

Students

stud_id	stud_name
1234	John Smith
9555	Peter

Subjects

subj_code	subj_title
ITM2005	System Architecture
ACS1005	Data Mgmt
PRG1001	Programming I

Results

stud_id	subj_code	Sem	Year	staff_id	convenor	mark	grade
1234	ITM2005	1	2015	111	Bob Hauser	83	D
1234	ACS1005	2	2015	222	Jane Collins	44	N
9555	ITM20005	1	2015	111	Bob Hauser	95	HD
9555	PRG1001	2	2015	333	Ahmad Singh	65	C

To establish the second normal form, all attributes (non-key attributes) are to be dependent on the key. The prime key attributes are stud_id, subj_code and sem_year. The stud_name can be determined by only stud_id, which makes the relation Partial Dependent. The sub_title can be determined by only subj_code, which makes the relation Partial Dependent. Students can sometimes fail a subject, and will have to retake the subject which is why it is important to account for sem_year. By removing stud_name and subj_title from the table, all other attributes defined by the composite key of stud_id, subj_code and sem_year. Putting stud_id and stud_name into a separate table gives us a students table. The stud_id in the students table can now be used as a foreign key to the results table. The stud_name no longer has any repeats. Achieving 2NF eliminates partial dependencies, which are considered design-anomalies and indicate potential duplication.