

THE ORIGINAL RAD RACE ED 2004

[Performed in the ICT Center PHL – HASSELT on 29 and 30 october 2004]

THE ORIGINAL RAD RACE 2004 ASSIGNMENT PART 1

TO BE DEVELOPED ON DAY ONE OF THE
ORIGINAL RAD RACE 2004

ON YOUR OWN HARD- AND SOFTWARE
ON OCTOBER 29TH, 2004

AT
ICT CENTRUM PHL LIMBURG
HASSELT (BELGIUM)

1. OVERVIEW

The original RAD Race 2004 is about a Car Warranty Tracking System (“CWTS”).

You will find all the details on the next pages.

Here is the summary :

- You buy a car in a dealership; that dealership grants you access to the CWTS.
- You must register a complaint or defect on your new car into CWTS.
- Each defect is defined by a repair (or sub-) repair group and can be less or more severe, requiring a quicker action form the dealership
- The dealership will invite you to present your car in order to inspect it, (re)classify the mentioned problem as a warranty covered problem (or not) and repair it.
- A problem is solved by means of labour, parts, consumables or any given combination of the aforementioned. The costs for warranty related issues are ultimately paid for by the manufacturer.
- When the problem is solved, all the related data (made anonymous to protect your privacy) are published in an on-line database
- This on-line database can be searched by means of an easy search interface.
- Different CWTS users/groups can search within certain limitations of frequency, costs, etc. Automated (=non interactive) queries must be prevented.
- The dealership and the manufacturer have a set of reports to track warranty cost per car; frequently defective items, etc...
- CWTS incorporates a personalised and interactive system to communicate with its user(s) on warranty and warranty extensions,

See also the introduction briefing on 29/10/2004

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You...

- are a programmer in a small team (**your** team of 2 developers – the RAD Race Team or “RRT”), that is responsible for the development of the CWTS.
- were hired by a car manufacturer to develop CTWS for his dealerships and car buyers.

To make your programming life easier, you will find clearly identifiable deliverables.

All deliverables will somehow require a mixture of user interface elements, business logic and database interaction.

So, whenever you read : “Build a form that ...” this simply means that you build whatever you judge to be necessary (“visible and/or invisible”) to make the application perform as required.

Deliverables are marked like this :

THIS IS WHAT THE TEAM IS EXPECTED TO DELIVER

(detailed explanation of the deliverable)

POINTS TO WIN : from 0 to maximum

- Deliverable 0 -

You are completely free to structure / paint / adapt / organize all visible and non-visible parts of your application.

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2. USE OF THE SUPPLIED DATA.

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The use of the supplied data to fill your own database is mandatory. The database model is documented in a separate document.

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The database model behind the delivered dataset, is only to be considered a "very limited & reasonable draft" to build on.

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(note : a more elaborate database model would have limited your programming options and that is not the intention)

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Modify, change or manipulate the given structures **as you like** to create *your own* data model that makes *your* application work.

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However, your database **MUST** be filled (to the same extent with data as supplied on the CD-ROM) when demonstrating your application to the jury.

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Reworking the supplied data **MUST** be done with respect for the integrity rules in your data model !

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- Use the data, supplied on the CD-ROM, completely and correctly
- Rework the data model to suit **your** application needs

This will be measured throughout the demonstration of your application to the RAD Race jury.

POINTS TO WIN : 0 to 20

- Deliverable 1 -

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3. BUYING A NEW CAR.

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When you buy a new car, you do so in an official dealership within your country of residence. The car of your choice is then ordered by the dealership towards the manufacturer.

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Your Team will work with a _____ dealership.

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On delivery, the dealership records all the necessary details about the owner and the car, including type, model and engine capacity and options.

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Also, an username is given (the last name followed by the first 3 characters of the first name) and an initial password to access CWTS.

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- Build forms/screens/logic so that the dealership :
 - Can log in to CWTS
 - Can do the necessary input of the data of the new car
 - Link this to the happy new owner
 - And assign the owner a loginID and (initial) CWTS access code

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POINTS TO WIN : 0 to 10

- Deliverable 2 -

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4. HOW CWTS INPUT WORKS.

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153 CTWS is a system that permits an authorized user (= a car owner registered by his
154 dealership) to enter his warranty related remarks concerning the car. After log-on, the
155 owner enters a specific “problem definition” that states :

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- Category and subcategory of the stated problem :

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Main group	Detail of the Main group	Sub group	Detail of the Sub group	Pre req	POST req	Level of complexity
0	General Data and Maintenance	010	General			1
		030	Maintenance			1
1	Engine	100	Engine – General			1
		101	Engine - Removal and installation			3
		102	Engine disassembly and assembly	101	101	4
		130	Crankcase and Crankshaft	102	102	2
		131	Pistons and cylinders	102	102	2
		150	Cylinder Heads	102	102	2
		151	Camshafts and Camshaft Cases	102	102	2
		152	Camshafts Timing chains			1
		170	Engine Lubrication			2
2	Engine management Exhaust & Engine Electrical	200	Engine management – General			1
		201	Fuel Supply			1
		240	Fuel Injection	201		2
		260	Exhaust System			1
		270	Battery, starter, alternator			1
		280	Ignition System	270		2
3	Transmission	300	Transmission and Clutch – General			2
		301	Clutch	101		2
		340	Manual Transmission - controls & case	101		2
		350	Manual Transmission - gears & shafts	101		2
		390	Differential	101		
4	Suspension, brakes and steering	400	Suspension, brakes and steering - General			
		401	Front Suspension			2
		420	Rear Suspension, Axle shafts			1
		440	Wheels, tyres, alignment			1
		460	Brakes – mechanical	470		1
		470	Brakes – hydraulic	460		1
		480	Steering		440	2
5	Body Assembly	500	Body Assembly – General			1
		510	Fenders			1
		550	Engine Lid, Hood			1
		570	Doors			1
6	Body - components & accessories	600	Body – General			1
		620	Roof-bumpers-windows			1
		670	Exterior and interior trim			2

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7	Seats	720	Seats		2
8	Heating, ventilation, airco	800	Heating,ventilation, airco - general		2
		801	Heating		1
		850	Ventilation		2
		870	Airco		2
9	Electrical System	900	Electrical – General		1
		901	Instruments		1
		909	Alarm system		3
		910	Radio		1
		920	Windshield wipers and washers		1
		940	Exterior lighting		1
		950	Central locking		2
		960	Electr switches, interior, cruise control		2
		970	Wiring diagram		-

Note : nesting of pre- and postrequisites is mentioned in the start briefing

- The severity of the given problem :

Description	Level of severity
For information purposes only	0
Not important, can wait for a solution but within the warranty period	1
Will become severe within 2 months if not repaired	2
Annoying, must be repaired within 2 working weeks	3
Very urgent, makes use of vehicle very difficult, to be repaired within 1 working week	4
Use of vehicle is impossible, immediate action is required	5

- An additional description/explanation of the problem and a “free comment” field

- Build forms/screens/logic so that the car owner :
 - Can log in to CWTS
 - Can make all necessary input on his warranty problem(s) in an intuitive and easy manner

POINTS TO WIN : 0 to 10

- Deliverable 3 -

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6. HOW THE PROBLEM IS HANDLED AT THE DEALERSHIP

Each problem must be solved by the dealership. In the ideal case, all problems are solved in the same visit.

Basically these steps occur :

- An invitation is sent by e-mail towards the owner to fix an appointment.
- Two possible dates are given; the owner is given an option to suggest a date himself; however this date cannot be earlier than those given by the dealership
- The owner chooses a date and replies to the dealership
- The appointment date is confirmed and fixed by the dealership through the e-mail channel

The car is presented in the dealership at the fixed date/time; if not the mechanism of fixing an appointment (see above) is applied once more (1 original + 1 extra try) with a warning sent to the owner : if no appointment is physically met, all open problems are mandatory set to “no show” because the car did not show up at the dealership.

Build all the necessary logic and screen(s) so that :

- the owner receives his invitation to present his car through his e-mail channel
- the owner can reply to it with the least possible effort
- within the given limits of the appointments mechanism
- and the follow-up actions

POINTS TO WIN : 0 to 15

- Deliverable 5 -

Important note :

All messaging to parties within the CWTS is done by a product/technique of your choice, but a searchable copy of the communication must remain in the system.

Do all that is necessary to make your messaging system searchable

- Build (a) screen (s) to effectively show the jury that it is searchable

POINTS TO WIN : 0 to 10

- Deliverable 6 -

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259 When the vehicle is at the inspection, the dealership investigates the problem.
 260 Examination of a given problem by the technicians at the dealership results in :
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Nr	Category	Result of examination	Follow-up action(s)	Pay attention to :
1	Dismissal of the stated problem	Dismissal of the problem, severity is set to 0 Documentation not followed	Send e-mail with explanation that the given problem is normal behaviour, as indicated in user manual	
2		Dismissal of the problem, severity is set to 0 Bad documentation	Same, given problem is normal behaviour but insufficiently documented; inform the owner and send notification to MFCT	
3	Acceptance of the stated problem	Problem severity is reduced	Message to owner indicating change	Reduction cannot be more than 2 points
4		Problem severity remains as stated	Message to owner	Nihil
5		Problem severity is increased	Message to owner indicating change	Nihil
6	Acceptance of the problem with a change of problem definition	Problem description is changed to reality by dealership after inspection AND problem severity is reduced	Message to owner indicating all changes	Reduction cannot be more than 2 points
7		Problem description is changed to reality by dealership after inspection AND problem severity remains	Message to owner indicating change	Nihil
8		Problem description is changed to reality by dealership after inspection AND problem severity is increased	Message to owner indicating all changes	Nihil

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 264 The list of “all problems to be solved” is then immediately updated and searchable
 265 on–line for the dealership and the owner, these problems now have the status
 266 “remaining problems to be solved- on hold”
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 274 **[the complete assignment has 8 more pages that follow,**
 275 **for copyright reasons these are only disclosed under a duly signed NDA,**
 276 **we regret the inconvenience that this may cause]**
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