Dublin University Rifle Club

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Rifle Club Management System

Design Brief

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Executive Summary

The Club at present suffers from an excessive amount of paperwork, duplication and a lack of support information. The nature of the information the Club maintains makes it particularly suitable to computerisation. Hence, this design was created for a system to maintain Club data and provide operational and decision-making support information. It has been named R.C.M.S., for Rifle Club Management System.

1 General Architecture

The Club gathers a large amount of information on its member's progress during the year. The best means for maintaining a store of this data is to place it in a database. SQL databases have had thousands of man-years of work invested in their design and implementation. Capitalising on this is an obvious choice. Hence, an SQL database called PostgreSQL has been selected and installed on the club webserver,durc.tcd.ie; libraries to use this database from several languages have also been installed.

This gives a single repository for all Club data. A single program could concievably be written to produce all required reports for Club use, but this approach has many disadvantages.

1. A large program will take longer to write

2. A large complex program will have more problems and bugs

3. A large program may not encompass all the reports needed, and adding to it to generate further reports will require the programmer to become familiar with the program thus making adding reports a difficult task.

A single program can often be easier for novice users as they only have to learn to use one program. However, this is outweighed by the inflexibility of a monolithic approach. Further, most users will be Range Officers who will only have to use the system to generate Range Officer Reports and that can be handled by a single program which can call other programs for assistance.

Thus the architecture is as follows;

- All information stored in an SQL database

- Several small programs, each of which produces a single report, and which can be used by other programs.

- Output should be in LaTeX format since this allows for output in printed format, acrobat or web-based formats, and only requires a simple text file to do so.

- A single program should be available to produce an RO report with a great deal of work done on the user interface. However, it should be possible to use this program from a standard dumb terminal so the interface should have two modes; text (curses) based and graphical.

Thus we have a large group of utility programs and a single large RO Report program.

2 Data

The data is stored in a single SQL database with the following tables.

members

durc_id	CHAR(6) NOT NULL PRIMARY KEY
surname	TEXT NOT NULL
name	TEXT NOT NULL
email	TEXT DEFAULT NULL
gender	CHAR(1)
date_of_birth	DATE
course	TEXT
year	TEXT
eye_dominance	CHAR(1)
handedness	CHAR(1)
pref_air_rifle	TEXT
pref_free_rifle	TEXT
pref_sporter_rifle	TEXT
pref_jacket	TEXT
pref_sling	TEXT
sling_stop	TEXT
handstop	TEXT
cheekpiece	TEXT
buttplate_setting	TEXT
safety_briefing_attended	BOOL DEFAULT FALSE
safety_briefing_date	DATE DEFAULT NULL
safety_briefing_instructor	CHAR(6) DEFAULT NULL
range_officer	BOOL DEFAULT FALSE
trainee_range_officer	BOOL DEFAULT FALSE
notes	TEXT
notes_file	TEXT

membership_fees

durc_id	CHAR(6) NOT NULL PRIMARY KEY
paid_to	CHAR(6) NOT NULL
paid_on	DATE NOT NULL

credit

given_to	CHAR(6) NOT NULL PRIMARY KEY
given_by	CHAR(6)
given_on	DATE NOT NULL
amount	NUMERIC(9
2)	
notes	TEXT

cash

recieved_from	CHAR(6) NOT NULL PRIMARY KEY
recieved_by	CHAR(6)
received_on	DATE NOT NULL
amount	NUMERIC(9
2)	
regular_detail_income	BOOL DEFAULT TRUE
membership_fee	BOOL DEFAULT TRUE
detail_no	INT2
notes	TEXT

members_progress

durc_id	CHAR(6) NOT NULL PRIMARY KEY
notes	TEXT
notes_file	TEXT

members_progress_free *INHERITS* ***members_progress***

class	CHAR(1) DEFAULT 'D'
junior	BOOL DEFAULT NULL
novice	BOOL DEFAULT TRUE
colours_novice	BOOL DEFAULT TRUE
average	FLOAT8 DEFAULT 0
mcrae_average	FLOAT8 DEFAULT 0
details_attended	INT8 DEFAULT 0
competitions_attended	INT8 DEFAULT 0
shoots_ladder_cards	BOOL DEFAULT FALSE
ladder_cards_shot	INT8 DEFAULT 0

members_progress_air *INHERITS* ***members_progress***

class	CHAR(1) DEFAULT 'D'
junior	BOOL DEFAULT NULL
novice	BOOL DEFAULT TRUE
colours_novice	BOOL DEFAULT TRUE
average	FLOAT8 DEFAULT 0
mcrae_average	FLOAT8 DEFAULT 0
details_attended	INT8 DEFAULT 0
competitions_attended	INT8 DEFAULT 0
shoots_ladder_cards	BOOL DEFAULT FALSE
ladder_cards_shot	INT8 DEFAULT 0

members_phone

durc_id	CHAR(6) NOT NULL PRIMARY KEY
phone_type	TEXT
phone_number	TEXT NOT NULL

members_address

durc_id	CHAR(6) NOT NULL PRIMARY KEY
address_type	TEXT
address	TEXT

members_photo

durc_id	CHAR(6) NOT NULL PRIMARY KEY
photo_filename	TEXT

scores

durc_id	CHAR(6) NOT NULL PRIMARY KEY
score_date	DATE
witness_RO	CHAR(6) NOT NULL
score	INT2 NOT NULL
type	TEXT
ladder	BOOL DEFAULT TRUE
competition	BOOL DEFAULT FALSE
notes	TEXT

no_shows

durc_id	CHAR(6) NOT NULL PRIMARY KEY
noshow_date	DATE NOT NULL
detail_no	INT2 NOT NULL
witness_RO	CHAR(6) NOT NULL
apology_given	BOOL DEFAULT FALSE
apology_date	DATE
apology_RO	CHAR(6)

members_IDs

durc_id	CHAR(6) NOT NULL PRIMARY KEY
id_type	TEXT NOT NULL
id_number	TEXT NOT NULL
witness_RO	CHAR(6) NOT NULL
witness_date	DATE NOT NULL

ammo_usage

issued_by	CHAR(6) NOT NULL PRIMARY KEY
issued_to	CHAR(6) NOT NULL
amount_issued	INT2 NOT NULL
amount_used	INT2
date	DATE NOT NULL
type	TEXT NOT NULL
detail_no	INT2

duty_roster

roster_date	DATE NOT NULL PRIMARY KEY
discipline	TEXT
primary_RO	CHAR(6) NOT NULL
secondary_RO	CHAR(6) NOT NULL
TRO	CHAR(6)
alternate_RO	CHAR(6)

detail

detail_date	DATE NOT NULL PRIMARY KEY
detail_no	INT2 NOT NULL
firing_point	INT2 NOT NULL
durc_id	CHAR(6) NOT NULL
booked_at	DATETIME
confirmed	BOOL NOT NULL DEFAULT FALSE

event

event_date	DATE NOT NULL PRIMARY KEY
event	TEXT

internal_competition

competition_date	DATE NOT NULL PRIMARY KEY
competition_name	TEXT NOT NULL
competition_discipline	TEXT
firing_points_per_detail	INT2
detail_length	TIME
start_time	TIME