INTRODUCTION OF A DATABASE SYSTEM AT SHALOM BUS SERVICES
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Abstract

Great strides made in Research and development (R&D) of technology in the 21st century have led to the exploit of computers in just about all spheres of our day to day life like education, businesses, sciences, law enforcements and the transport industry just to name a few to help them in their various jobs to accomplish their objectives. With the evolving of transportation systems over time and in response to changing travel demands and land use patterns and with the frequent use of busses by many individuals to travel from various places to different destinations a Bus service company has to adapt to this upstage in travelling by people whose frequent mode of transport is a bus for travel over long distances.

Since the inception of Shalom bus services in 1996 and until now the company's staff has been recording passengers' information bookings, reservations, freight services and the services offered by the Bus service company in a set of books in a lined manner which has been time overwhelming for the staff to record and having to glance out passenger records in the books. The lack of computers to record the point of origin, destination and the other services offered at Shalom bus services has exposed the need to introduce a computerised system to facilitate the recording of passengers' and employees' information using a database to be used for record maintenance.

This project highlights how Shalom Bus Services Company can implement and benefit from using a computerised database system in its business operations.

CHAPTER ONE

INTRODUCTION/ BACKGROUND

French C. S. (1996:2) defines a computer as a "device that accepts data in one form and processes it to produce data in another form" it is a piece of equipment used in storing and processing information fed into it and later giving an output, it is used in just about all spheres of day to day life and makes it easy, a computer has been regarded as one of man's furthermost greatest inventions in the 21st century as they are used in an assortment of disciplines to ease the comings and goings of work, from the time when computers were commercially made available to businesses and the public, a computer using an application such as Microsoft access can make a database which can be used for record keeping of a mixture of all kinds of information in any disciplines be it in ticket booking management, hospital record keeping, police records and passenger record management etc. to give value to the above Wozniacki (2007:13) states "a database system is used for record keeping on a computer", the course of action of recording passengers inflow and other services in many bus services companies involves records being held in reserve in files and Shalom Bus Services is not exempt to this type of documentation maintenance. Time is an inseparable component of all changes that take place in the real world. A transportation system, for example, evolves over time through its innovation and maintenance projects. Furthermore, changes of transportation systems and land use patterns are not independent from each other. Land use changes to often modify the travel demand patterns and lead to transportation system changes.

The purpose of this study is to ascertain the use of a database to record the point of origin and destination of the passengers, making reservations, indicate the number of seats which are vacant or occupied and to determine the bus rates as they are different kinds of buses in different comfort categories.

CHAPTER TWO

I. 2.0 BACKGROUND LITERATURE REVIEW

Database system is now such an integral part of our day to day life that often we are not aware that we are using one. The database system is arguably the most important development in the field of software engineering and the database is now the underlying framework of the information system. Years ago, if you wanted a transportation and logistics database software solution, all you had to do was to prepare a copy of your files and start writing in names and other details pertaining to passengers all goods. Most people in the industry (bus transportation) only used their centralised and decentralised filling system to do this, but that was before the explosion of international trade and import happened. Now, if a company does not have a comprehensive and dynamic solution, a company might just end up paying too much for that 40-foot high cube of storage of clientele documentation.

There are many types of databases and a relational database is one of them, it is a database management system that uses the relational data model developed and it is the most commonly used type of databases. A database system allows Managers, Supervisors, Accountants, and others to adjust and accommodate the queries according to the information needed at that point in time. Raw data can be analysed however one sees fit and not as reports predefined by accountants. Relational databases are used in record management for the purpose of storing large amounts of information, retrieving it in any way necessary at that point in time, and to share financial information easily to anyone digitally. Because of its ability to collect disaggregated data and provide tailored information for individual users, to give value to the above Jackson (2003, 7) states "relational database models have received widespread attention in record management as a means of providing many types of information in a timely manner".

Shalom Bus services was established in 1996, the company entered the transport bus with only a few numbers of Rosa buses operating in selected routes of the country on a small-scale transport business. Since its inception the company has been using the manual system in its business operations. The company has now grown as it offers luxury coach services, business class coach services, time bus services and delivery of parcels. There is need for the company to implement a database system is a lot of service transactions which need to be recorded and stored to facilitate the effective and efficient running of the business. It is particularly significant that the labour force at Shalom Bus services company have a comprehensive and complete understanding of the database to keep records of the travellers who use the Bus, currently the registration of travellers using the Shalom bus services involves taking down the information of travellers in a ruled style which is later placed aside and used to refer to when there is need

to attend to travellers travelling on the Bus, or have booked etc., while this type of registration is imperative for Shalom bus services to keep information, it is inadequate in the sense that it can't stockpile vast amounts of data which can be quickly referred to so a database is needed to store vast amounts of information on passengers.

Blancard (2006, 34) stipulates that "these methodologies form the framework for planning and controlling the creation of an information system", the process of system development starts when the management realises that a meticulous business requires upgrading, the system development life cycle modus operandi can be thought of as a set of performances that analysts, designers, and users clutch out to build up and put into operation of an information system. The SLDC is a mould that describes activities and functions that all systems perform in spite of the consequences of which they use, these steps include systems planning, systems analysis, systems design, systems implementation and systems operation and support. In software engineering the SLDC concept underpins many kinds of software development methodologies.

Transportation and logistics database software organizes more than just names and numbers within companies, and it handles more than just email addresses as well. In fact, it offers the ability to analyse the different options, based on the passengers and cargo involved, originating station/port, and destination of the passengers and cargo to ensure the best deal for the transportation and shipment of passengers and their cargo.

In an undertaking to articulate the wide use of the database system into a wide multiplicity of departments at the bus company, the following sections review a few of the uses of the database in a selected number of departments at the Shalom Bus Services, it can be argued that illustrating the implication and uses of the database in a few selected departments of the bus makes it correspondingly imperative for Shalom Bus Services to have it setup pursuing to save clients better and be competent in the new technology, the various uses of the database by the business today reflect the need for understanding the various uses of the databases it is a critical form in client information management. The database system will also highlight various applications used to track passengers' details and employees' details using the database.

A. *2.1.1 EMPLOYEES DATA FROM THE DATABASE*

With the aid of the database system there is no need of searching or updating employees' details in books manually. The data about employees can be manipulated or updated and stored easily in the database. Information concerning employees can also be easily retrieved using Sequential Query Language or Query. By Example. Retrieving or updated data about employees using the manual system is very time

consuming and tiresome but when using the database system everything seems to be very simple. For instance, if you want retrieve detailed data about Shalom Bus Services Employees the following Sequential Query Language can written.
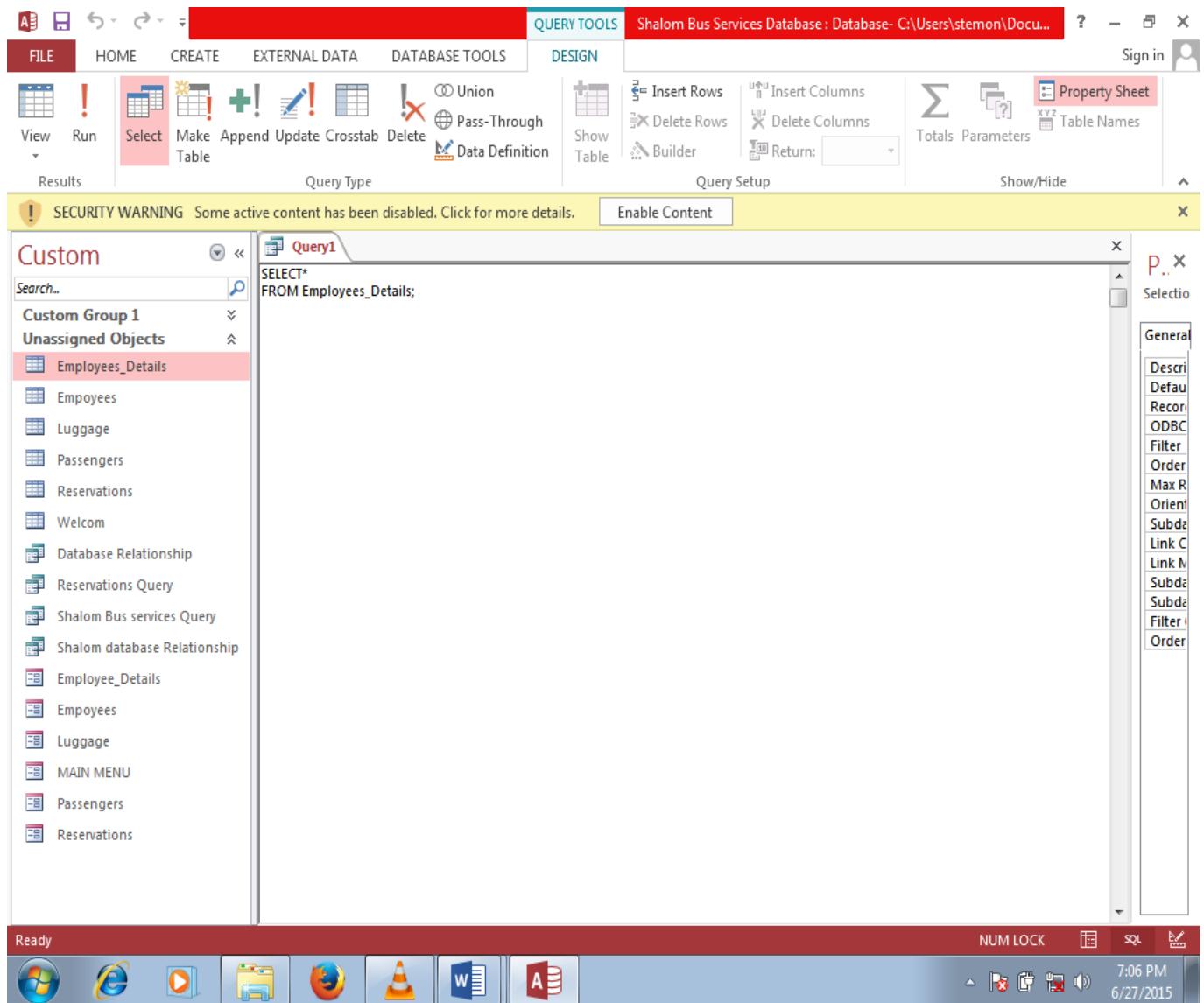

Figure 1; Shows Employees_Details SQL View

After running the above SQL following information will be retrieved from the database as shown below

Figure 2; shows Employees_Details Datasheet View

B. **2.1.2 PASSENGERS' DATA FROM THE DATABASE**

The database system will allow the user to retrieve, update, maintain and store employees' information without any difficulties. Shalom Bus services Company can save time by using transportation and logistics database software to check the passengers' detail such as Name, Reciept_Number and Reg_Number. A transport database system will cut down on paper and save the company money; they will be no more need to send paper invoices, which can become lost in the mail or at the company offices. With the aid of database system there is no need of searching for passengers' details in books manually. Information of passengers who are on board can easily be retrieved using Sequential Query Language or Query By Example. Retrieving or updated data about passengers using the manual system is very hectic and time consuming. For instance, if you want to retrieve information about passengers who are on board the following Sequential Query Language can written.
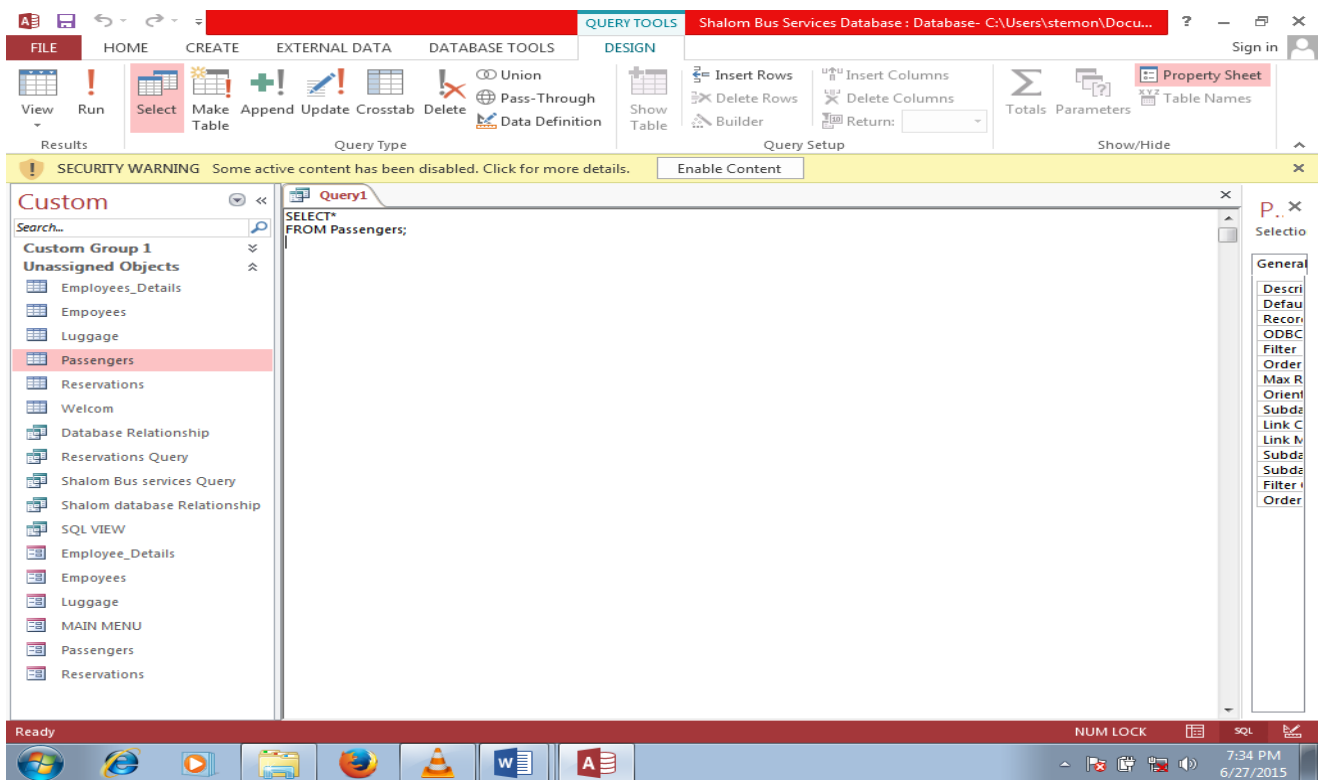
Figure 3; Shows Passengers SQL View

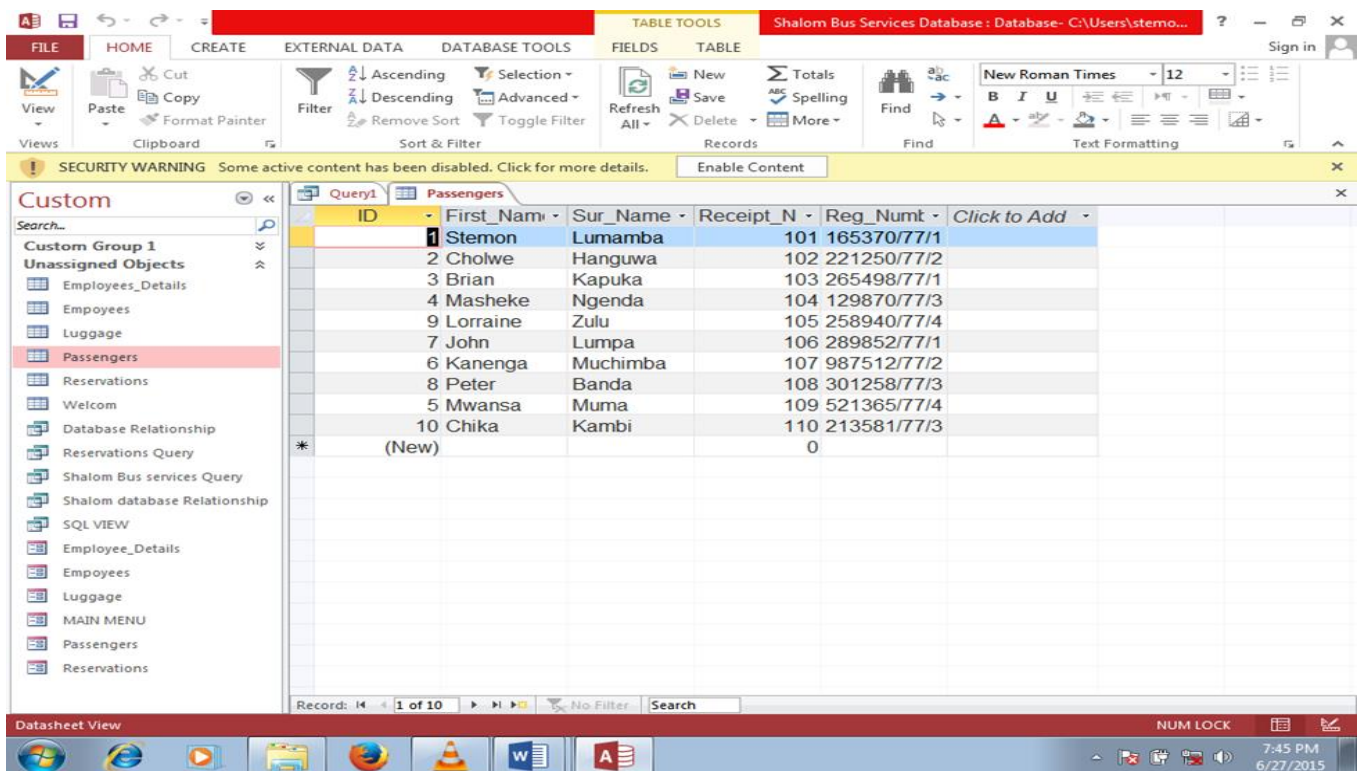After running the above SQL following information will be retrieved from the database as shown below

Figure 4; Shows Passenger Datasheet View

C. **2.1.3 SEARCHING FOR LOST LUGGAGE USING TRANSPORT DATABASE SYSTEM**

The database system in very useful in find lost passengers' luggage. The passengers table in the database contain of receipt numbers which is the primary key (unique identifier). Receipt numbers of the passengers correspond with tag numbers in the Luggage table and the in the foreign key in that table. In the event where the passenger who is on board loses or misplaces his or her luggage, his or receipt number can be used to find his or her luggage. The tag number will correspond to the receipt number of the lost luggage and if the luggage is not found passenger be genuinely be compensated. The rational database in the next page shows the relationship between the passengers table and that of the luggage table.
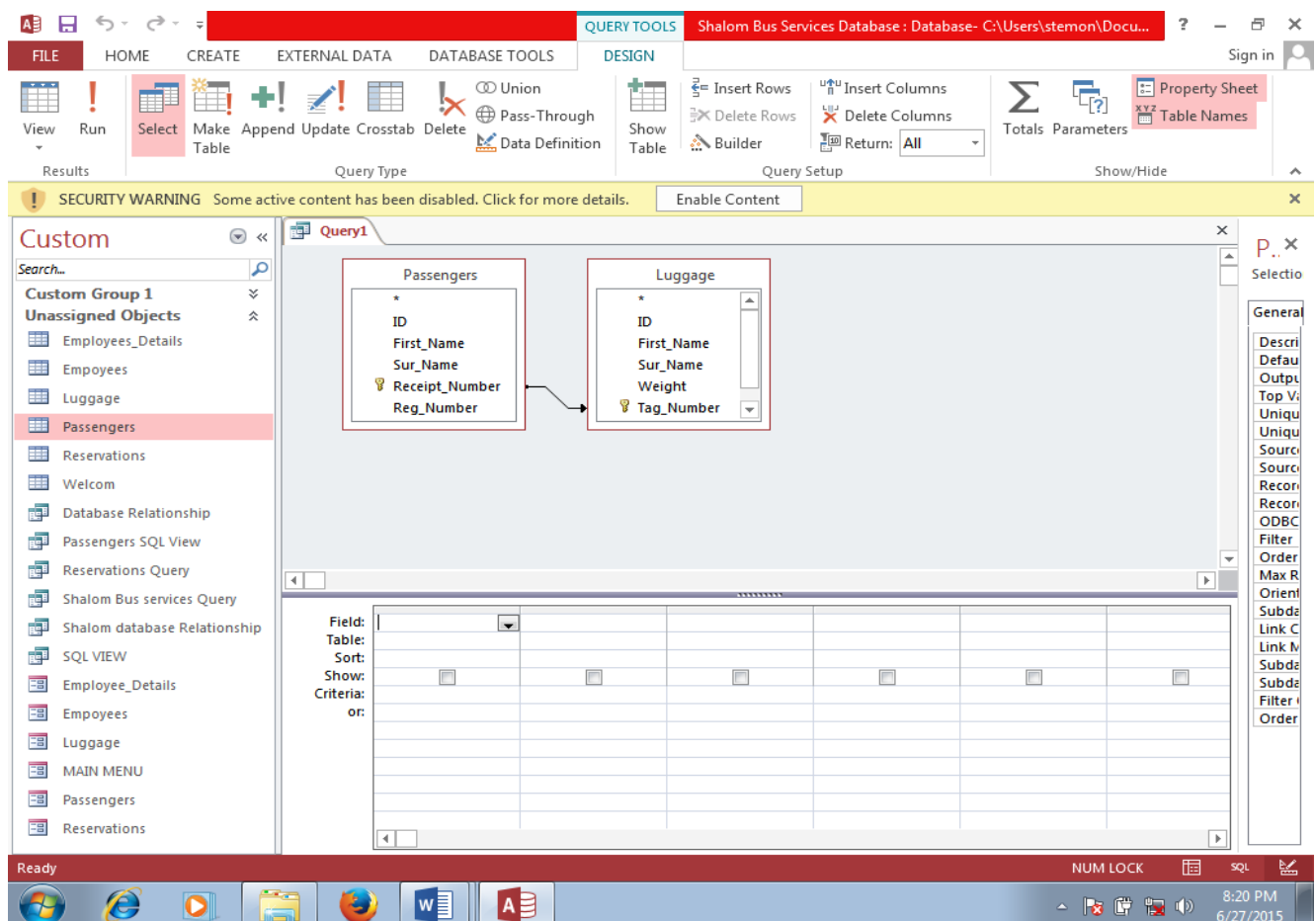

Figure 5; Shows Passengers and Luggage Relationship.

D. *2.1.4 OTHER USES OF THE TRANSPORT DATABASE SYSTEM*

When using a transport database system Branson (1999, 84) stipulates that "there is greater accuracy since data is only input once and transactions carried out automatically in the database system" the accounts department of Shalom bus services will efficiently manage the information or the details of the clients bill as there is greater precision since data is only entered once in the database and transactions carried out without human intervention whereas with a manual system data may have to be entered twice or more thereby wasting time on clearing clients bills on time on their computers which is for some clients who pay for their seats in advance and this statement is kept in the database.

It's important that the data held on the database in computers is regularly saved for future references by the accounts department, bus services company deem it essential to keep such information so as to know if they are making a profit or loss when the accounts departments tallies up the figures and establish the financial standing of the bus services company at the end of the month or year and whether the guesthouse needs to make some enhancements to increase on the profits, databases reduce on the possibility of information getting lost or destroyed as it is saved and can easily be backed on peripherals like external hard drives, flash disks etc. and be put away in a secure location to be retrieved when desired, to give value to the above Ambani (2007, 24) states that "some large organizations may deem it essential to keep CDs, floppy disks etc.

Transportation and logistics database software will put an end to the nightmare of using manual system. It will help you streamline your workflow, cut costs, and increase your productivity. Your employee dispatchers also will create better routing schedules. Here are some of the key functions you can do with transportation and logistics database software;

➢ Planning and decision making: it will define the most efficient transport schemes according to given parameters, which or higher importance according to the user policy.

➢ Transportation Execution: will allow for the execution of the transport plan such as carrier rate acceptance, carrier dispatching etc.

➢ Transport follow-ups: will allow following any physical or administrative operation regarding transportation.

➢ Measurement: have or need to have a logistics key performance indicator reporting function for transport.

CHAPTER THREE

II. 2.2 PROBLEM DEFINITION AND REQUIREMENTS ANALYSIS

Taking into consideration how a database system would be of great importance and its impact if it is in place at Shalom bus Services Company. The database not being in place to the maximum degree disadvantages the named company as it hinders the company from successfully and proficiently recording passenger particulars and attending to requested services recorded in the database promptly, this research work is being conducted to expose some of the inhibiting factors that occur due to the lack of a database system at Shalom Bus services. Among the militating tribulations faced due to a lack of a database system at Shalom bus services is the company keeping track of not just their potential customers but also their taking and booking reservation routines as reservations are written down in files and put away and later retrieved after the booked passenger makes good on his/her reservation which will be a waste of time on both parties but especially more to the waiting passenger.

The existing manual system uses paperwork and human communication by the potential passengers and the company's staff to manage the information, this delays information transmission in the Bus Company, bookings and reservations which are done through phone calls or through visit to the various Shalom Bus Services company station offices involves taking down he passengers personal details such as Name, Age, Destination, point of origin, time booked and the receipt number.

A. 2.2.1 MANUAL SYSTEM FLOWCHART DIAGRAM
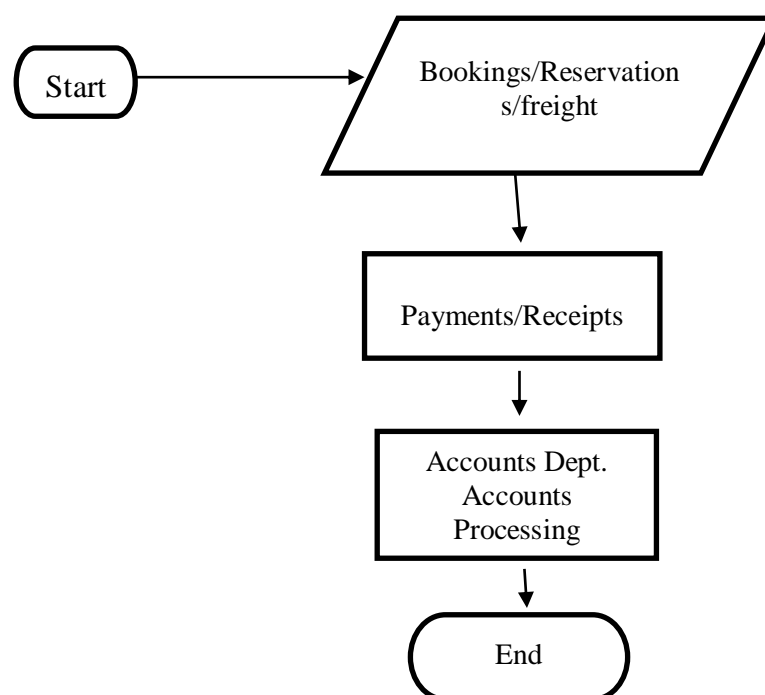
2.2.2 PROBLEMS IN THE MANUAL SYSTEM

There are a lot of intricacies in the manual system for instance the location of passenger files due to the large number of passenger information files, the scene of passenger files during checking in on the booking of a seat on the bus, updating of passenger payments or passenger refunds, receipt generation and checking the receipts are extremely difficult for Shalom bus services human resources.

The storage of passenger information and the information of cargo being transported by the bus is a problem for the Shalom bus services Company as they are many passengers travelling on the bus and many tons of cargo being transported 24 hours a day 7 days a week 365 days a year, the physical documentation inhabit too much space of the many storage rooms constructed to store such information.

There are many Human errors involved in the computation of passenger information in the files and then information is poorly generated, poorly generated records encourage omission of some important data by the employees, such data as the passenger's luggage is omitted, this leads to security problems at the station offices such as armed or petty robberies.

No proper regular account roaster is kept in the ticket offices, this disadvantages the company staff to keep data of cash transactions along with the available seats on the busses pertaining to ease of use by the comprehensive audit and this becomes a major headache for the accounts personnel as they add up the numbers as they always have to flip over the numerous pages in the books and files containing all the ticket transactions.

Personal information of the passengers which should be added to the database system as they book seats or reservations from the various ticket selling offices is not added which is a big disadvantage in case unfortunate unforeseen circumstances happen like an accident of the bus going down or the passengers cargo being transported getting lost in transit, in the case of the death they would have to contact the family of the deceased or informing the company or individual using the bus to transport goods from one destination to the other of the loss of goods if ways to find the lost goods in transit do not materialise.

The Bus services company's ticket offices are not usually notified on the number of seats which are readily available or vacant as every record is taken down in files and not easy to establish which seats may either be vacant or occupied as the ticket office personnel will take a long time to turn over the pages to check.

Keeping a successful track data is a problem as files one after the other is changed when filled up and the files which are full are put away in the bookshelves hence it becomes difficult for Jordan Bus services to refer to the previous records whenever they want to check for old records because they might either be stacked amongst many files or files might be lost as a result there will be inconsistence in their execution of work.

The most serious problem militating against the setting up of a database at Shalom Bus services is insufficient knowledge by the company's personnel on how a database works and its advantages to the administration which attracts 12 (30.3%) responses by the respondents. Followed by an epileptic preservation of records which attracts 11 (25.2%) respondents; while lack of keeping a successful track data of passengers attracts 5 (12.5%) responses from the respondents; 5 (10.4%) respondents indicates that no proper account roaster to handle their passengers bills efficiently.4 (7.3%) of the respondents. The other reasons include apathy attitudes by the Shalom bus services administration to develop the company with effective service delivery, revert to database literacy due to lack of computer facilities to practice with and lack of importance/recognition attached to the Bus services Company. Yet other reasons given by Shalom bus services personnel respondents include time constraints due to a busy work schedule, illiteracy to computers encountered by the Shalom bus services administration, inadequate personnel at the Bus services company to go for training, and adequate unreliable manual file record management. This information is shown in the diagram below.

No	Problem encountered	No of Respondents	%
1	Insufficient Knowledge	14	31.3%
2	No proper accounts roaster	5	10.4
3	Maintenance of records	12	25.2
4	Apathy attitudes by Shalom bus services administration	4	8.3%
5	Unsuccessful track data of passengers	6	12.5%
6	Others	2	6.3%
Total		48	100%

Table1; Shows the Problems of the Manual System

B. 2.2.4 THE BENEFITS AND FUNCTIONS OF THE SYSTEM

The electronic registration system offers the following benefits as well as functions which cannot be offered by the manual system.

- ➢ It records details of the clients such as names and there registration number number.
- ➢ It searches for the clientele particulars.
- ➢ It deletes, edits, saves, store updates and retrieves the clientele information.
- ➢ It allows users to import, export data and copy data.
- ➢ It prints out reports about the clients.
- ➢ It flashes out any new clientele entered in the system who is sharing the same passenger number with the already existing passengers.

CHAPTER FOUR

III. 2.3 DESIGN AND IMPLEMENTATION (METHODOLOGY AND PROCESS)

It will benefit Shalom bus services to purchase computers on which a database for the company will be created and run smoothly. There will be efficient and effective flow of passenger's data and it will require a mandatory short course which will teach the basic practices of a database which the front office desk personnel who will be in charge of passengers check ins, checking outs and coordinating the bus services also other company tasks with the help of the database. This will enable him or her utilize the database effectively once it is implemented.

CHAPTER FIVE

IV. 2.4 TESTING AND DEPLOYMENT (FINDINGS AND OBSERVATION)

According to Cem (1996:206) states that "database system testing is an investigation conducted to provide information about the quality of the product or service under the test", the test plan is a document that outlines the ways in which the system is going to be subjected to different tests in order to determine whether the system performs in accordance with the requirements specified in the requirements specifications document. The main aim and objective of testing is to determine whether the system will achieve the functionally that it is set to achieve. Testing provides an opportunity to detect errors and inconsistencies in the system and would be able to help and guide users in an event of incorrect data entry

CHAPTER SIX

V. 2.5 TESTING PHASE

Before getting started ensure that your computer has been installed with the electronic database registration system (EDRS) system

Open the Passengers information registration database system by double clicking on the icon appearing on the desktop, named database system.

VI. 2.5.1 DATA DEFINITION

A data definition language or data description language (DDL) is a syntax similar to a computer programming language for defining data structures, especially database schema. Many data definition languages use a declarative syntax to define fields and data types. SQL, however, uses a collection of imperative verbs whose effect is to modify the schema of the database by adding, changing, or deleting definitions of tables or other objects. These statements can be freely mixed with other SQL statements, so

the DDL is not truly a separate language. However, SQL identifiers are used to identify objects in the database, such as table names, view names, and columns. The characters that can be used in a user-defined SQL identifier must appear in a character set (Connolly and Beggy: 2005). For instance, in this project, the fields in database table have a data type used in database table and are explained below.

Table Name; Employees

Field Name	Data Type	Size	Description
First_Name	Short_Text		
Sur_Name	Short_Text		
Employee_Number	Number		Primary Key

Table 2; Definition for Employees Shows Data

Table Name; Employee_Details

Field Name	Data Type	Size	Description
First_Name	Short_Tex		
Sur_Name	Short_Text		
ID_Number	Number		Primary Key
Designation	Short_Text		
Date_of_Birth	Data/Time		
Monthly_Salary	Number		
Physical Address	Long_Text		
Reg_Number	Long_Text		

Table 3; Shows Data Definition for Employees_Details

Table Name; Luggage

Field Name	Data Type	Size	Description
First_Name	Short_Text		
Sur_Name	Short_Text		
Weight	Number		Primary Key
Tag_Number	Number		Foreign Key
Colour	Short_Text		

Table 4; Shows Data Definition for Employees

Table Name; Passengers

Field Name	Data Type	Size	Description
First_Name	Short_Text		
Sur_Name	Short_Text		
Receipt Number	Number		Foreign Key
Reg_Number	Number		Primary Key

Table 5; Shows Data Definition for Passengers

Table Name; Reservations

Field Name	Data Type	Size	Description
First_Name	Short_Text		
Sur-Name	Short_Text		
Ticket_Number	Number		Foreign Key
Seat_Number	Number		Primary Key

Table 6; Shows Data Definition for Reservations

2.5.2 THE RELATIONSHIPS

A relationship is a situation that exists between two relational database tables when one table has a foreign key that references the primary key of the other table. Relationships allow relational databases to split and store data in different tables, while linking disparate data items. For example, in this project the employees table stores employees' data with a primary key column named Employee_Number; it also stores employees' data in the Employees_details table, which holds information about details of employees and associated employees of Shalom Bus services. To link these two tables and determine employees and their details, a corresponding ID_Number column must be inserted in the Employees_Details table, referencing existing Employees_Numbers from the employees table. In this case, the Employees_Details table has ID_Number column which is a foreign key that references a column in the Employees table. The relationships are configured as follows;
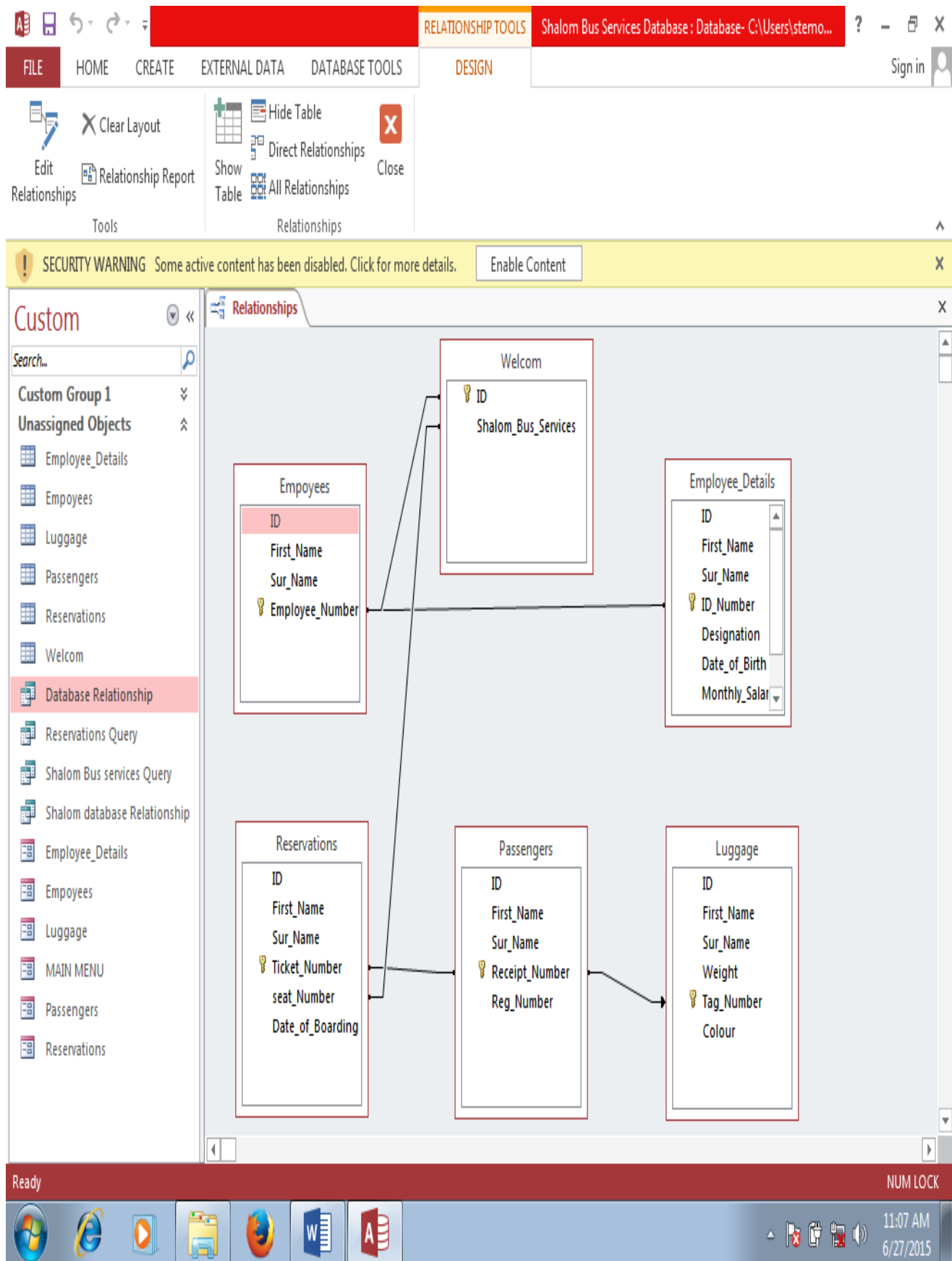
Figure 7; Shows the Database Relationship

The fundamental feature that differentiates relational databases from other database types is the ability to define relationships. A relation is thus a heading paired with a body, the heading of the relation being also the heading of each tuple in its body.
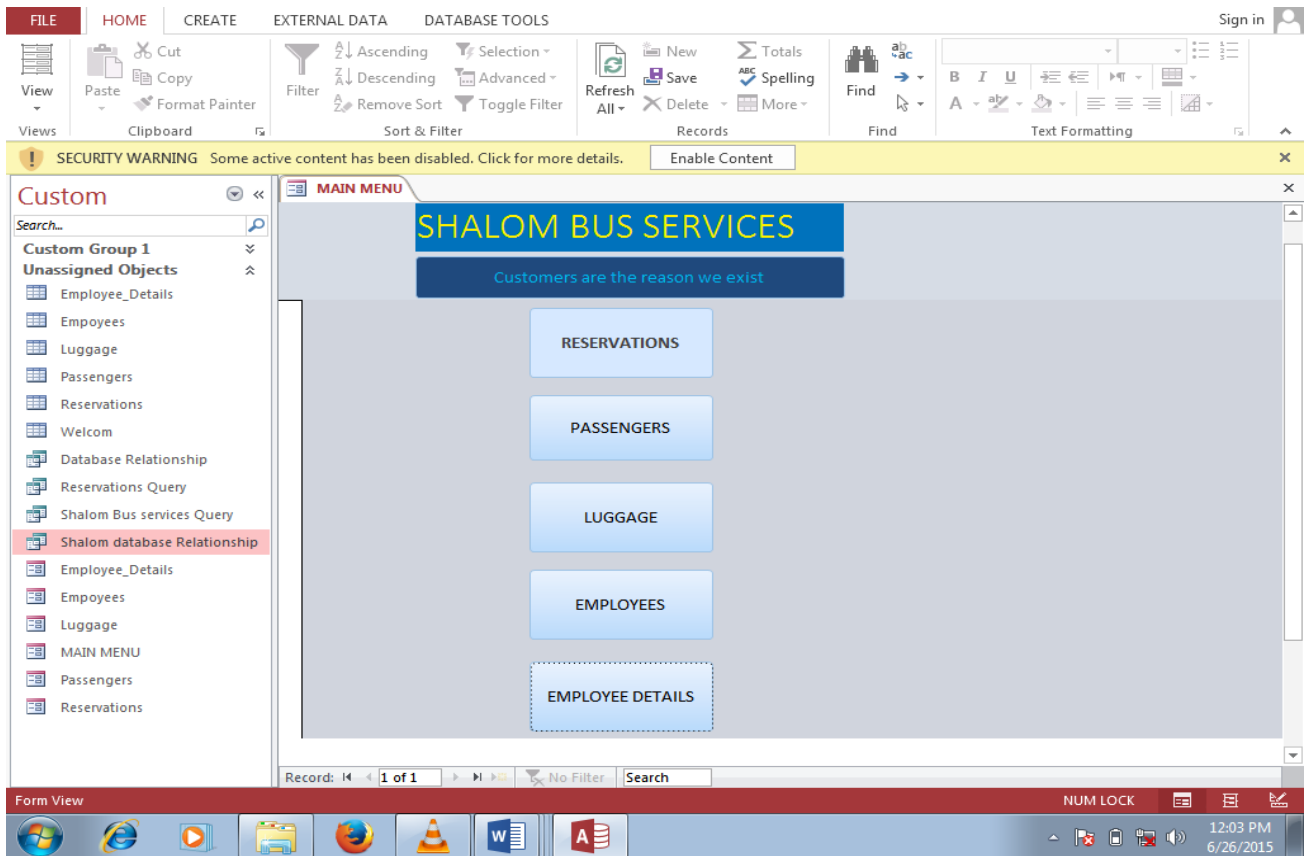

Figure 9; Shows the Main Menu

MAIN MENU

The above screen is called the main menu, it contains the levels options. This is the starting point of the registration of passengers who have booked on the train for a journey. Before starting it is important to note that the system data entry is the use of uppercase or small letter.

PASSENGER INFORMATION

To register passenger information at the Bus services company for those wanting to use the named Bus as a means of transport, click on **PASSENGER INFORMATION** icon on the **MAIN MENU**. The following menu will be displayed.
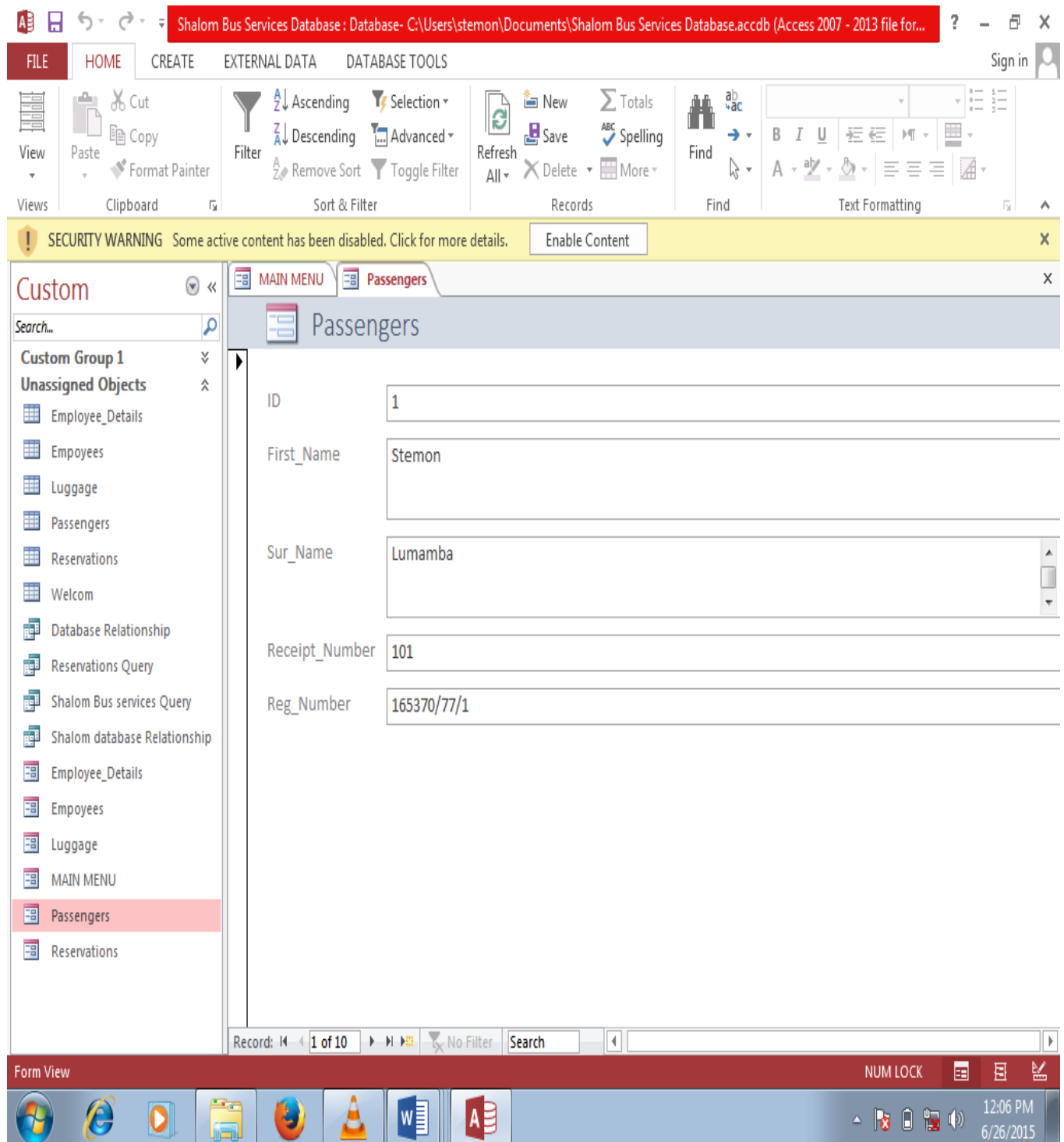

Figure 10; Passengers Form View

START REGISTERING

You may begin to enter the passengers name with the identification Number

- Type in the passenger's registration card number e.g. 567622/16/1

  Use a tab key or click on the box below to move to the next field. The registration card number is generated automatically.

PLEASE TYPE THE NAMES IN UPPERCASE (CAPITAL LETTERS)
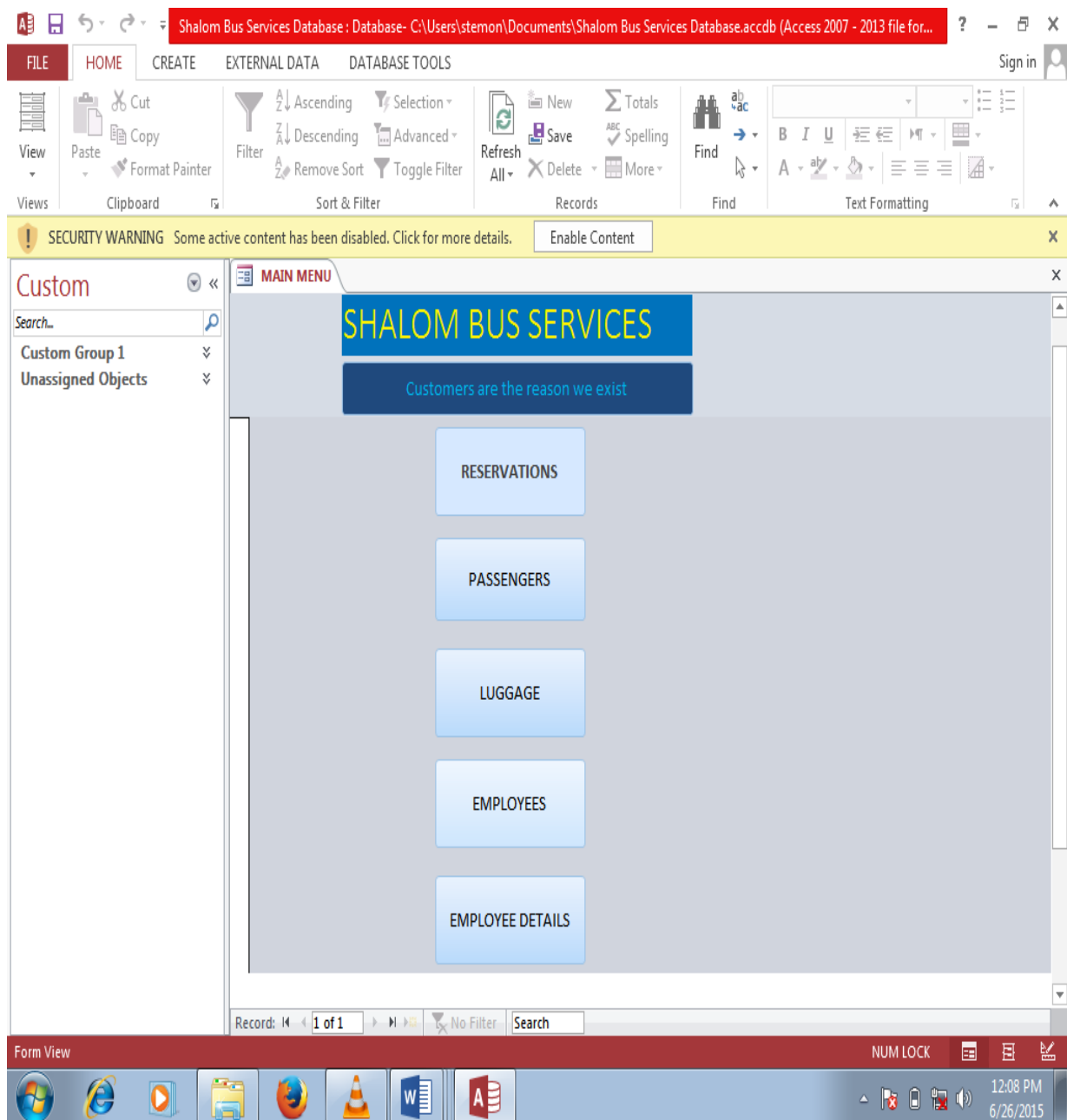
Figure 11; Shows the Main Menu

At this menu, you can either choose another level to register passenger's reservations in advance

For example, in the next page shows the Reservations Form.
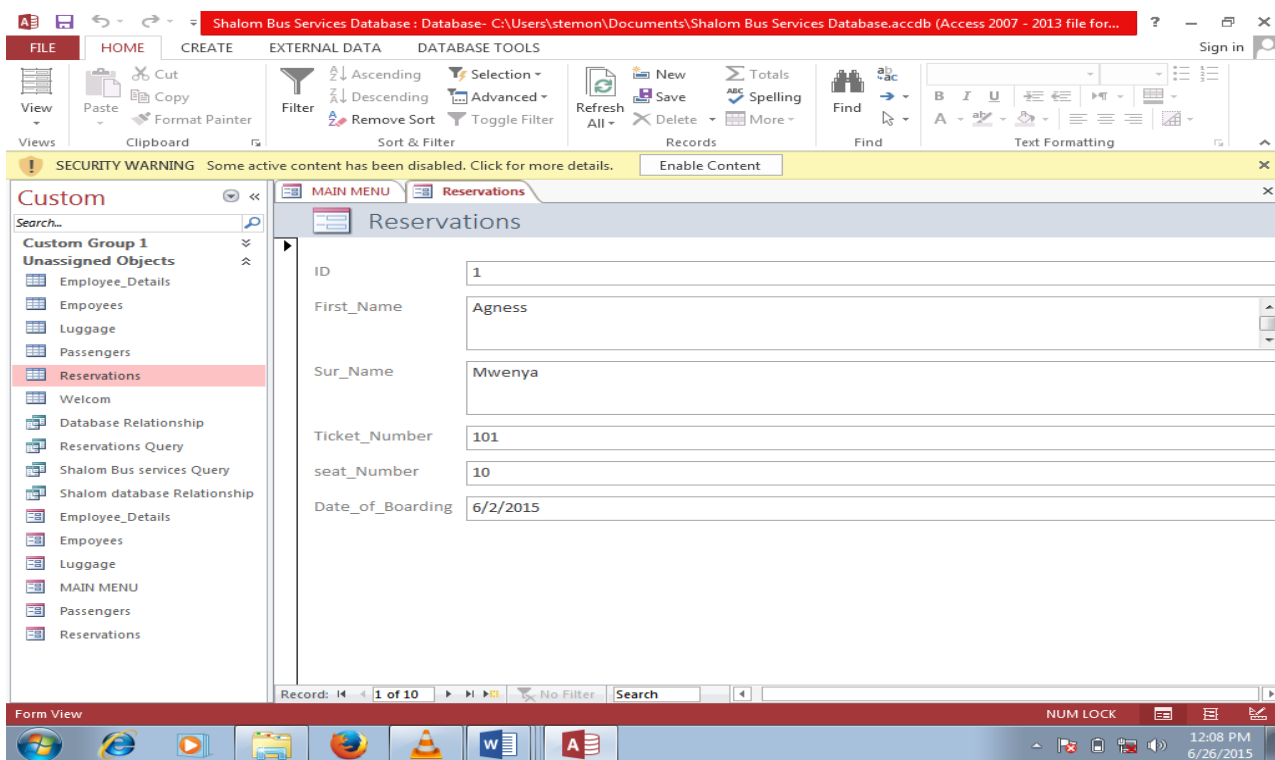
Figure 12; Shows the Reservations Form View

In the reservations window particulars of passengers who reserve in advance will be added, saved and later retrieved when the passenger makes good on his/her reservations.
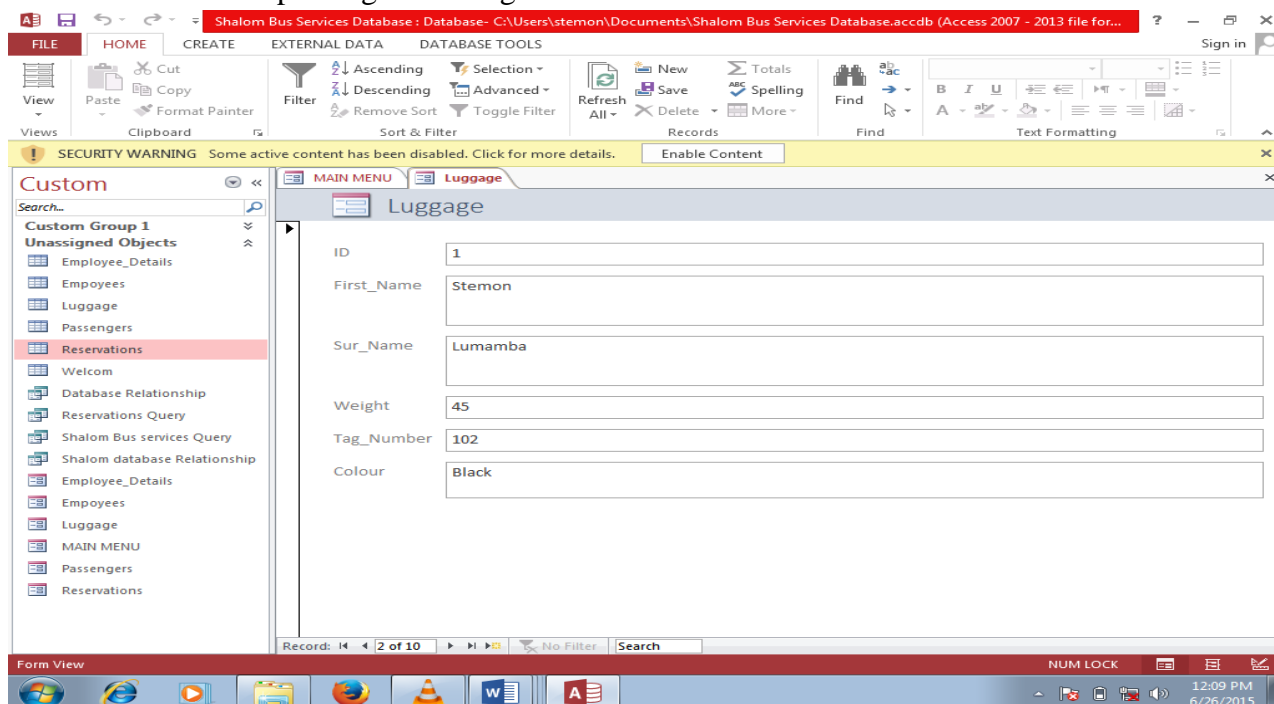

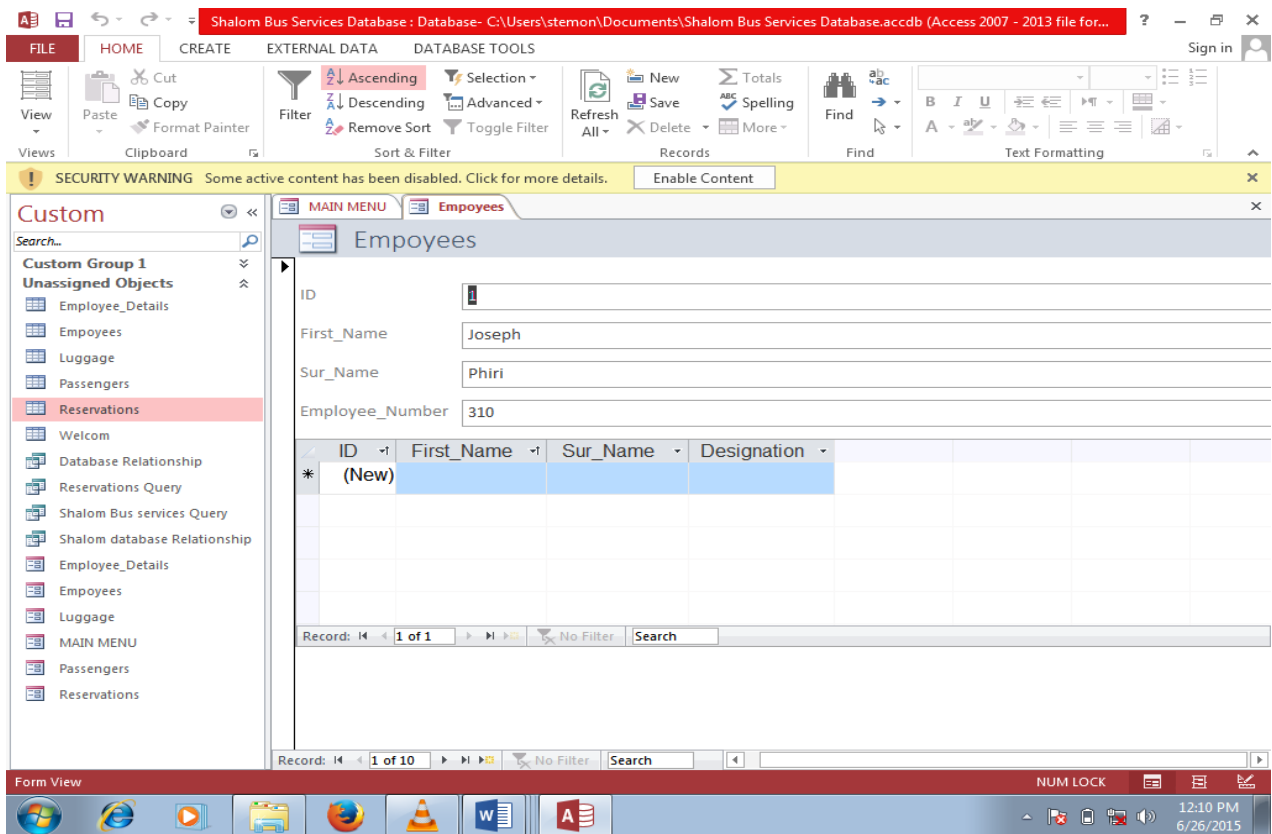*Figure 13; Shows the Luggage Form View*

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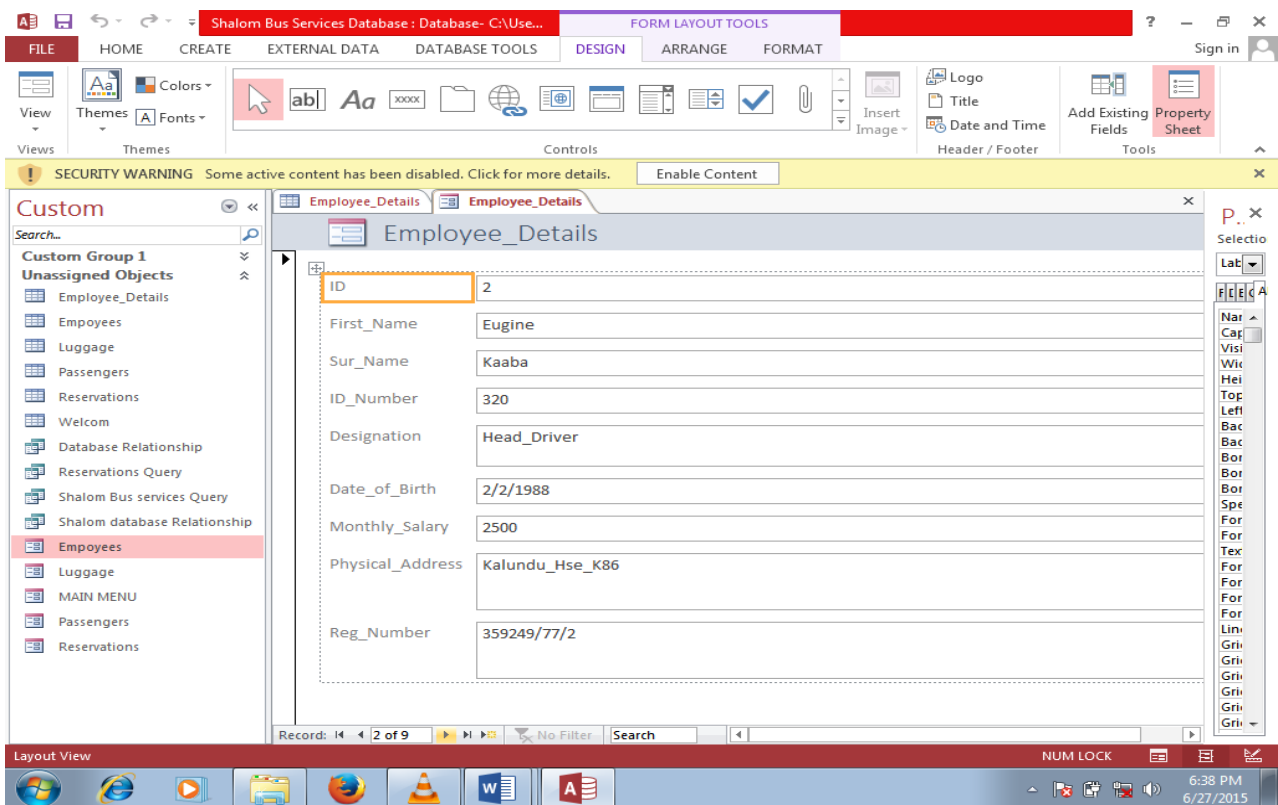*Figure 14; Shows the Employees Form View*

Figure 15; Shows Employees Details Form View

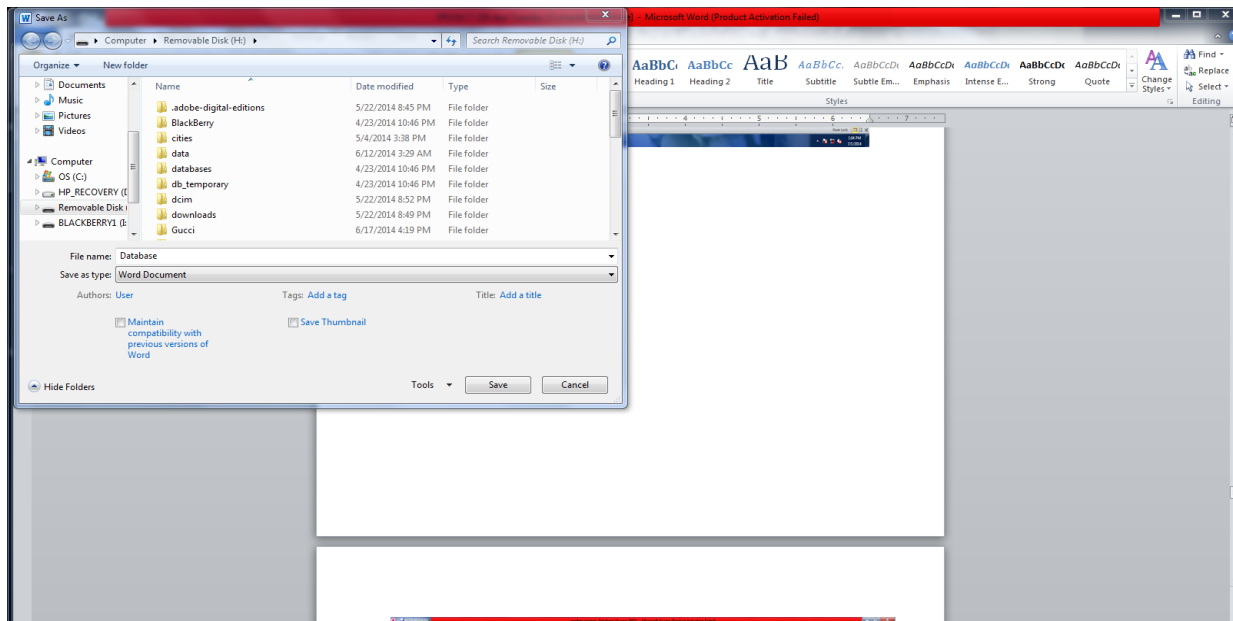To save the whole database on the computer click to save and select save and the screen will appear as.

Figure 16; Shows how to save the Database

The created database file can then be copied to a CD, flash disk or memory stick for storage and the click on close to exit the problem.
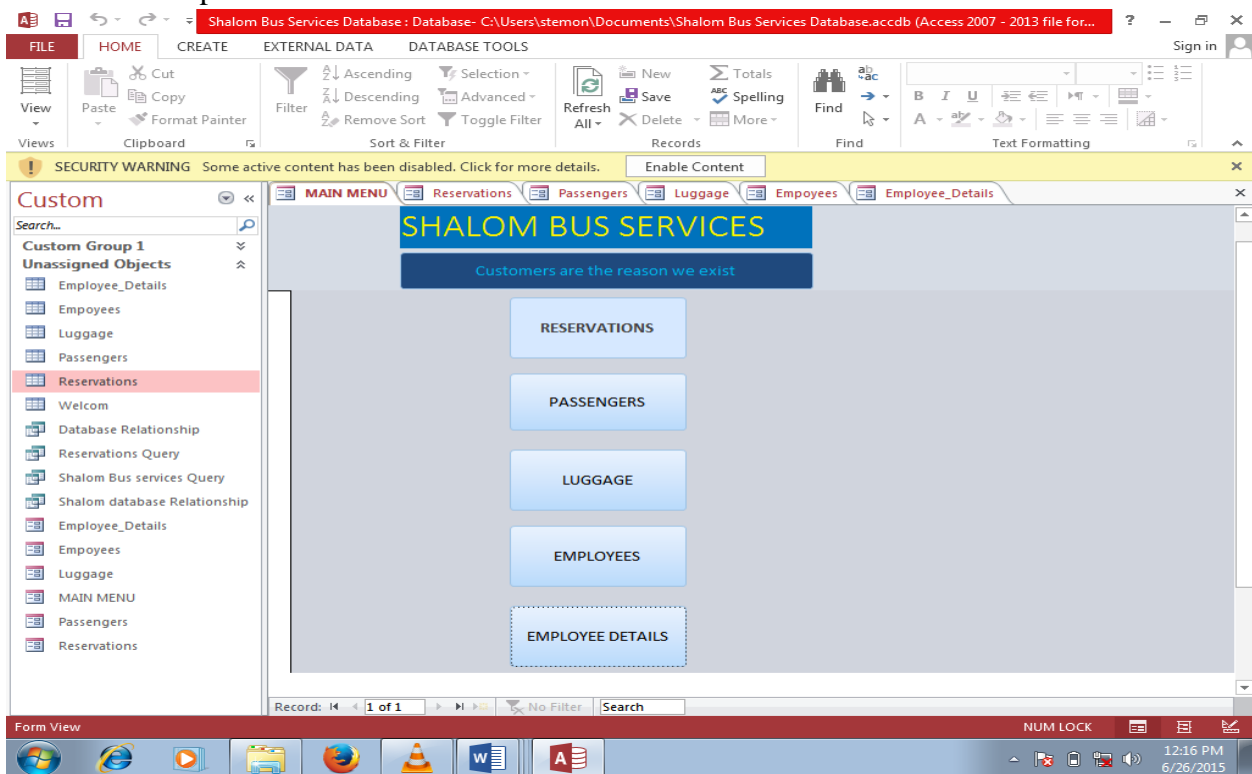

Figure 17; Shows the Main Menu

At this menu, you can either choose another table to which you can register candidates and perform other functions if not close the page to exit the system.

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CHAPTER SEVEN

VII. 3.0 FUTURE ENHANCEMENTS

A study of the most up-to-date resources and journals on the topic accessible on the database system as well as the most recent publications on the uses of the electronic database will be helpful. Hundreds of new journals and internet publications are published each year on the upgraded database and most are out of date within a year or two of the publication as applications and software is consistently upgraded by inverters to stay ahead. Future research could also include field studies that were unable to be completed here due to time and resource constraints.

For this project to work efficiently in order to benefit…. It needs some of the future enhancements outlined below.

➢ The system needs manual booklets as references in case the users get stuck on the way.

➢ The system should be able to produce reports effectively without difficulties.

➢ The system should be able to run on the internet so that managers who may not be presently at the premises can be able to access the system remotely.

➢ The system should be able to be understood by all the personnel so that they can easily use it.

VIII.4.0 CONCLUSION

In conclusion, the database has become an indispensable tool for numerous disciplines today, the database is used by businesses, hotels and guesthouses alike, the database has changed the way Bus services and other transport companies record, compile as well as share and communicate information concerning passengers and freight within the transport industry among different departments within the transport industry, the vast amount of information recorded on the database are immense and it is important to be able to store this information for future use because there is reliability and accuracy of all information collected on passengers.

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