

## Essential Skills – Lesson 33

To start today we will review the ERD for Hair Locks. Once complete we will look at an **ER Diagram for The Gym** case study with the emphasis on designing the receipts and reports identified. Concentrate on the ER Diagram only for now. When the ER Diagram is complete, look at the section on the next page called **The Design of Printed Receipts and Reports**. Based on this document try and design a receipt / report at the end of the case study.

The Gym is a new exercise facility that will soon open in St. John's. The owner is looking for a system to keep track of memberships and appointments. During a recent conversation with the owner, you have made the following notes.

When a new client wishes to join the gym, his application is set up on the computer and the information saved to a **Membership Table**. Included in the membership table will be a membership number, the client's name, full mailing address and phone number(s), the membership start date, the initial membership fee – which includes a pro-rated amount for the current month, the cost per month, the date of the next monthly payment – it will be the first day of the next month, the number of free sessions with a fitness pro, and the name of the fitness pro assigned to this client. NOTE: The initial fees will also add a record to the Revenue table below.

There will be a defaults table called **GymDef.dat** with the Invoice Number, the Initial membership fee, monthly cost, the HST rate, the cost of a fitness lesson, the cost of a massage, and the cost of a physio appt.

When a customer wants to make an appointment with their assigned fitness pro, the message therapist on staff, or the physiotherapist on staff, the information must be entered and saved to an **Appointment Table**. Included is the membership number for the client, the date and time for the appointment, the name of the fitness pro or therapist, and the cost of the session.

When the client arrives for an appointment, this information can be recalled to the screen and payment can be made. Information will be saved to a **Revenue Table** and include the membership number, the date of the appointment, the type of appt (Fitness Pro, Massage, Physio, Monthly dues, Initial Fees), the name of the staff member, the cost of the session / fee, the HST and the total, and finally the payment method (Cash, Debit or Credit). NOTE: On the first day of each month, a record is automatically created for each member for monthly dues and added to this table – this is done by the system so no design is required.

### Now try and design the following receipt and reports for The Gym.

**\*\*When the membership information is entered in the membership table, the system will print a Client Summary and Receipt.** This will include all the membership information and the initial dates and costs defined in that section.

**\*\*Based on the information saved in the appointment file, an Appointment Report** can be generated for each staff member for the appointments they have scheduled between specified dates. Include the date, time, the membership number, and client name and phone number. Sort the items by date and time.

**\*\*Based on information stored a Membership Report and a Revenue Report** can be printed at any time. The membership report will list the membership #, the client's name and phone, along with a status that is a concatenated string-based fields in the tables. The Revenue report will list revenues for the current month and include the date, the type of appointment, the cost, HST and total.

**\*\*Using information from the membership file and the appointment file, a Client Yearly Summary Report** can be printed for income tax purposes. It will list their personal information from the Membership Table, along with all payments from the Revenue table.

## Designing Printed Receipts and Reports

When designing printed output, the go to tool is a Printer Spacing Chart. I grabbed this one off the internet and it can easily be downloaded and printed. This copy is based on 8.5" paper – with 1" margins on both sides it gives you 65 characters to work with (10 pt font).

You can now use this chart to design receipts or reports for a system. Receipts are usually based on single transactions where reports are generally based on multiple records in a table.

For receipts, many POS systems come with small thermal printers that may be 40 characters wide – therefore you would set up your spacing chart based on a 40-character grid. Reports are generally printed on full sheets so you can use the full spacing chart during the design process.

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I will often just use a Word File and place the following at the top to help with spacing. Use a non-proportional font such as Courier New so that all letters are spaced the same – makes it easier to line things up.

```

1           2           3           4           5           6
1234567890123456789012345678901234567890123456789012345

```

When preparing the printer spacing chart text values are indicated with XXXXXXXXXXXXXXX and numbers are generally indicated with #####. For integer values just use the number of # to match the value. If you want to indicate dollar values you may use something like \$#,###.## to indicate appropriate size.

The following is an example of a receipt that could be used by the Video store that we saw in a previous example. They use a small printer with a 40-character width – therefore I set the receipt to stay within the 40-character limit.

Most receipts will contain the header information (company name and address, etc), followed by the transaction details (the items purchased), followed by the totals (for subtotal, taxes and totals). Many examples may differ but this one has the date, time and HST registration number at the end.

```

1           2           3           4
1234567890123456789012345678901234567890
```

```

VELMA'S VIDEO PALACE
123 SOME ROAD
ST. JOHN'S NL, A1A 1A1
(709) 722-1234
```

```

*****
Customer Phone: XXXXXXXX
Customer Name: XXXXXXXXXXXXXXXXXXXXXXXX
*****
```

Movies Rented:

```

#### XXXXXXXXXXXXXXXXXXXXXXXX $#.##
#### XXXXXXXXXXXXXXXXXXXXXXXX $#.##
#### XXXXXXXXXXXXXXXXXXXXXXXX $#.##
```

```

*****
Subtotal:                      $##.##
Late fees:                     $##.##
HST:                           $##.##
Total charge:                  $##.##
*****
```

```

ALL RENTAL DUE BACK BY 10:00 PM
THE FOLLOWING DAY
```

```

*****
XX-XX-XX - HH:MM   HST #: 19-3766-38744
```

For additional samples, look at receipts that you may have received for purchases made at any store. Each may be a little different but contain relatively the same information.

Reports are normally generated based on information stored in a table or multiple tables (using SQL to gather the information as required). Reports are generally divided into a heading section (both main headings and column headings), a detail section (the main part of the report based on the data from the tables), and the Total or Footer section (based on counters and accumulators) that displays total values at the end of the report.

Continuing with the Video Store, the **Customer Listing** will list all customers and their status. The customer status is based on the following: If the Total Rentals field is greater than 100, the Status is "Preferred", otherwise it is "Standard". If the customer has late charges, concatenate the text "- Late" to the Status. If the Free Coupon Ctr is greater than 19, concatenate the text "- Free".

Note that I stayed within the 85-character limit for a regular letter sized paper of 8.5" by 11".

1 2 3 4 5 6  
123456789012345678901234567890123456789012345678901234567890

**VELMA'S VIDEO PALACE**

**CUSTOMER LISTING AS OF DD-MON-YYYY**

CUSTOMER NUMBER	CUSTOMER NAME	MEMBER SINCE	CUSTOMER STATUS
XXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XX-XXX-XX	XXXXXXXXXXXXXXXXXXXX
:			
XXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XX-XXX-XX	XXXXXXXXXXXXXXXXXXXX
=====			
TOTAL CUSTOMERS LISTED: ###			

The **Rental Listing** will list all movies that are currently rented and flag any movies that are overdue (more than 1 day rented). The number of days is the period between today's date and the rental date. The customer phone and name will only appear if the number of days is greater than 1 so that the store can contact the customer about the overdue rental.

1 2 3 4 5 6 7  
12345678901234567890123456789012345678901234567890123456789012345

**VELMA'S VIDEO PALACE**

**RENTAL LISTING AS OF DD-MON-YYYY**

MOVIE ID	MOVIE NAME	RENTAL DATE	DAYS OVERDUE	CUSTOMER NAME AND PHONE
99999	XXXXXXXXXXXXXXXXXXXX	XX-XXX-XX	99	XXXXXXXXXXXXXXXXXXXX (XXX-XXXX)
:				
99999	XXXXXXXXXXXXXXXXXXXX	XX-XXX-XX	99	
=====				
TOTAL MOVIES RENTED: ###			TOTAL MOVIES OVERDUE: ###	

See you at 10.