology, College of Computer Science and Information Technology, University of Kerbala, karbala, Iraq

ABSTRACT

The advancement of technology has significantly simplified the process of searching for unfamiliar keywords on Google and other search engines. This development is more effective, but not better. This is due to factors such as device battery consumption, internet connection; time spent searching for a specific term, and others, which become apparent when utilizing search engines. Hence, the development an offline and regularly updateable Android dictionary application is crucial. The main objective of this project is to create an online dictionary to facilitate access to academic terms exclusively for cybersecurity concepts. With the help of dictionaries, students and researchers in particular can better understand their topics, improve their communication, and improve their ideas and information for any subject from other disciplines by understanding the meaning of terms correctly and understandably according to their field of circulation in the academic, governmental or industrial side.

Received: 17 / 02 /2025

Accepted: 21 / 05 /2025

Published: 30 / 06 / 2025

Keywords:

Search engines, Dictionary application, Cybersecurity concepts, Fontend, Backend



1. Introduction

There is now substantial evidence to support the assertion that technology plays a crucial role in people's lives. In recent years, with the explosive growth in the number of mobile applications, they have become one of the most advanced technologies [1]. Although a considerable number of researches have been done to implement dictionary application for android devices for many purposes to facility many services for society [2-5], little attention has been paid to the use of technology-based such as Android-based application in particular. Therefore, as technology develops [7-8], we need an application that can support and accelerate vocabulary search as a replacement for thick books or dictionaries so that we can carry it anywhere and at any time. The purpose of the current research is to contribute to the design of an offline awareness dictionary of cybersecurity concepts electronically by developing an Android-based dictionary application for smartphones. For students, teachers, and anyone interested around the world, the dictionary plays an important role in many ways. For example, dictionaries can help students better understand their subjects, improve their communication, and expand their ideas and information about any topic by correctly understanding the meaning of words. There are different types of scientific dictionaries have been designed for several purposes. For example, for medical professionals, the dictionary includes medical terms, and for computer

*Corresponding author: Meeras Salman Al-Shemarry

Email address: meeras.s@uokerbala.edu.iq

science, the topic of cybersecurity includes cybersecurity terms. Therefore, there is an urgent need to develop an Android dictionary application.

2. Background and Related Works

Android phones have become an indispensable part of most people's lives [9]-[13]. Digital dictionary applications are one of the applications that are designed to make users' daily lives easier. With digital dictionaries on smartphones, users no longer need to rely on traditional dictionaries that are difficult to carry around[14]. There are many websites that have electronic dictionary features, usually specialized in certain subject areas. However, they do not provide all the features of a dictionary in one place. Electronic dictionaries also consume battery power and the internet cost is high. This study deals with the Android application "Dictionary" application, which can be used on smartphones running the Android operating system. Since it is an offline application, it consumes minimal battery and does not require an internet connection. Through this extend, our fundamental objective is to supply users with the most excellent stage through which they can get to a word reference to find a basic and exceedingly scholarly meaning of cybersecurity concepts in a straightforward and productive way. Highlights incorporate giving implications, equivalent words and antonyms for words and giving cases to assist the client understand the settings. We chose to construct this app as a way for individuals to move forward their lexicon and quality within the concept of cybersecurity.

3. Proposed Model

A cybersecurity glossary application was developed using the waterfall model [15][16]. This template builds on the fact that the template has covered all the development related issues to produce an Android-based English glossary of cybersecurity concepts. The waterfall model steps are (1) Potential and problems; (2) System design needs with data collection; (3) Product design; (4) Implementation and unit testing. The development model for this project is shown in Fig. 1. The goal of this project is to provide users with a dictionary of cybersecurity concepts. The development model for this project is shown in Fig. 1. The goal of this project is to provide users with a dictionary of cybersecurity concepts. They can also find examples to understand cybersecurity concepts. In this application, we provide simple dictionary for cybersecurity concepts as android application.

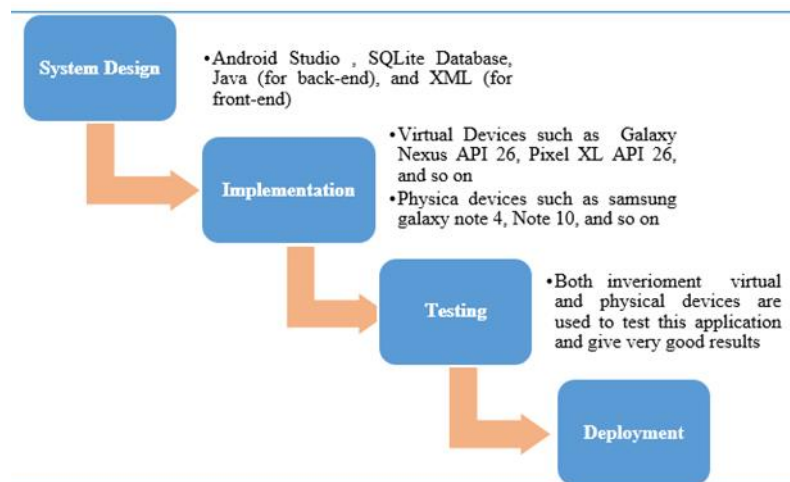


Fig. 1- The Development Model for Cybersecurity Dictionary application

The cybersecurity dictionary consists of 3 core parts: initial view, search view, and display results. Fig. 2 shows the architecture of the project model.

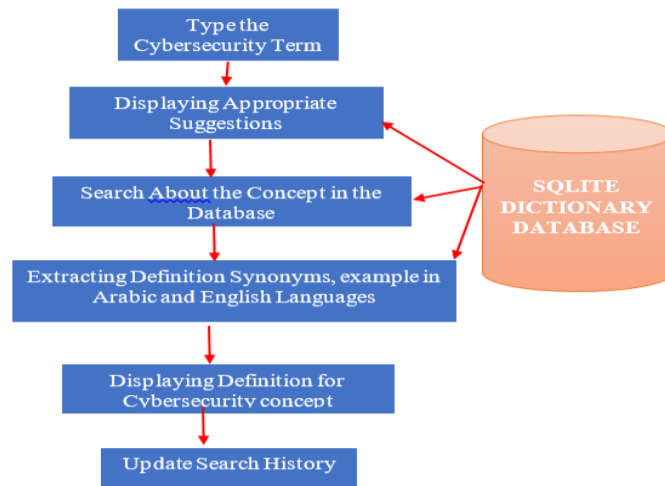


Fig. 2 - Architecture of the project model

3.1. Setup Software

This section describes all software and programming language that used to implement and developed the android word reference application. These incorporates Android Studio, SQLite Database, Java and XML.

3.1.1 The Environment of Android Studio

3.2. Android studio is the official integrated development environment (IDE) for developing Android applications. To back application improvement on the Android working framework, Android studio employments a grade-based construct framework, emulator, code formats, and integration with GitHub. Each extend in Android Studio contains one or more modules with source code and asset records. These modules incorporate Android app modules, library modules, and Google App Motor modules. We utilized Android Studio as an IDE to create this app as shown in Fig 3.

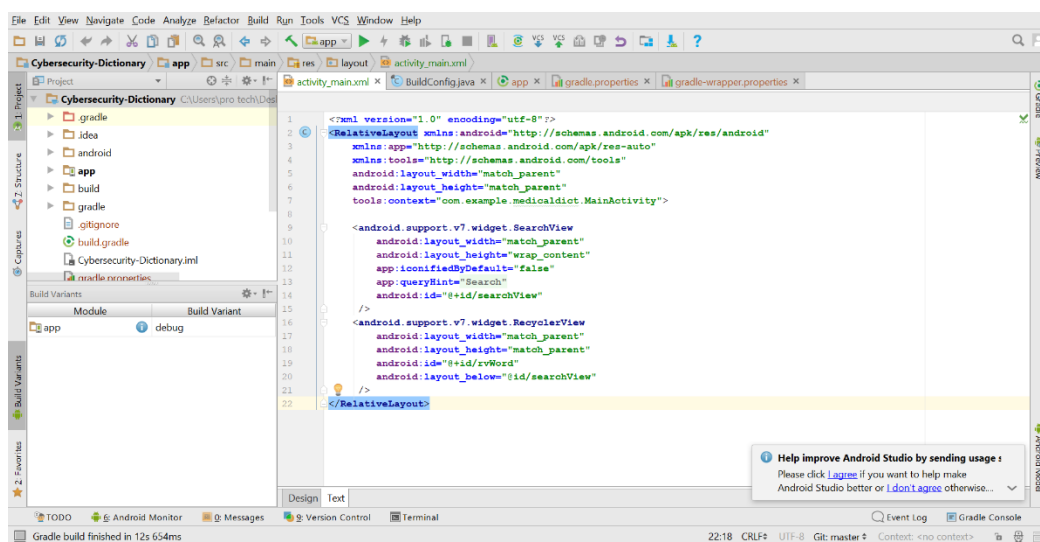


Fig. 3 - The Visual Studio Environment for Android Studio

3.1.2 SQLite Database

SQLite could be a running library that executes an intelligently, standalone, server less, configuration-free SQL database motor. SQLite is the world's most broadly used database and has more applications than ready to tally, counting numerous high-profile ventures. We utilized SQLite (see Fig. 4) to form a cybersecurity word reference database containing hundreds of cyber terms, their definitions, equivalent words, antonyms, and cases in both Arabic and English. The database is associated to this application utilizing Android SQLite libraries with Android Studio as a middleware.

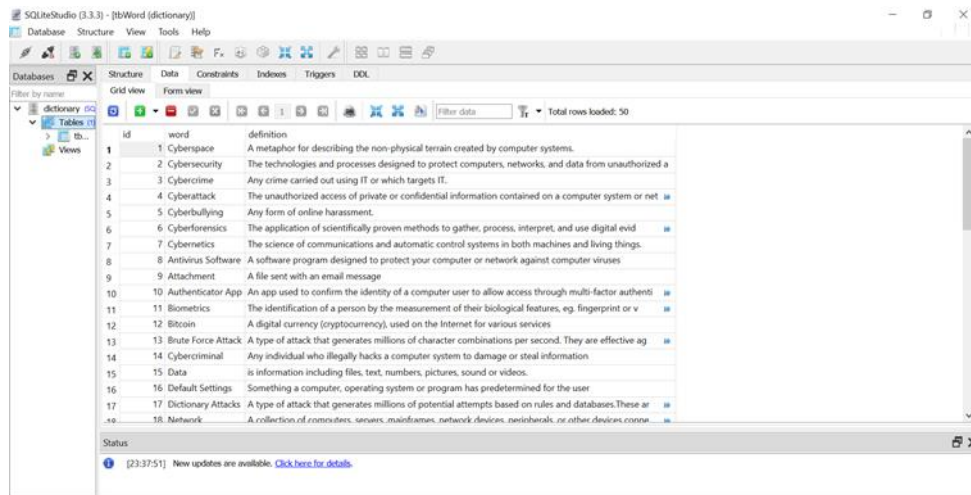


Fig. 4 - SQLite for Creation the Database

3.1.3 Backend Requirements

App include plan permits engineers to make intuitively applications that work consistently. Java is more dynamic than C or C++, because is planned to adjust to an advancing environment (see Fig. 5). Java programs can carry a gigantic sum of runtime data that utilized to confirm and resolve protest gets to amid execution. The most recent adaptation of Java Standard Version is Java SE 8. With the headway and far reaching ubiquity of Java, different setups have been outlined to suit distinctive sorts of stages.

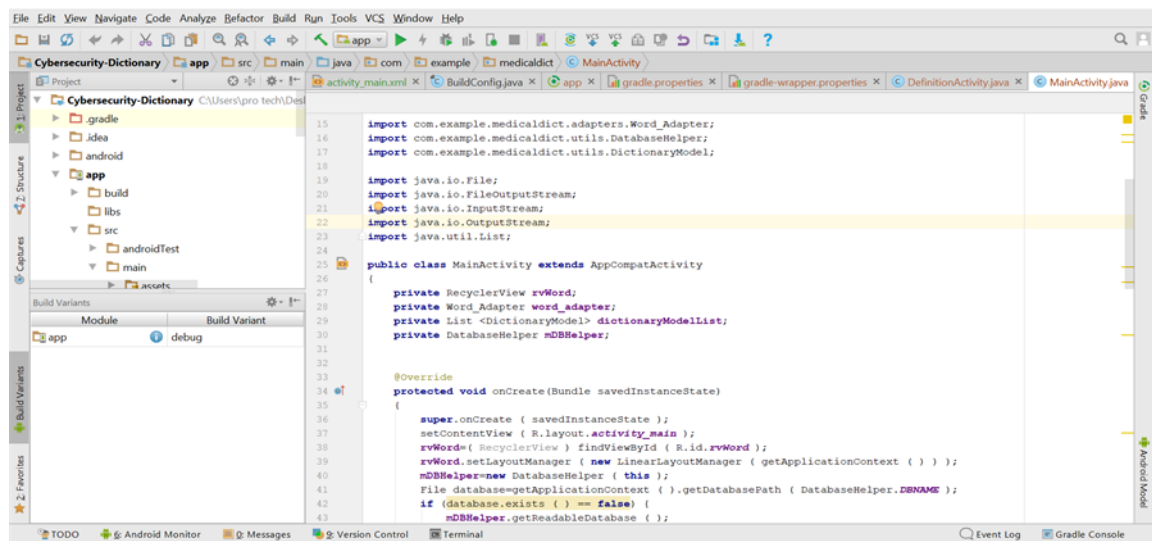


Fig. 5 - Java Programming Code for the Application

3.1.3 Frontend Requirements

XML stands for Extensible Markup language. It could be a content markup inferred from the Standard Generalized Markup language (SGML). XML labels characterize information and are used to store and organize it,

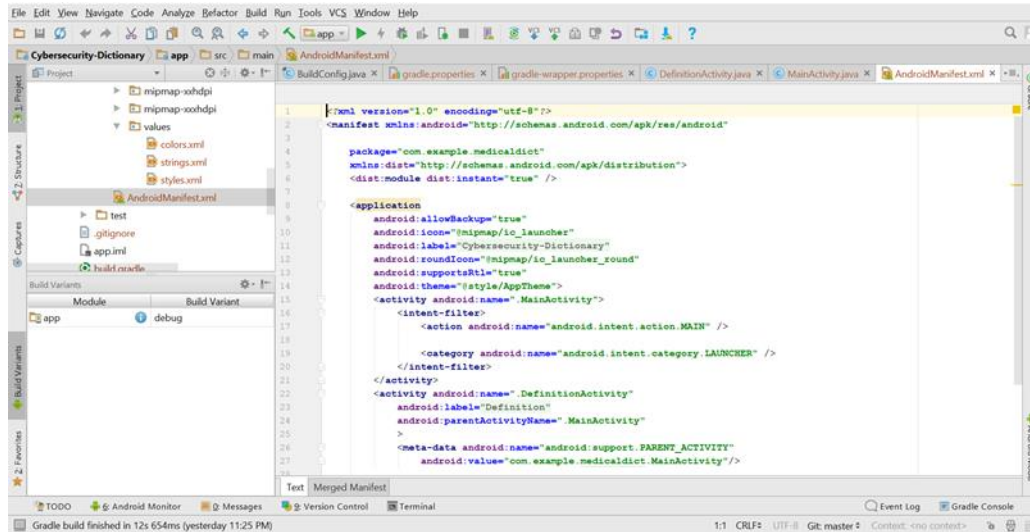


Fig. 6: XML Code for the Application

4. Experimental Results and Discussions

This section displays the output of this study. The test result has been visualized on different features.

4.1 Graphical User Interface

This project has been implemented in two environments: using virtual mobile devices and using real android devices.

4.1.1 Virtual Devices

The cybersecurity dictionary application can implement using many types of virtual android devices (see Fig. 7)

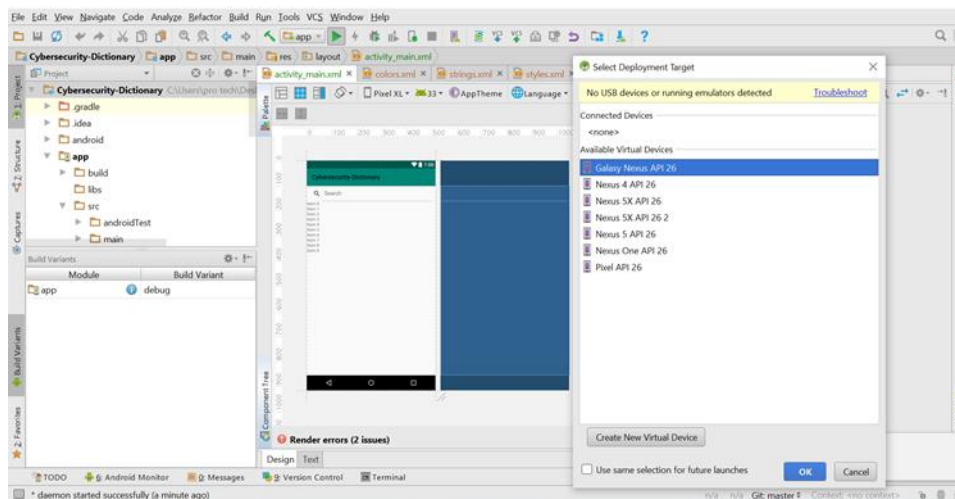


Fig. 7: Run Application Interface Using Virtual Devices

If the required version or model for virtual android device does not found in the list you can create a new virtual device (see Fig. 8) or by download it from internet (see Fig. 9).

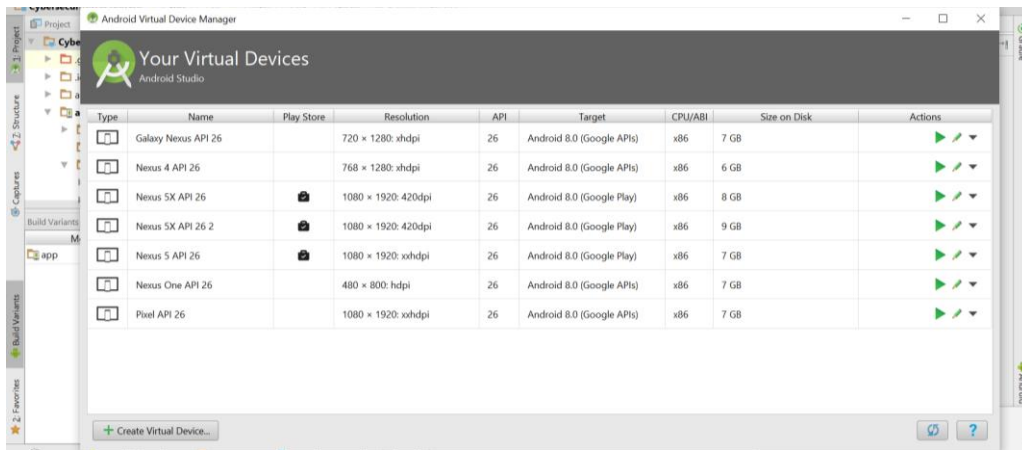


Fig. 8 - Create a New Virtual Device

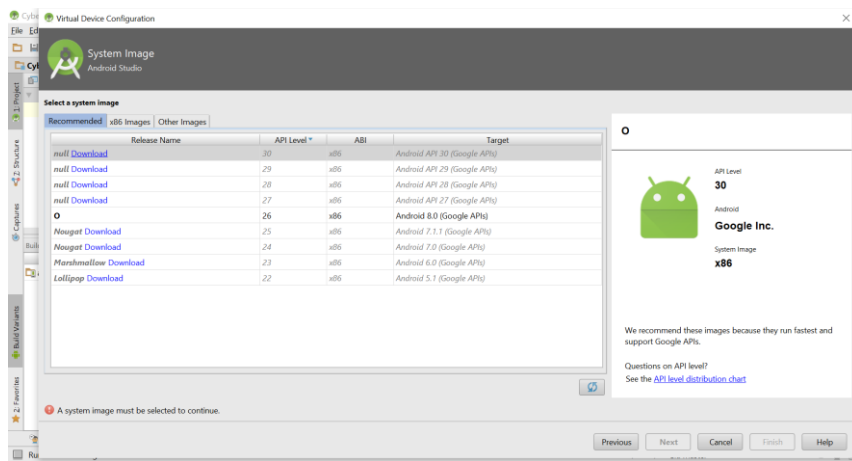


Fig. 9 - Download a New Virtual Device

The default mobile home screen page displayed when the user opens this application for the first time and then the main menu of the cybersecurity dictionary displayed. We selected the Galaxy Nexus API 26 model to implement the cybersecurity dictionary application and the user interface (UI) can be seen in Fig. 10.



Fig. 10 - User Interface for Virtual Device



Fig. 11- Display of Suggestions Typing Cybersecurity Term



Fig. 12- Definition Option Displayed

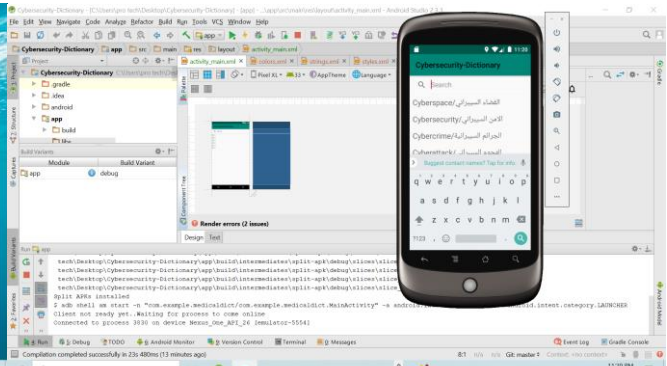


Fig. 13- Main UI of the Application in Android Studio

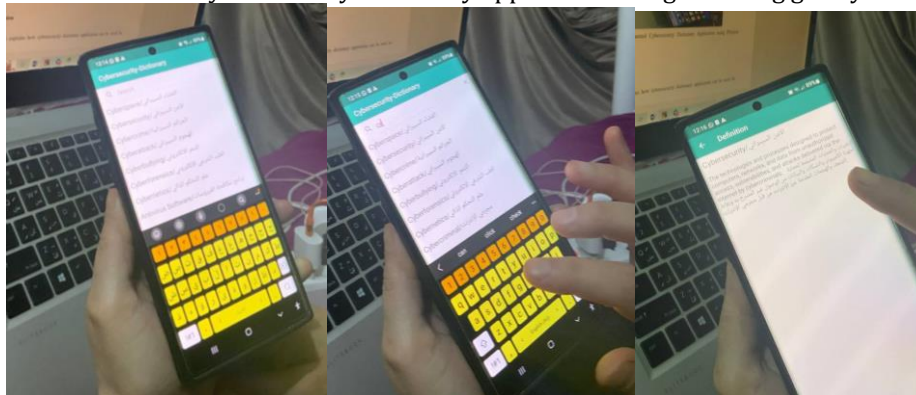
4.1.2 Physical Devices

This application also implemented on the physical android operating system devices such as Samsung galaxy note 4, 5, 9, and 10. Those are our mobile phone devices we can implement application for any android devices by using USB cable by connect it computer and other side with android mobile. After that doing run for application and select the physical mobile device from the top of the list for virtual devices as soon as the computer operating system recognized the USB cable (see the Fig. 14). The cybersecurity application implemented on Samsung galaxy note 10.



Fig. 14 - Implemented Cybersecurity Dictionary Application using Physical Device

See other implemented results for cybersecurity dictionary application using Samsung galaxy note 10 mobile phone.



(a)

(b)

(c)

Fig. 15 (a, b, c) - Implemented Results for Cybersecurity Dictionary Application Using Samsung Galaxy Note 10 Mobile Phone

5. Conclusion and Future Works

This project explains how to use a cybersecurity dictionary app to improve understanding of cybersecurity concepts in English and Arabic without the need for complex, time-consuming books or less productive apps. Our app spares time and gives important data. Scholarly clients or clients fascinated by the field of cybersecurity concepts can utilize the application with total ease without any earlier learning. This app effectively utilized by introducing the APK record on an Android gadget with an upgraded screen. With this application total, we too got to be mindful of the diverse assets and zones for making a database on portable gadgets. The Academic Dictionary app for Android is currently being used to provide features such as definitions, synonyms, and examples of cybersecurity concepts in both English and Arabic, in a single, enhanced app. The app could be expanded with additional features, such as speech and pronunciation, among others. Also periodically modify it to update the meanings of cybersecurity concepts from multiple reliable sources. Since this application employs an outside database, any alterations to the database record can be effectively made when including extra highlights. Therefore, the scope of application is much wider.

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