08338 ACW Lab Sheet4

This lab sheet follows on from the lab sheet (**08338-Lab-ACW-Sheet3**), (**08338-Lab-ACW-Sheet2**) and (**08338-Lab-ACW-Sheet1**). Check you are using the up to date versions of these files – they may been modified slightly in response to student queries.

Sheet4 Lab - Deployment and Decision Support

This sheet continues from after Item 27 in (**08338-Lab-ACW-Sheet3**). It proceeds to cover new items (step 28 onwards) which address Deployment and Decision Support. Your steps may vary slightly (check the steps against the ACW specification) but the principles and process are as follows:

28. Firstly work on the given sixth worksheet (**DSS**). Copy all the data with Unknown, Missing or Null (etc.) values for the attribute **Risk** into this table.
29. Move your existing **ConflictSet** worksheet (from Sheet 3) to be the new fifth sheet. Rename it **ConflictSet –All.** It will move right as further worksheets are added before it.
30. In Excel copy the worksheet named **DecisionTables** to be fifth in the file (it may move subsequently as new sheets are added). **Methodology** always remains the first worksheet. Rename the copy of **DecisionTables** as **DecisionTable-Deployed**.
31. In **DecisionTable- Deployed**, move all rules that do not give the conclusion **Risk = High** to below the High Risk rules
32. In **DecisionTable- Deployed**, remove any rule with conclusion **(Risk = High) IF** it does not apply to any of the data in the worksheet (**DSS**).
33. Copy the worksheet **DecisionTable- Deployed** and rename it **ConflictTable-Deployed**. Make sure this is now the sixth worksheet.
34. In **DecisionTable- Deployed**, remove any rule with conclusion **(Risk = Low).** This table is now complete and will provide the basis for the first table in section5 of the ACW.
35. Now return to worksheet (**ConflictTable-Deployed).** Look for conflicts across the rule sets. You should have completed most of the work for this in step 19 onwards from worksheet3. However, it may be beneficial to check. Examples of potential conflicts are given in Table 2 in **08338-Lab-ACW-Sheet3**, and on the forum at:

    http://intra.net.dcs.hull.ac.uk/student/modules/08338/Forum.aspx

    Once complete you will have a set of rules that are applicable to the data in worksheet **DSS** with conflicts highlighted. This worksheet (**Conflict-Deployed**) becomes the basis for the second table in Section3 of the ACW final report. Tables 1 and 2 below show how to produce the required Conflict Table. Two alternative presentation styles are shown – you need to choose one.
36. Now work on the given fourth worksheet (**DSS**). Look to your **ConflictTable- Deployed** (completed in step 35) for all rules that are applicable to these data records. Copy all these rules to the **DSS** worksheet.
37. Apply all applicable rules to the data in the DSS worksheet. Table 3 and 4 below give examples of two different ways of presenting this. Note in Table3, the id from the data record is appended to the right of the rule. Examples are also given in the ACW lecture (**DMDS-6-ACW2015-16**). Assume that if no rule, with the conclusion **Risk = High**, can be applied to the data record, the **Risk** is **Low** (the majority class).

38. If you have multiple classifications for any data record you need to make a decision about what to do. This is covered in lectures, but look to Conflict Resolution or Rule Information measures if you want.

Ideally you need to have done all up to and including step38 by the end of the lab in week commencing 23rd November. The ACW is now nominally complete. In the remaining labs you are expected to complete all these sheets and possibly improve on the ACW. You can improve on what you have done using the hints and guides in **08338 Lab Advice – Advanced Topics (**to be made available in week commencing 16th November**).**

Questions via lab, lectures, forum or email

Rule	Conclusion	j48-1	j48-2	j48-5	j48-15	ridor-2	ridor-5	ridor-8	Tert-1	Tert-2	Tert-4	j48-20	ridor-3	Tert-8
j48-1	high						yes				yes		yes	
j48-2	high													
j48-5	high								yes					
j48-15	high													
ridor-2	high													
ridor-5	high	yes												yes
ridor-8	high													
Tert-1	high			yes								yes		
Tert-2	high												yes	
Tert-4	high	yes												
j48-20	low								yes					
ridor-3	low	yes								yes				
Tert-8	low						yes							

Table 1. Example of Conflict Table with Conflicts as matrix

Rule	Conclusion	Conflict Set
j48-1	high	ridor-5, Tert-4, ridor-3
j48-2	high	
j48-5	high	Tert-1
j48-15	high	
ridor-2	high	
ridor-5	high	j48-1, Tert-8
ridor-8	high	
Tert-1	high	j48-5, j48-20
Tert-2	high	ridor-3
Tert-4	high	j48-1
j48-20	*low*	Tert-1
ridor-3	*low*	j48-1, Tert-2
Tert-8	*low*	ridor-5

Table 2. Example of Conflict Table with Conflicts as list

Id	Indication	Diabetes	IHD	Hypertension	Arrhythmia	History	IPSI	Contra	Risk	J48	Jrip	Tertius
62774	a-f	no	yes	no	yes	no	95	100	Null	J48-1 J48-12	Jrip-2	Tert-1
4258	a-f	yes	no	no	no	no	70	40	Unknown	J48-5	Jrip-5	Tert-4
53368	asx	no	yes	yes	no	no	75	75		J48-7	Jrip-9	Tert-7
J48-1	a-f		yes				> 90		High	62774		
J48-5			no	no				<50	Low	4258		
J48-7	asx			yes			>70	>70	High	53368		
Jrip-2	a-f				yes			> 90	High		62774	
Jrip-5			no	no	no			< 65	Low		4258	
Jrip-9	asx		yes	yes			> 70		High		53368	
Tert-1	a-f		yes		yes		> 75	> 90	High			62774
Tert-4	a-f		no	no	no			< 50	Low			4258
Tert-7	asx	no			no	no			Low			53368

Table 3: Example showing deployment of rules to patients (DSS Table in Excel)

Id	*Given-Risk*	*J48-1*	*J48-5*	*J48-7*	*J48-12*	*Jrip-2*	*Jrip-5*	*Jrip-9*	*Tert-1*	*Tert-4*	*Tert-7*	*Majority*
62774	Null	high			high	high			high			high
4258	Unknown		low				low			low		low
53368				high				high			low	high

Table 4: Example showing Decision Support of rules to patients (Decision Support in Excel)