UNIVERSITI TEKNIKAL MALAYSIA MELAKA

DESIGN A MOBILE DATABASE USING SQL FOR PROBRAND SHOP

This report is submitted in accordance with the requirement of the Universiti Teknikal Malaysia Melaka (UTeM) for the Bachelor of Computer Engineering Technology (Computer Systems) with Honours.

by

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BORANG PENGESAHAN STATUS LAPORAN PROJEK SARJANA MUDA

Tajuk: Design A Mobile Database Using SQL for ProBrand Shop

Sesi Pengajian: 2019

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I hereby, declared this report entitled Design A Mobile Database Using SQL for
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Signature: …………………………………

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APPROVAL

This report is submitted to the Faculty of Electrical and Electronic Engineering of Universiti Teknikal Malaysia Melaka (UTeM) as a partial fulfilment of the requirements for the degree of Bachelor of Computer Engineering Technology (Computer Systems) with Honours. The member of the supervisory is as follow:

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Signature: ………………………………………….

Co-supervisor: Dr. Zanariah Binti Jano

ABSTRAK

Apabila terdapat begitu banyak data disimpan yang perlu dikongsi atau diakses, pangkalan data sangat penting. Sangat penting bagi perniagaan percetakan seperti PRObrand untuk memiliki pangkalan data mereka sendiri, kerana mereka mempunyai banyak aliran data untuk setiap bulan seperti senarai pengeluaran, kehadiran pekerja, dan pengurusan gaji. Sesetengah orang mungkin menggunakan hamparan untuk menyimpan semua data dan tidak dapat dinafikan bahawa hamparan juga merupakan alat yang baik untuk pemprosesan nombor. Dalam perspektif perniagaan, banyak data perlu disimpan, nombor perlu diproses seperti pesanan pelanggan, pekerja dalam inventori, dan barang yang disimpan dalam inventori, ia mungkin memberi sedikit kesukaran apabila menggunakan alat hamparan konvensional. Oleh itu, projek ini bertujuan untuk membuat aplikasi yang dapat menjejak aliran data kedai bagi menggantikan kaedah konvensional seperti menulis dalam buku atau merekodkannya di aplikasi pejabat. SQLite digunakan sebagai Sistem Pengurusan Pangkalan Data Rasional (RDBMS), aplikasi pula direka bagi memudahkan akses ke pangkalan data dan mengeditnya. Kemudian pada aplikasi, pangkalan data boleh dilihat untuk pengguna dengan dua cara. Sama ada akses oleh admin atau oleh pekerja.

ABSTRACT

When there are so many data stored that need to be shared or accessible, the database is very important. It is very important for printing businesses like Probrand to have their own database, as they have a lot of dataflow for each month such as production list, worker attendance, and salary management. Some people may use spreadsheet to keep all the data and cannot be denied that spreadsheet is also a good tool in number crunching. Take it to a business perspective, a lot of data need to be stored, numbers need to be processed like customers order, workers in the inventory, and the materials stored in the inventory, it might give a headache when using the conventional spreadsheet tool. So, this project aims to create apps that can keep track of the dataflow of the shop instead of using the conventional methods like writing in a book or recording it in office apps. SQLite is used as the Relational Database Management System (RDBMS), then an app is created to access the database and edit it. Then on the apps, the database can be viewed for the user by two manner. Either be access by admin or by the worker.

DEDICATION

To my beloved parents, teachers, lecturers, and anyone that will read this.

ACKNOWLEDGEMENTS

First and foremost, I would like to praise to Allah for giving me the strength to complete my Final Year Project (FYP) without any challenges and interruption. Next, I would like to send my acknowledgement to my family that gave me the moral support for me to complete my task. Lastly, I would like to send my gratitude to all lectures and friend that involved in my attempt to finish my FYP. All their support really helps me during the FYP period.

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LIST OF ABBREVIATIONS

BI	Business Intelligence
KPI	Key Performance Index
SQL	Structured Query Language
IDE	Integrated Development Environment
RDBMS	Relational Database Management System
OODBMS	Object-Oriented Database Management System
UML	Unified Modelling Language
ADT	Android Development Tools
DNS	Domain Name Server

CHAPTER 1

## INTRODUCTION

1.1   Introduction

Database is very important now days, as many information need to be store in one place for easy access. Business in this modern era creates enormous amounts of data daily which contains data of their customers, their products, and information of their staff and so on. Also, the collected data also can be processed in order to discover a new possibility in their business and creates more competitive market among their competitors. Beside of discovering new possibilities, the data obtained can also be used for making a critical decision that will shape the growth of their company or business.

Spreadsheet is one of the conventional ways to store data as it makes it easier to use and organize the interface in tabular form. But when storing enormous amounts of data with many workbooks, finding the data from hundreds or thousands of records can be difficult if the sheets and workbook have not organized and labelled accordingly.

Therefore, a database system can be used as the method of data storage to solve the problem. Database will be implemented in an app, making it useful for some works, such as checking material stocks in the store inventory, creating a list of staff attendance that comes to work every day, and keeping a salary record for staff every month. (Invest Northern Ireland, n.d.)

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1.2 Problem Statement

As can now be seen days ago, the way in which data is stored has changed from writing it manually on paper to digitally typing it in spreadsheet. Even in data storage there is technological evolution, but for current needs it is not enough. Because more and more things can be recorded digitally, we come up with one problem which is how to make the data available everywhere?
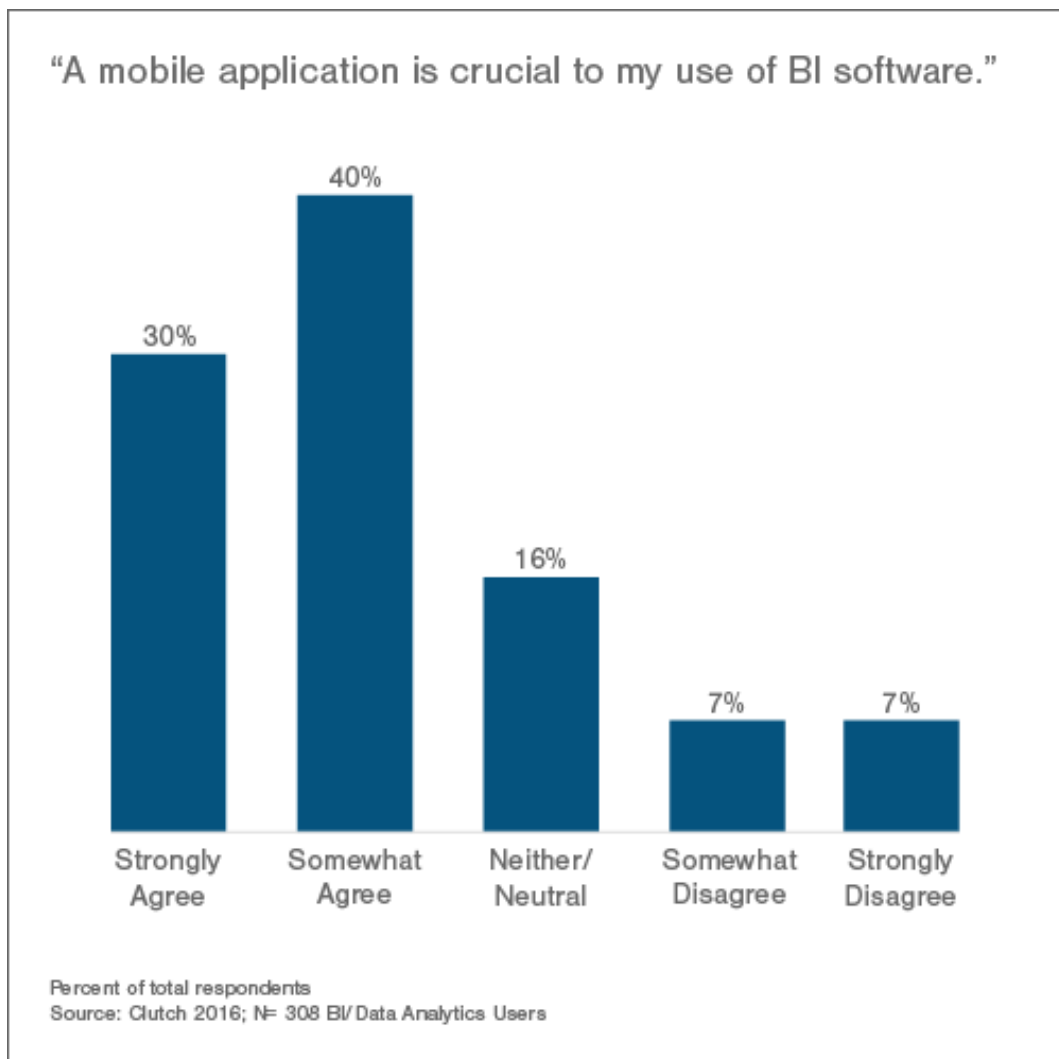
Figure 1.1.1 Importance of mobile application in BI software
(source: Clutch 2016, 308 respondent of BI/Data Analysis User)

Based on the Clutch's survey (2016) 70% of the respondent agree to the use of mobile application to the BI software. BI software is the Business Intelligence software that companies use to analyse their stored data in order to gain insights form the data for example to identify SWOT (Strength, Weakness, Opportunities, and Threats), measuring their company KPIs, making decision for their company and many more. From this, mobile application for BI software has become something that very crucial for their users. Adapting a software to become a mobile version of it can increase the functionality of that current software. Mobile application also makes the software accessible anywhere.

1.3 Objective

- To ease the work of tracking the product stocks of the shop
- To create a list of workers attendance for every month
- To manage the salary distribution of the worker for every month

1.4 Scope

The scopes of this project are based on the objectives that were mentioned above. The storing system which is the database will be created using the SQL, Structed Query Language. Next the mobile application that will be developed to make the database functional is created using the Android Studio which is an IDE, Integrated Development Environment that has a lot of feature that will help in the development of the app.

1.5   Organization

This project revolves around the designing an application that could help the ProBrand company in managing their business by utilizing database and android application. This report consists of five chapters. First, is a small introduction to the project, the objectives of this project, and the scope. Next, in chapter two, a literature review is written based on the current used method in storing data in business and the future of the method. Comparisons between the two methods will be discussed in the chapter two. On the chapter three, the detail of software and technique used to complete the project will be clarified in the chapter three. For the chapter four, all the results obtained from the project will be discussed there. Lastly, a conclusion will be made based on the results obtained and future suggestion will be proposed in the chapter five.

CHAPTER 2

LITERATURE REVIEW

2.1 Introdcution

This project revolves around the designing an application that could help the ProBrand company in managing their business by utilizing database and android application. This report consists of five chapters. First, is a small introduction to the project, the objectives of this project, and the scope. Next, in chapter two, a literature review is written based on the current used method in storing data in business and the future of the method. Comparisons between the two methods will be discussed in the chapter two. On the chapter three, the detail of software and technique used to complete the project will be clarified in the chapter three. For the chapter four, all the results obtained from the project will be discussed there. Lastly, a conclusion will be made based on the results obtained and future suggestion will be proposed in the chapter five.

2.2 Storage Method

There are two type of storage method that will be discussed in this chapter, one is the spreadsheet and the other one is the database.
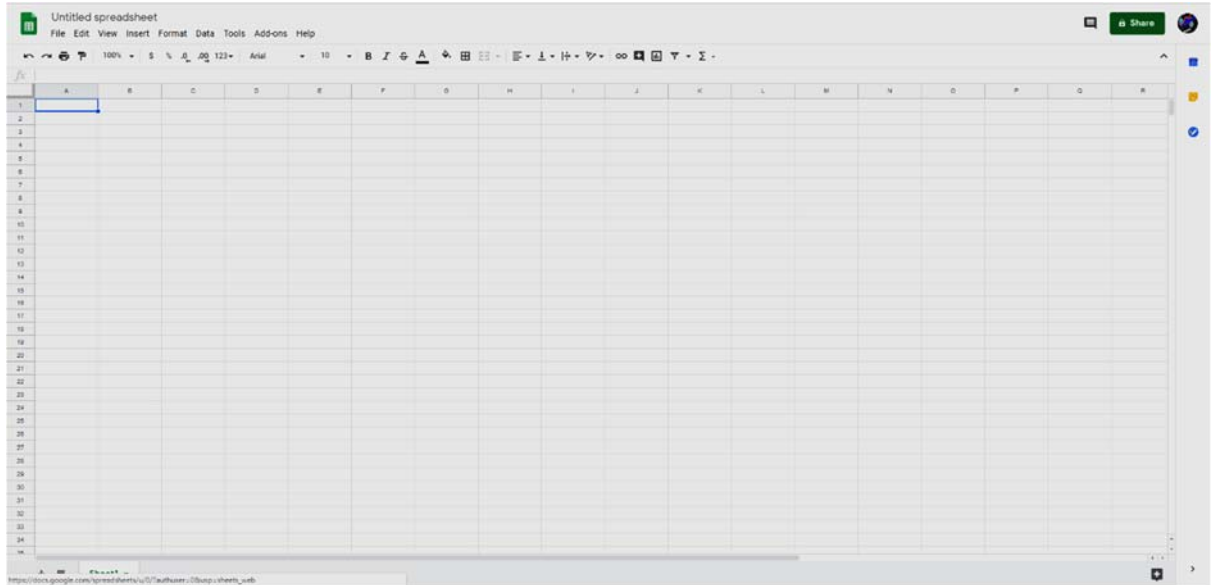
2.2.1 Spreadsheet

Spreadsheet program were first developed by Dan Bricklin and Bob Frankston in 1979 for the Apple II personal computer. The program was called as VisiCalc. MS-DOS version for IBM-PC of this program was released in 1981 which is after the launch for the Apple version. Then the program continues to evolve creating more version of it and

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developed by other developer. Some of the programs are SuperCalc, QuattroPro, and most grossing one which is the Microsoft Office. Spreadsheet programs have the same interface which is the two-dimensional grid of cells. Columns are labelled with alphabet letters starting from A, B, C… until Z and can also increase to AA and so on towards the program limits. For rows, it is labelled with number starting from 1, 2, 3, … until the program limits. For cells, it is addressed by row and column for example A1, A2, A3, … A cell can contain type of data like, number, text, or formula. Formula can be a constant, arithmetic operators like (+), function like SUM(…), or a reference to another cell. Spreadsheet also can perform automatic recalculation when there is a change in the cell and cells that are related to the cell that changed. Peter Sestoft (2012) has written the book called Spreadsheet Technology, which is where all the information stated here are referred from.
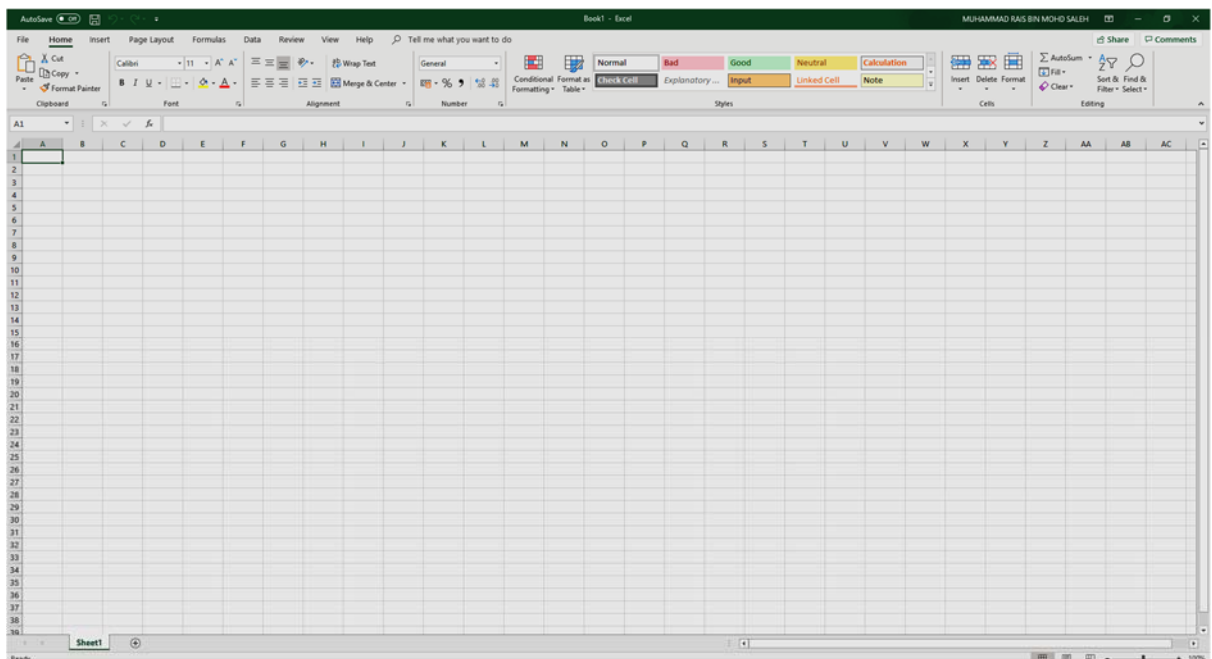

Figure 2.1.1 Microsoft Excel interface

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Figure 2.2 Google Spreadsheet Interface

Jorge Mendes et al. (2017) found that professional business usually uses the spreadsheet program to do calculation, decision, analyzation of data that they obtained. About 90% of all analyst in industry use the spreadsheet program to perform calculation on the data and 50% of spreadsheets data are for the basis decision. Spreadsheets are not only for defining worksheets with data and formulas, but spreadsheets also can be used to collect data from another systems, to make the data produced from one system fit with another system that uses another format, to optimize the data, to create a graphical representation of the data, and many more.
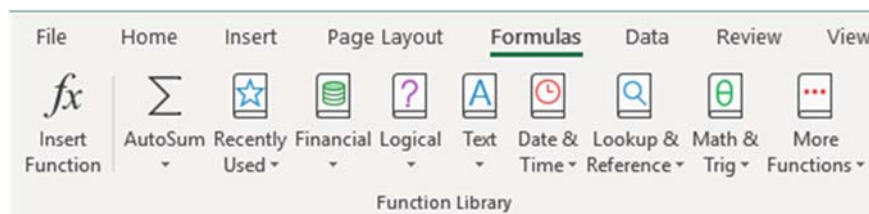
Figure 2.3 Microsoft Excel Formula Function

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Figure 2.4 Microsoft Excel Data Tools

2.2.2 Database

Database systems of the early generation around 1960's was navigational, which means that data was accessed by pointing from one record to another record. Data definition rely on the type of data that is going to be stored, thus any changes to the database require rewriting the access scheme or the modification scheme. User need to understand the structure of the database before querying the information. SABRE system is the one that use this kind of database and proved to be success. SABRE was used by IBM in order to help the American Airline in managing its reservation data. Next, come the relational database system that was developed in 1970 by E.F. Codd. What differs this database from the previous one is instead of pointing data from one to another, this database requires the application to search for the data. His system can be defined by two terminologies one is instance and another one is schema. Instance means table with rows and columns and for schema is the structure of the database which include the name of relation, name, and type of each column.

In 1976 a new database model called Entity-Relationship, ER was proposed by P.Chen. This model enables designers to focus more on the data application rather than focusing in the logical table structure. From that time the term Relational Database Management System (RDBMS) was created. Next in 1980, the RDBMS has been commercialized for business and Structured Query Language (SQL) become the standard language for the