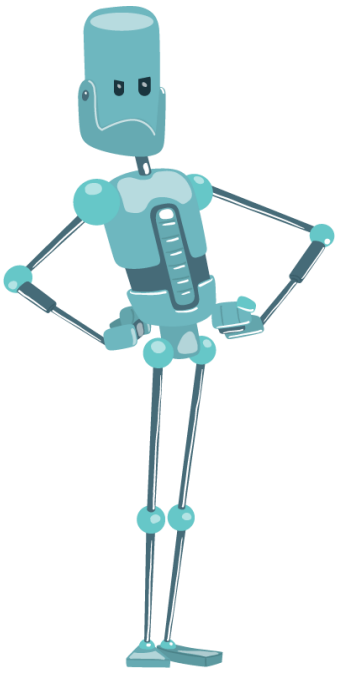
Dexter's Phone Bill



Structure of a database management system (DBMS)

Creating a database table

Dexter's problem

I am angry. Lately, my phone bill has increased and I am not sure why. I have asked my phone provider to check my bill but they have told me that it is correct - but I want to check!

So I need you to do me a favour.

I want you to build a database management system (DBMS) that will calculate and display the cost of my phone bill.

I will then compare my phone bill to the amount calculated by the DBMS.

Note:

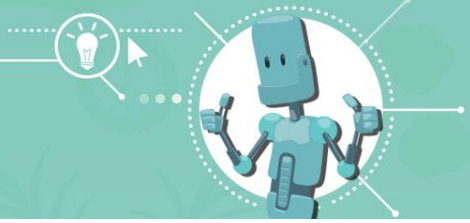
- Only voice calls are made using the phone
- Some calls are included for free within my phone plan
- The cost of other calls is charged at $0.03 per second

My phone bill for March 2018 was:

The Phone Company

$35.85

Please pay by 28 April 2018



Below is data for some of the phone calls I made during March 2018.

Note: Duration is measured in seconds.

Location	Call Date	Call Time	Destination	Duration	Free Call
Tokyo	1/03/2018	12:30pm	Melbourne	120	No
Colombo	3/03/2018	6:15am	Jakarta	10	Yes
Kolkata	5/03/2018	11:55pm	Dubai	67	No
Seoul	7/03/2018	1:05am	Tokyo	34	Yes
Shanghai	9/03/2018	12:01am	Kuala Lumpur	3	No
Manila	11/03/2018	5:41pm	Jakarta	100	Yes
Tokyo	13/03/2018	12:34am	Tokyo	34	No
Shenzen	15/03/2018	9:00am	Melbourne	1	Yes
Bangkok	17/03/2018	11:59pm	Tokyo	59	No
Tokyo	19/03/2018	12:01am	Johor Bahru	200	Yes

Notice:
The steps in these instructions are based on Access 2013 and are used for demonstration purposes only.

These steps may vary from version to version of Access or for other types of DBMS software.

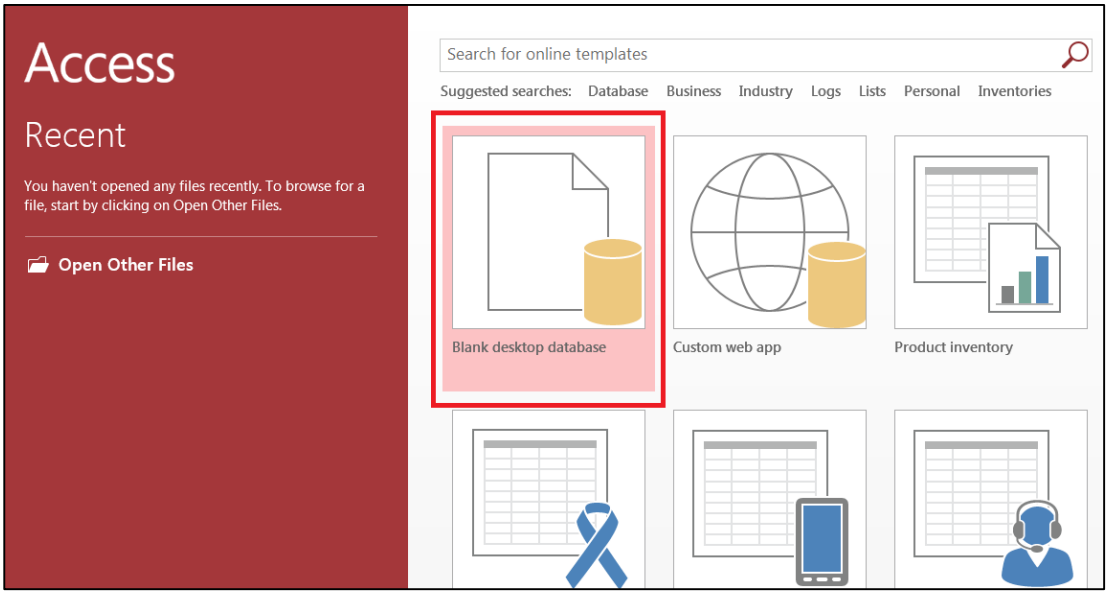
Please check with your teacher if you have any questions.

Required:

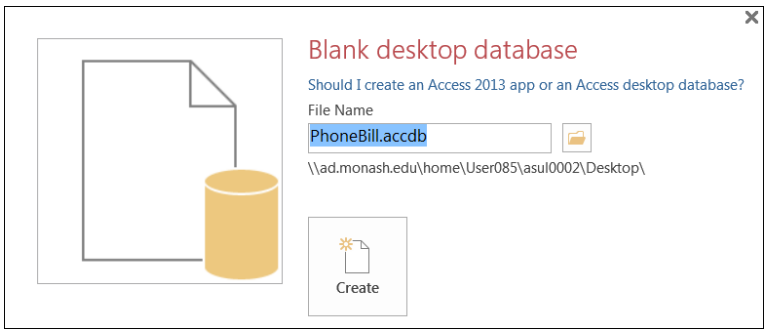
1. **Open** database management system (DBMS) software.

A popular type of DBMS software is Microsoft Access.

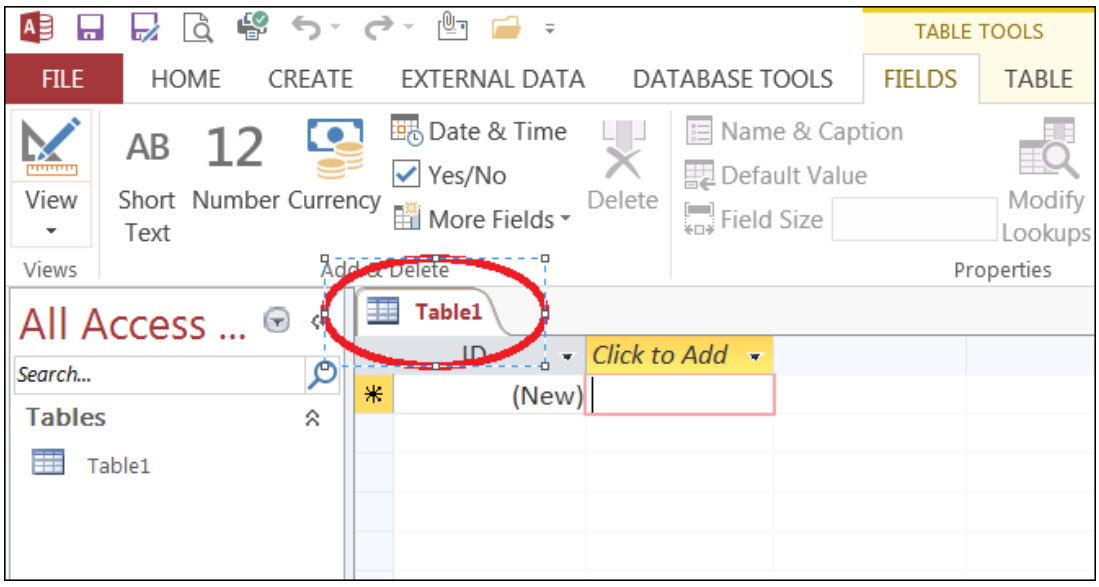
2. **Click** on Blank Desktop Database.



3. **Select** the folder location to save the database file. **Name** the database 'PhoneBill' (without a space between Phone and Bill). **Click** Create.

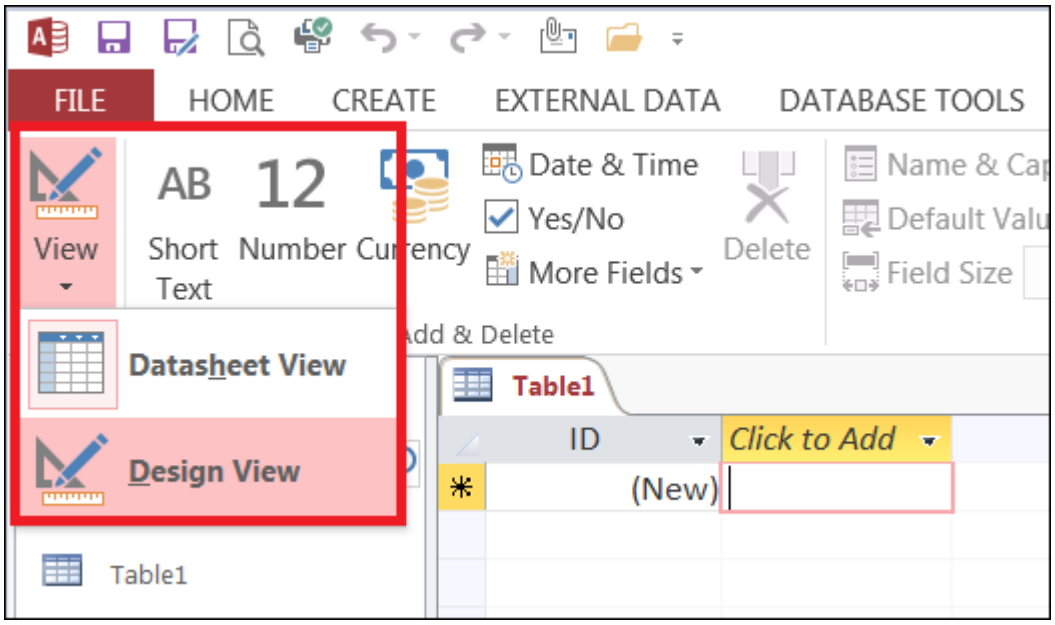


Congratulations! You have now created a database management system that contains one table (Table1).

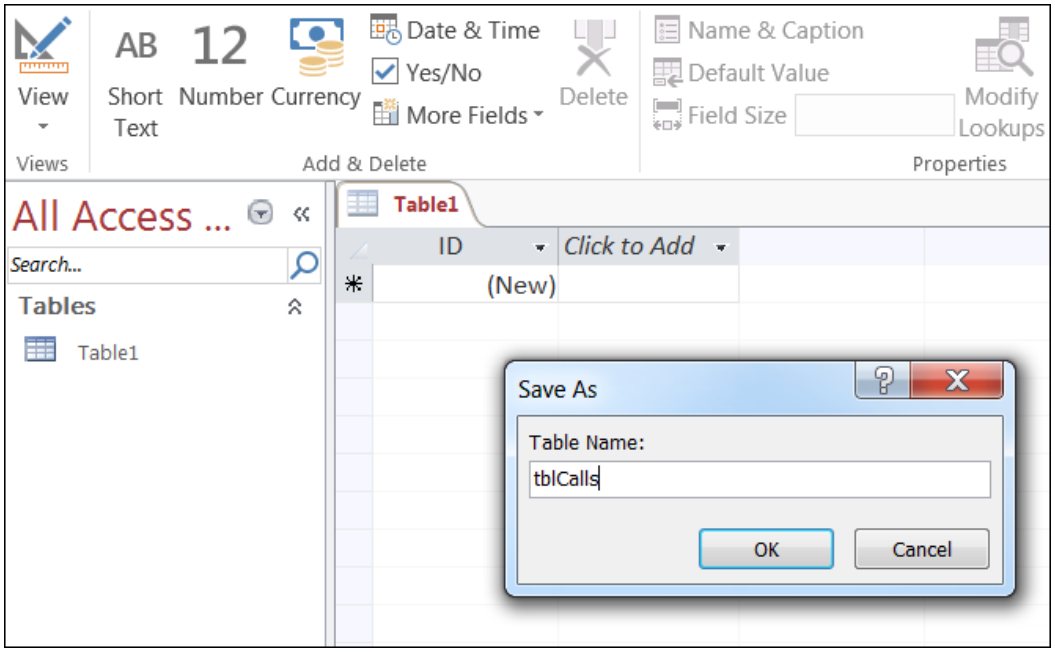


The next step is to create the structure for the table.

4. **Select** View, then Design View.



5. **Name** the table 'tblCalls'.



Design view

You are now in the design view of the table. This is where you specify the structure of the table.

Data dictionary

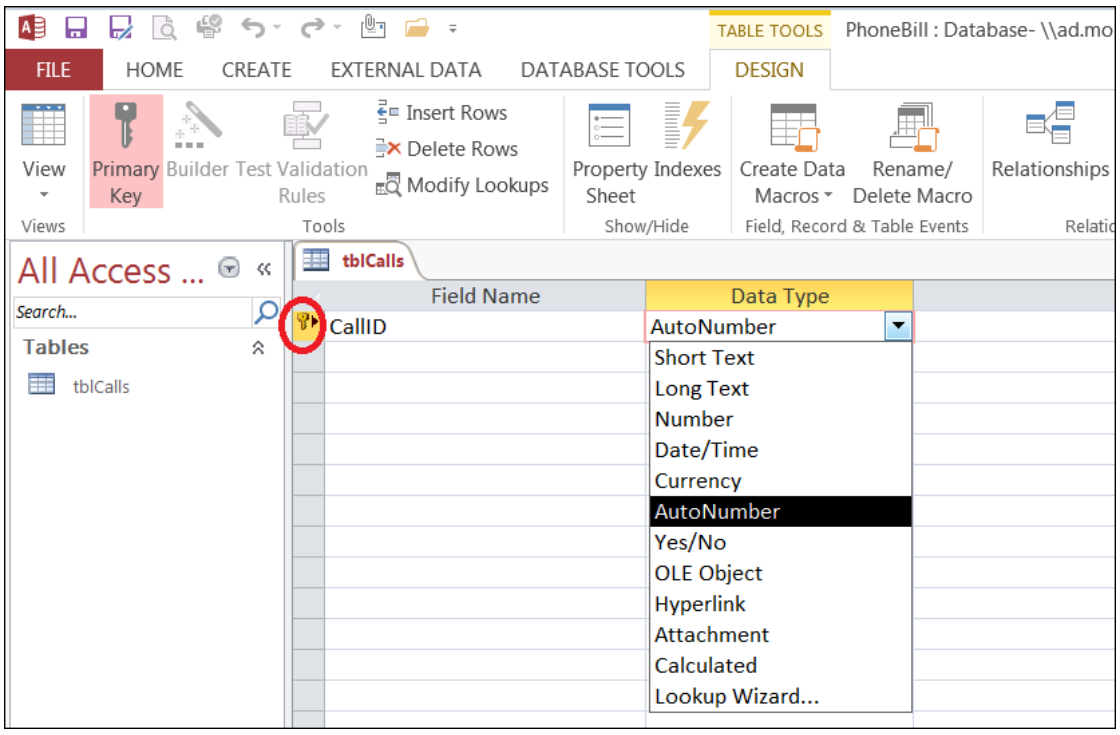
A data dictionary is a design tool that is used to show how a table needs to be structured.

Below is a data dictionary for the Calls table.

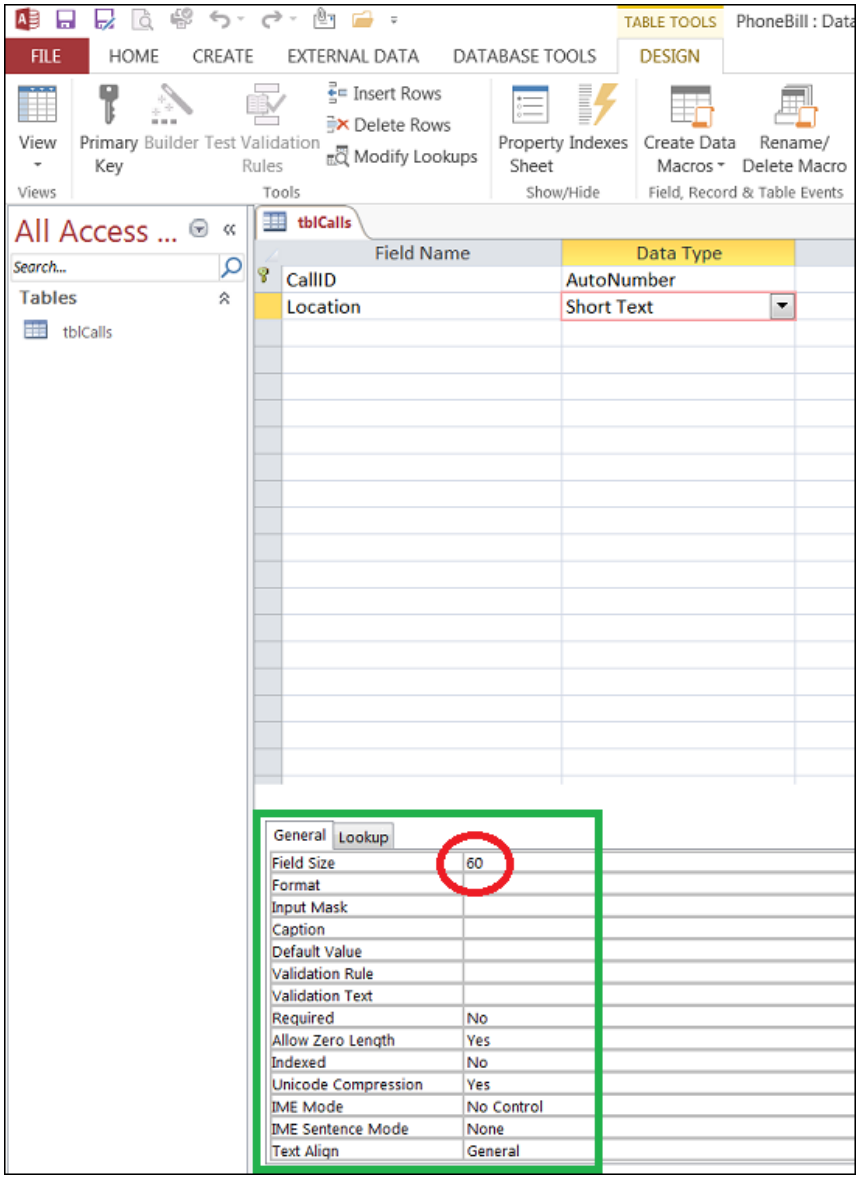
tblCalls

Field	Data type	Field Size (if short text)	Data format (if applicable)	Other properties
CallID	AutoNumber			Primary key
Location	Short Text	60		
CallDate	Date/Time		Short Date	
CallTime	Date/Time		Medium Time	Show Date Picker = Never
Destination	Short Text	60		
Duration	Number			
FreeCall	Yes/No			

6. **Rename** the first field 'CallID'. **Select** AutoNumber as Data Type**. Check** that the key icon (circled red) appears next to CallID.



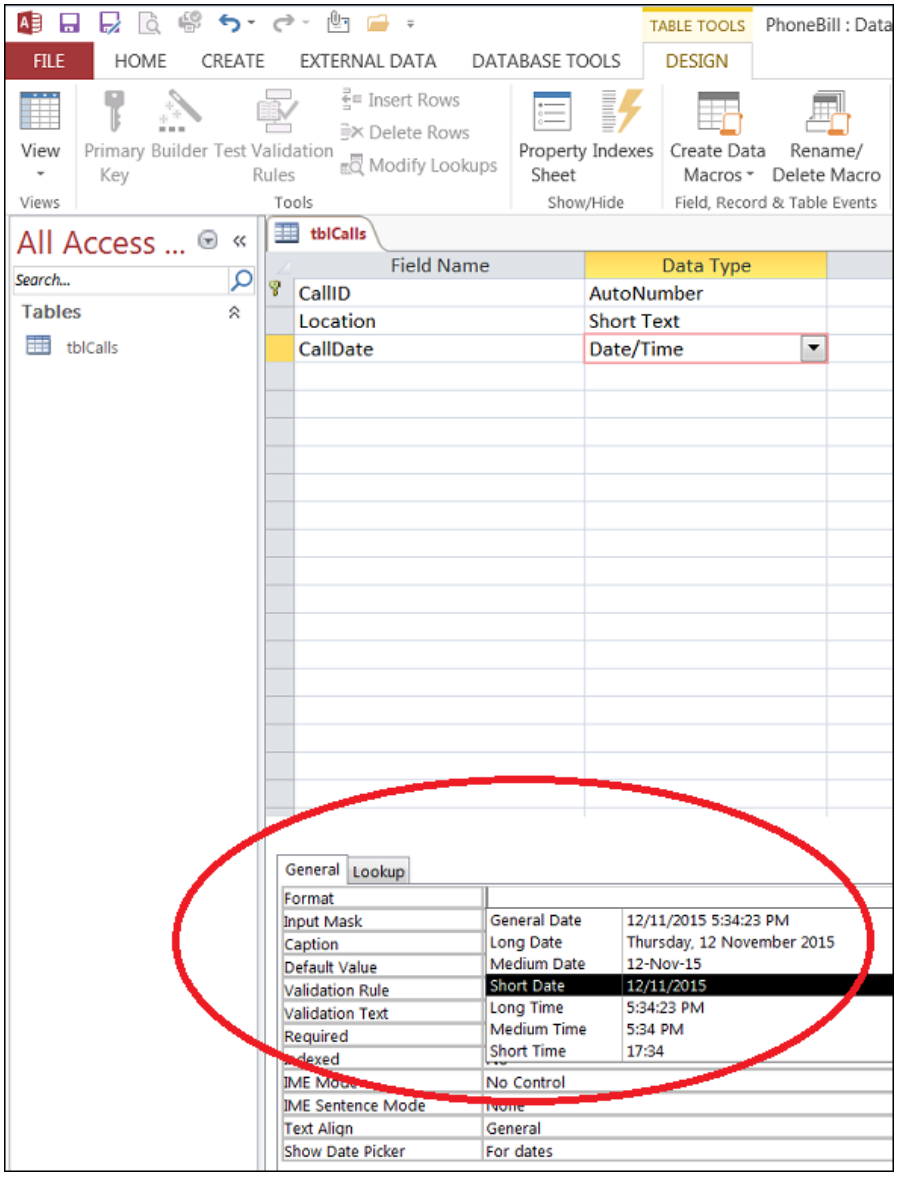
7. **Name** the next field ‘Location’. **Select** Short Text as Data Type. **Change** the Field Size to 60 (circled red).



The green section is the properties section for the selected field. Many of the properties can be changed. This screenshot shows the properties of the Location field.

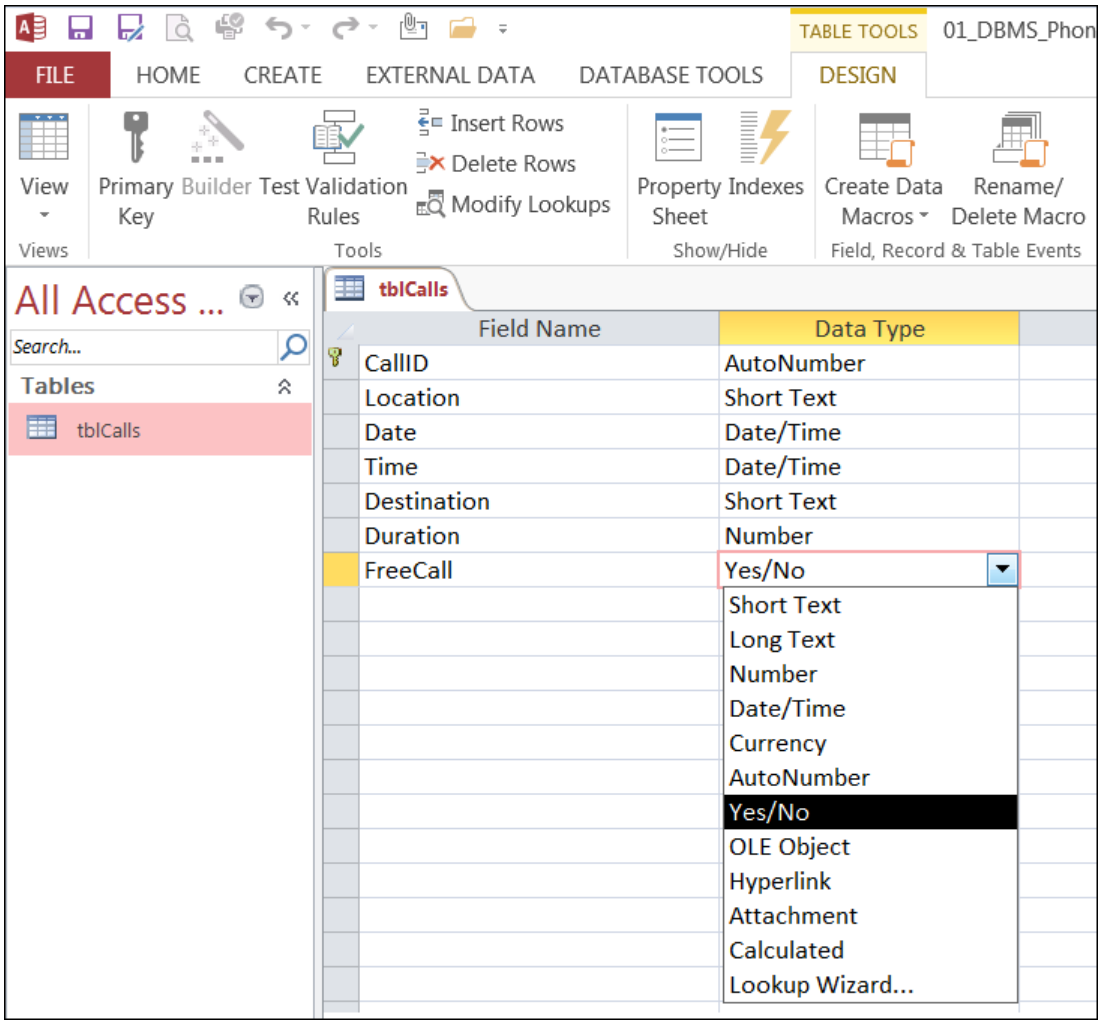
These properties are often outlined in the Other Properties column of the data dictionary.

8. **Name** the next field ‘CallDate’. **Select** Date/Time as Data Type. **Select** Short Date as Format (circled red).



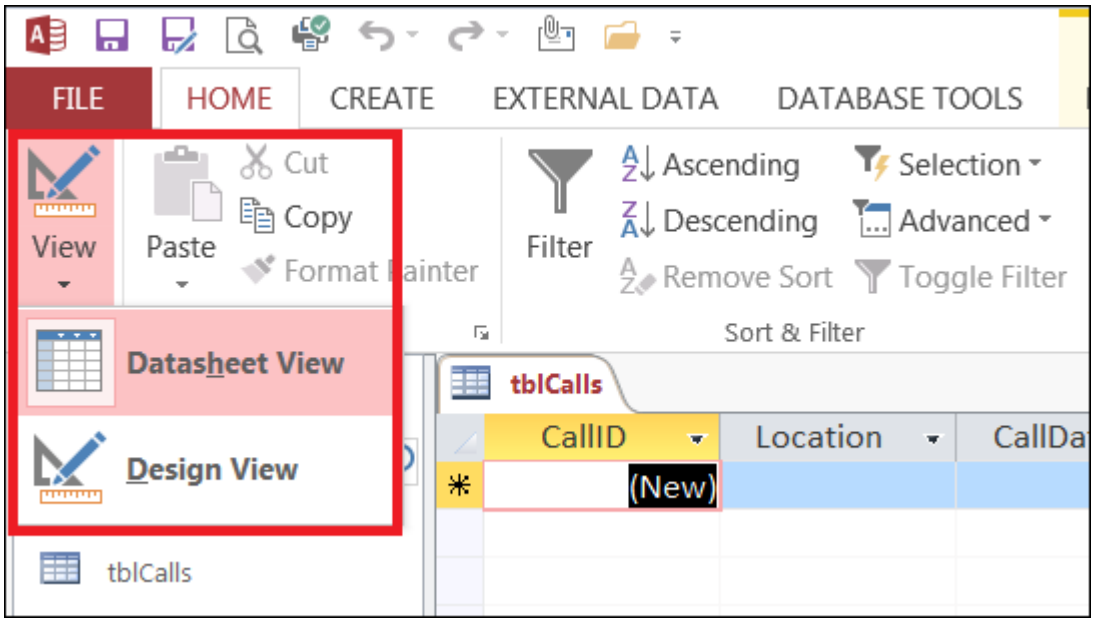
9. **Complete** the table structure by adding the rest of the required fields.

Do not forget to set the data type and properties for each field.



10. **Click** Save.

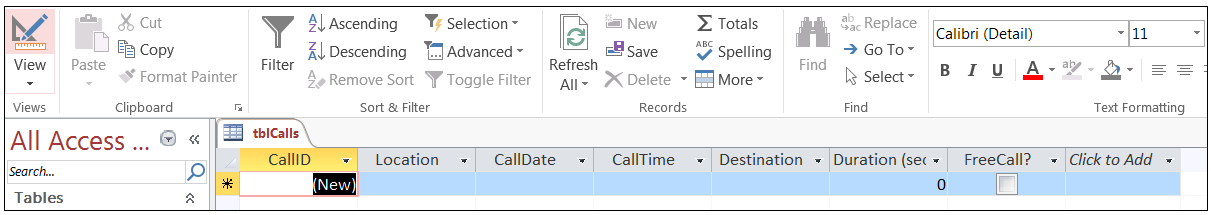
11. **Select** View then Datasheet View.



Datasheet View

The table, in database view, displays the data that is stored in the table. New data can also be input straight into the table.

At the moment there is no data in the tblCalls table.



12. **Populate** (input) the call data into the table.

Notes:

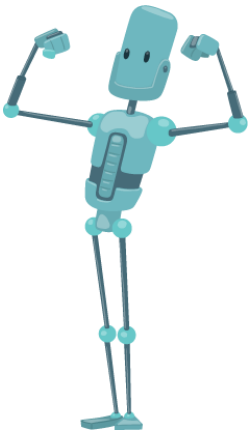
You **do not** need to input the CallID number - it will be generated automatically.

Tick FreeCall? for Yes, leave unticked for No.

tblCalls

CallID	Location	Date	Time	Destination	Duration	FreeCall	Click to Add
1	Tokyo	1/03/2018	12:30 PM	Melbourne	120	☐	
2	Colombo	3/03/2018	6:15 AM	Jakarta	10	☑	
3	Kolkata	5/03/2018	11:55 PM	Dubai	67	☐	
4	Seoul	7/03/2018	1:05 AM	Tokyo	34	☑	
5	Shanghai	9/03/2018	12:01 AM	Kuala Lumpur	3	☐	
6	Manila	11/03/2018	5:41 PM	Jakarta	100	☑	
7	Tokyo	13/03/2018	12:34 AM	Tokyo	34	☐	
8	Shenzen	15/03/2018	9:00 AM	Melbourne	1	☑	
9	Bangkok	17/03/2018	11:59 PM	Tokyo	59	☐	
10	Tokyo	19/03/2018	12:01 AM	Johor Bahru	200	☑	
(New)					0	☐	

13. **Click** Save and close the DBMS software.



You have now finished this activity.

In this activity you have:

- Created a new database management system (DBMS) file.
- Created a table.
- Defined the structure of the table.
- Populated the table with data.

Well done!

Note:

You will need the PhoneBill DBMS file for the next activity. Save it in a safe place.