



# Database Design Document

NZ CERTIFICATE IN INFORMATION TECHNOLOGY ESSENTIALS L4

Dion Bedford | Software Development | 16<sup>th</sup> March 2018

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# Introduction

This database is being set up for a customer called Sally who is opening a new video store in town. She has requested that we engineer her a “system to keep track of the DVD details, Customer details and the Hiring of the DVDs.” Accordingly, there will be a unique number on each of the DVDs and each customer has a membership number. This means that we will have to create individual ID. Tags for both customers and DVDs. The DVDs will be rented out Overnight, for 3 Day, and 7-day periods. Sally is looking for the system to be able to add both new customers and DVDs, do returns, list overdue items, list customer details and calculate late fees. We will need to set up individual queries for these. Sally has also stated that she would like the late fees to be different depending on how long the hire length is for each DVD. Below is a complete document showing how each table will be set up, how each query will work (including formulas and explanations,) and how our reports will work.

## Table Designs

### DVD Table

<i>Field Name</i>	<i>Data Type</i>	<i>General (Field Size, Format, Lookup brief details)</i>	<i>Description</i>
DvD_ID	AutoNumber	Field Size = Long Integer	Unique Identification number for the DvD.
Title	Short Text	Field size = 60	Title of the movie.
Format	Short Text	Field size = 60	Whether the format is DvD, Blue Ray etc.
Director	Short Text	Field size = 60	Director of the movie.
Runtime_(Mins)	Short Text	Field size = 60	How long the movie runs for.
Year_Released	Short Text	Field size = 60	The year the movie was released.
Genre	Short Text	Field size = 60	Genre of the movie.
Age_Restriction	Short Text	Field size = 60	Restricted age of the customer allowed to hire the movie.
Hire length	Short Text	Field size = 60	Amount of time the movie is allowed to be hire for.

## Customer Table

Field Name	Data Type	General (Field Size, Format, Lookup brief details)	Description
Cust_ID	AutoNumber	Field Size = Long Integer	Unique Identification number for the customer.
Surname	Short Text	Field size = 60	Customers last name.
First Name	Short Text	Field size = 60	Customer first name.
Address	Short Text	Field size = 60	Customers home address.
Suburb	Short Text	Field size = 60	Home address suburb.
City_Post	Short Text	Field size = 60	Postcode.
Cell_phone	Short Text	Field size = 60, Input Mask = !\ (999) "900\ 0000;0;_	Customers cell phone number.
Email	Short Text	Field size = 60	Customers email address.
DateOfBirth	Date/Time	Format = Medium Date	Customers date of birth.
Identification_Type	Short Text	Field size = 60	Type of identification, i.e. Passport, Driver's License etc.
Identification_Number	Short Text	Field size = 60	Unique number on the identification.
Alt_Name	Short Text	Field size = 60	Alternative name the customer goes by.
Alt_Address	Short Text	Field size = 60	Alternative address the customer goes by.
Alt_Phone	Short Text	Field size = 60	Alternative Phone number for the customer.

## Genre Table

<i>Field Name</i>	<i>Data Type</i>	<i>General (Field Size, Format, Lookup brief details)</i>	<i>Description</i>
Genre	Short Text	Field size = 60	Genre type of the movie

## Hire Information Table

<i>Field Name</i>	<i>Data Type</i>	<i>General (Field Size, Format, Lookup brief details)</i>	<i>Description</i>
Hire_ID	AutoNumber	Field Size = Long Integer	Unique Identification number for the DvD.
Customer_Search	Short Text	Field size = 60	Search for Specific Customers
DvD_Search	Short Text	Field size = 60	Search for specific DVD`s
Hire_Date		Field size = 60	Date the DvD was hired
Return_Date		Field size = 60	Date the DVD is due back
Returned		Field size = 60	Date the DVD was returned

# Relationships

Before we can form the hire query we need to make sure our tables are linked. Using the relationship tool, we will make sure that the 'Customer Search' field in the Hire table is linked to the 'Cust\_ID' Field of the Customer table and that the 'DVD search' in the hire table is linked to the 'DVD\_ID' field in the DVD table. This is to ensure the data base can find the information its looking for in the right table.

# Queries

## Hire Query

The Hire Query will be the foundation from which all our other queries will run off. There for, we will need specific formulas to compile the information from the DVD, Customer, and hire tables. These formulas will be as follows;

## Due Date

*'DueDate: IIf([Hire Length]="Overnight",[Hire\_Date]+1,IIf([Hire Length]="Weekly",[Hire\_Date]+7,[Hire\_Date]+3))'*

In this Formula, the database is creating a field called `Due\_date.` It will then check the hire length field to see if the DVD is rented overnight. If true, the due date is set for +1 day. If false it runs another true/false expression to check if the hire length is equal to weekly. The result is + 7 days if true or + 3 days if false.

## Cost

*'Cost: IIf([Hire Length]="Overnight",6,IIf([Hire Length]="Weekly",1,3))'*

In this Formula, the database is creating a field called `Cost.` It will then check the hire length field to see if the DVD is rented overnight. If true, the cost is set for \$6. If false it runs another true/false expression to check if the hire length is equal to weekly. The result is +\$1 if true or +\$3 if false. Its also worth mentioning the Currency is applied to the field afterwards and not in the formula itself.

## Days late

*'Days\_late: IIf([Returned]=No,Date()-[DueDate],[Return\_Date]-[DueDate])'*

In this Formula, the database is creating a field called `Days Late.` It will then check the returned field to see if the DVD has been returned. Then it will either check if todays date is later than the due date, or the return date is later than the due date, to determine if / how many days late the item is.

## Late fees

*'Late\_Fees: IIf([Days\_late]>0,IIf([Hire Length]="Overnight",[Days\_late]\*6,[Days\_late]\*1),0)'*

In this Formula, the database is creating a field called `Late Fees.` It will first check if the days late is greater than 0, if so it will continue with the other if statement, if not, then it will make the field equal to zero so that we don't have any negative numbers showing. Then second Iff statement is used to determine the cost of the late fees, if the hire length is overnight then it will times the days late by \$6 other wise for all other hire lengths it was times the day late by \$1.

## Late Fees Query

The late Fees Query is used to find out if we have any late fees due. Since we already have all of this information in the Hire Query,' we just base this query off all the criteria within the `hire query` and make the criteria in the `late fees query` field >0. This checks if there are any late fees greater than \$0 an lets us know.

## Overdue Query

We will be using this query to easily find out if there are any overdue DVD's currently out. To do this we will make a new query and make it look through the hire query. We will ask it to see if the item has not been returned by typing criteria of "no" in the returned row. Next we will type "date()" in the due date row to check if today's date is past the current due date, if so, the item is overdue.

## Return Query

The late returns query is used to find out if we have any DVDs that need returned. Since we already have all of this information in the Hire Query, we just base this query off all the criteria within the `hire query` and make the criteria in the `Returns query` field = no. This just simply lets us know if a DVD has been checked off as returned or not.

# Reports

In this section we will create two reports for Sally. The Overdue report will show her if any customer has any over due items and the late fees report will show her if there are any customers that have outstanding late fees and how much they owe.

## Overdue

Simply we will just generate a report off the Overdue Query with the relevant fields we will need. These will be; Surname, First Name, Cellphone, Title, Date Hired and Days Late. We need to be careful when setting priorities with this report that we group everything by surname then by first, name and cellphone, and finally list the DVDs, hire dates and days late. We do this to ensure that there aren't as many duplicates within the report and that everything groups nicely per customer.

## Late fees

In this report we will again use the report wizard, but this time we will create it off the late fees query. This report we will use the Fields, Surname (again for grouping purposes,) First name, cellphone, title and late fees. This is just to determine who owes money in fees, and how much money they owe per title. I have also included the cellphone option as a quick reference for contact details.

# Forms

The database will include a load of forms for Sally so that she can enter and edit various fields within the database. These forms will be;

- New Customer Form
- Edit Customer Form
- New DVD form
- Edit DVD form
- Returns form
- Hire Form
- Subhire form

Lastly although not expressly a form, we will have a blank menu in which we can drop in buttons for all of our forms so that they are all easily grouped in one place.