Assignment 2
Grades and Rules

Last updated: **Saturday 13th November 9:02am**

Most recent changes are shown in red ... older changes are shown in brown.

[Specification] [Database] [SQL Schema] **[Grades+Rules]** [Examples] [Testing] [Submitting] [Fixes+Updates]

Introduction

This document contains a detailed description of how different kinds of rules are defined and what effects grades have in various contexts.

Grades

Grades have different effects in different contexts:

- Rule = used in satisfying Rules
- UOC = used in calculating total UOC
- WAM = used in calcualting WAM (add to UOC-for-WAM + marks)

Note that UOC is for all courses passed; UOC-for-WAM is for all courses attempted.

Grades	Rule	UOC	WAM
A,B,C,D (with + or -)	yes	yes	no
HD,DN,CR,PS	yes	yes	yes
XE,T	yes	yes	no
SY,EC,RC,NC	yes	yes	no
AF,FL,UF,E,F	no	no	yes
AS,AW,NA,PW,RD	no	no	no
NF,LE,PE,WD,WJ	no	no	no
null	no	no	no

Note: AF has no associated mark; it is treated as if the mark were zero.

What to print on the transcript for each type of grade:

- *X*uoc for A,B,C,D,HD,DN,CR.PS,XE,T,SY,EC,RC,NC
- `fail` for AF,FL,UF,E,F
- `unrs` (unresolved) for AS,AW,PW,NA,RD,NF,LE,PE,WD,WJ

Many of these grades do not appear in the database, and I don't include EM (excluded due to academic misconduct) which isn't really a grade applied to individual courses. If you want to find what all these grades mean, take a look at the UNSW web site.

Defining Rules

This gives examples of how different kinds of rules are defined in the MyMyUNSW database.

Code	Description	AO Group	Min/Max
DS	Done Stream = satisfied all requirequirment for a stream	enumerated list of stream codes	# streams to complete
CC	Core Courses; must complete all	list of course codes (no patterns)	not needed
PE	Prescribed Electives	list of courses (enumerated or patterns)	must complete UOC between min and max; (max = null) means "at least min UOC"; (min = null) means "up to max UOC"; cannot both be null
FE	Free Electives	don't need an AO group, but could have one with `FREE####` as the pattern	as for PE
GE	General Education	any course like `GEN#####` **	typically min = max = 12
WM	WAM requirement	requires minimum WAM; typically used as a pre-req; not used in this assignment	min is minimum WAM
RQ, LR, MR	rules for pre-req requirements	not used in this assignment	-

** In theory, you should reject GEs from within the faculty. Since this database is based on enrolment data, this shouldn't happen. And sice doing this checks adds extra complexity, there's no need to check.

You can find out more about the kinds of rules in the database by asking a query on the `rules` table, joined with the `academic_object_groups` table to see how things are structured.

When displaying rules, use the following for min and max

- min and max are null ... nothing to be displayed
- min is not null, max is null ... "at least min"
- min is null, max is not null ... "up to max"
- both are not null and min < max ... "between min and max"
- both are not null and min = max ... "min"

Academic Object Groups

A critical part of describing rules is the subject/stream info in the academic object group associated with each rule. In MyMyUNSW, such groups can be defined in three different ways:

- `enumerated` by giving a list of academic object codes
- `pattern` by giving patterns that identify sets of objects
- `query` by storing an SQL query which returns a set of objects

Note that each academic object group contains items of one particular type; either subjects or streams.

For this assignment, object groups are defined as comma-separated lists of items. Each item could be either a course or stream code, a choice of several courses, or a pattern, which identifies multiple courses. There are a wide variety of patterns. You should explore the `acad_object_groups` table to see what's available. To give you a head start, here are some patterns and what they mean:

- `COMP1511,COMP1521,COMP1531` ... core first year computing courses
- `{MATH1131;MATH1141}` ... alternatives; take one or the other
- `FREE####` ... any free elective; for this case, simply return the pattern itself**
- `GEN#####` ... any Gen Ed course; for this case, simply return the pattern itself**
- `####1###` ... any level 1 course at UNSW
- `COMP2###` ... any level 2 computing course (e.g. COMP2511, COMP2041)
- `COMP1###,COMP2###` ... first and second year COMP courses

Definitions such as the above are stored in the `definition` field in the `academic_object_groups` table.

Rules for CSE Programs and Streams

Here are the rule sets for each program and stream. They were derived from manual reading of the Handbook and some rules have been simplified compared to the Handbook. It's possible that some rule sets don't accurately reflect the Handbook. All of the examples and test cases are based on what's in the database and may not precisely reflect reality.

```
# Rules(id,name,type,min_req,max_req,ao_group,description)
# Academic_object_groups(id,name,type,defby,definition)
# Rules.type = (CC,PE,FE,GE,RQ,DS,MR,LR,WM)
# AOG.type = (subject,stream,program)
# AOG.defby = (enumerated,pattern,query)

# Programs

3707    3707    Bachelor of Engineering (Hons)
        DS      S       E       1       1       BE(Hons) Streams
                AEROAH,BINFAH,CEICAH,CEICDH,COMPBH,CVENAH,CVENBH,ELECAH,MECHAH,
        CC      C       E       -       -       Industrial Training
                ENGG4999
        GE      C       P       12      12      General Education
                GEN#####

3778    3778    Bachelor of Science (Comp Sci)
        DS      S       E       1       1       Comp Sci Majors
                COMPA1,COMPD1,COMPE1,COMPI1,COMPJ1,COMPN1,COMPS1,COMPY1
        CC      C       E       -       -       Foundational Computing
                COMP1511,COMP1521,COMP1531,COMP2511,COMP2521
```

```
        CC      C       E       –       –       Comp Sci Maths
                MATH1081,{MATH1131;MATH1141},{MATH1231;MATH1241}
        CC      C       E       –       –       Comp Sci Advanced Core
                {COMP3121;COMP3821},COMP3900,COMP4920
        GE      C       P       12      12      General Education
                GEN#####

5543    5543    Graduate Diploma in IT
        CC      C       E       –       –       PG Core Courses
                COMP9021,COMP9024,COMP9311,COMP9331
        PE      C       E       18      18      ADK Courses
                COMP4121,COMP4161,COMP4418,COMP6714,COMP9153,COMP9242,COMP9243,
        PE      C       P       30      30      Prescribed Electives
                COMP4###,COMP6###,COMP9###

7543    7543    Graduate Certificate in IT
        PE      C       P       24      24      Grad Cert Elective Courses
        BINF9###,COMP4###,COMP6###,COMP9###

8543    8543    Master of Information Technology
        DS      S       E       1       1       MIT Streams

                COMPAS,COMPBS,COMPCS,COMPDS,COMPES,COMPIS,COMPSS
        CC      C       E       –       –       Project Management
                GSOE9820
        CC      C       E       –       –       PG Core Courses
                COMP9021,COMP9024,COMP9311,COMP9331
        CC      C       E       –       –       MIT Project Courses
                {COMP9900;COMP9991}
        PE      C       E       36      36      ADK Courses
                COMP4121,COMP4161,COMP4418,COMP6714,COMP9153,COMP9242,COMP9243,


# Streams

COMPA1  1       Computer Science
        PE      C       P       30      –       COMPA1 Computing Electives
                ENGG2600,ENG3600,ENGG4600,COMP3###,COMP4###,COMP6###,COMP9###
        FE      C       P       36      –       COMPA1 Free Electives
                ########

COMPAS  2       Artificial Intelligence
        CC      C       E       –  –    COMPAS Core
                {COMP9414;COMP9814}
        PE      C       E       18      18      COMPAS Electives
                COMP4418,COMP9318,COMP9417,COMP9418,COMP9434,COMP9444,COMP9491,
        PE      C       P       –       6       COMPAS Disciplinary Electives
                BINF6###,BINF9###,COMP4###,COMP6###,COMP9##,GSOE92###

COMPBH  3       Computer Engineering
        CC      C       E       –       –       Foundational Computing
                COMP1511,COMP1521,COMP1531,COMP2511,COMP2521
        CC      C       E       –       –       COMPBH Maths
                {MATH1131;MATH1141},{MATH1231;MATH1241},MATH2069,MATH2099
        CC      C       E       –       –       COMPBH Physics and Electronics
```

```
                {PHYS1121;PHYS1131},{PHYS1221;PHYS1231},ELEC1111,ELEC2133,ELEC2
        CC      C       E       –       –       COMPBH Design
                {ENGG1000;DESN1000},DESN2000
        CC      C       E       –       –       COMPBH Advanced Core
                COMP3211,COMP3222,COMP3231,COMP3601,COMP4601,COMP4920,COMP4951,
        PE      C       P       36      –       COMPBH Computing Electives
                ENGG2600,ENGG3060,ENGG3600,ENGG4600,COMP3###,COMP4###,COMP6###,

COMPBS  4       Bioinformatics
        CC      C       E       –       –       COMPBS Core
                BINF9010,BINF9020
        PE      C       E       18      18      COMPBS Electives
                COMP9318,COMP9417,MATH5846,MATH5856
        PE      C       P       –       6       COMPBS Disciplinary Electives
                BINF6###,BINF9###,COMP4###,COMP6###,COMP9##,GSOE92###

COMPCS  5       Computer Science
        PE      C       E       24      24      COMPCS Disciplinary Electives
                BINF6###,BINF9###,COMP4###,COMP6###,COMP9##,GSOE92###

COMPD1  6       Database Systems
        CC      C       E       –       –       COMPD1 Core
                COMP3311
        PE      C       E       18      18      COMPD1 Electives
                COMP6714,COMP9312,COMP9313,COMP9315,COMP9318,COMP9319
        PE      C       P       6       –       COMPD1 Computing Electives
                ENGG2600,ENG3600,ENGG4600,COMP3###,COMP4###,COMP6###,COMP9###
        FE      C       P       36      –       COMPD1 Free Electives
                ########

COMPDS  7       Database Systems
        PE      C       E       18      18      COMPDS Electives
                COMP6714,COMP9312,COMP9313,COMP9315,COMP9318,COMP9319,COMP9321
        PE      C       P       –       12      COMPDS Disciplinary Electives
                BINF6###,BINF9###,COMP4###,COMP6###,COMP9##,GSOE92###

COMPE1  8       eCommerce Systems
        CC      C       E       –       –       COMPE1 Core
                COMP3311
        PE      C       E       18      18      COMPE1 Electives
                COMP3511,COMP9321,COMP9322,COMP9323
        PE      C       P       6       –       COMPD1 Computing Electives
                ENGG2600,ENG3600,ENGG4600,COMP3###,COMP4###,COMP6###,COMP9###
        FE      C       P       36      –       COMPD1 Free Electives
                ########

COMPES  9       eCommerce Systems
        PE      C       E       18      18      COMPES Electives
                ACCT5922,COMP6324,COMP6452,COMP9313,COMP9321,COMP9322,COMP9323
        PE      C       P       –       12      COMPES Disciplinary Electives
                BINF6###,BINF9###,COMP4###,COMP6###,COMP9##,GSOE92###

COMPGS  10      Geographic Information Systems
```

```
COMPI1  11      Artificial Intelligence
        CC      C       E       -       -       COMPI1 Core
                COMP3411
        PE      C       E       18      18      COMPI1 Electives
                COMP3431,COMP4418,COMP9318,COMP9417,COMP9418,COMP9444,COMP9517
        PE      C       P       6       -       COMPI1 Computing Electives
                ENGG2600,ENG3600,ENGG4600,COMP3###,COMP4###,COMP6###,COMP9###
        FE      C       P       36      -       COMPI1 Free Electives
                ########

COMPIS  12      Internetworking
        PE      C       E       18      18      COMPIS Electives
                COMP9332,COMP9334,COMP6733,COMP9336,COMP9337
        PE      C       P       -       12      COMPDS Disciplinary Electives
                BINF6###,BINF9###,COMP4###,COMP6###,COMP9##,GSOE92###

COMPJ1  13      Programming Languages
        CC      C       E       -       -       COMPJ1 Core
                COMP3161
        PE      C       E       18      18      COMPJ1 Electives
                COMP3131,COMP3141,COMP3151,COMP6771

        PE      C       P       6       -       COMPJ1 Computing Electives
                ENGG2600,ENG3600,ENGG4600,COMP3###,COMP4###,COMP6###,COMP9###
        FE      C       P       36      -       COMPJ1 Free Electives
                ########

COMPN1  14      Computer Networks
        CC      C       E       -       -       COMPN1 Core
                COMP3331
        PE      C       E       18      18      COMPN1 Electives
                COMP4336,COMP4337,COMP6733,COMP9332,COMP9334
        PE      C       P       6       -       COMPN1 Computing Electives
                ENGG2600,ENG3600,ENGG4600,COMP3###,COMP4###,COMP6###,COMP9###
        FE      C       P       36      -       COMPN1 Free Electives
                ########

COMPS1  15      Embedded Systems
        CC      C       E       -       -       COMPS1 Core
                COMP2121,COMP3222
        PE      C       E       18      18      COMPS1 Electives
                COMP3211,COMP3231,COMP3601,COMP4601,COMP9242,COMP9517
        PE      C       P       6       -       COMPS1 Computing Electives
                ENGG2600,ENG3600,ENGG4600,COMP3###,COMP4###,COMP6###,COMP9###
        FE      C       P       30      -       COMPS1 Free Electives
                ########

COMPSS  16      Data Science and Engineering
        PE      C       E       6       12      COMPSS Algos/Stats Electives
                COMP4141,COMP6741,MATH5845,MATH5855,MATH5905,MATH5960
        PE      C       E       6       12      COMPSS Databases Electives
                COMP9313,COMP9315,COMP9318,COMP9319,COMP9321
        PE      C       E       6       12      COMPSS Machine Learning Electiv
                COMP4418,COMP6714,COMP9417,MATH5836,COMP9444
        PE      C       P       -       6       COMPSS Disciplinary Electives
```

```
                BINF6###,BINF9###,COMP4###,COMP6###,COMP9##,GSOE92###

COMPY1  17      Security Engineering
        CC      C       E       –       –       COMPY1 Core
                {COMP6441;COMP6841}
        PE      C       E       18      18      COMPY1 Electives
                COMP4337,{COMP6443;COMP6843},{COMP6445;COMP6845},COMP6447,COMP6
        PE      C       P       6       –       COMPY1 Computing Electives
                ENGG2600,ENG3600,ENGG4600,COMP3###,COMP4###,COMP6###,COMP9###
        FE      C       P       30      –       COMPY1 Free Electives
                ########

SENGAH  18      Software Engineering
        CC      C       E       –       –       Foundational Computing
                COMP1511,COMP1521,COMP1531,COMP2511,COMP2521
        CC      C       E       –       –       SENGAH Maths
                MATH1081,{MATH1131;MATH1141},{MATH1231;MATH1241},MATH2400,MATH2
        CC      C       E       –       –       SENGAH Workshops/Design
                DESN2000,SENG2011,SENG2021,SENG3011
        CC      C       E       –       –       SENGAH Advanced Core
                COMP2041,COMP3141,COMP3311,COMP3331,SENG4920,COMP4951,COMP4952,
        PE      C       P       36      –       SENGAH Discipline Electives
                ENGG2600,ENGG3060,ENGG3600,ENGG4600,COMP3###,COMP4###,COMP6###,
        FE      C       P       6       6       SENGAH Free Electives
                ########
```