

CPS 510: Assignment 7

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Located at the top of each table section is a table that includes all of the table attributes.

PK - Primary key

U - Unique

F - Foreign

Converting all tables to proper 3NF Normalization.

Student Table(Transitive -> 3NF):

SIN (U)	Student_number (PK)	U o G	First_ name	Last_ name	Phone_ number	indig	Citizenship	Disability
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Includes a primary key of Student_number and a unique identifier SIN#

Functional Dependencies of Student Table:

SIN -> Student_number

Student_number -> UoG, firstname, last name, phone number, indig, citizenship, disability

After normalisation to 3NF:

SIN (U)	Student_number (PK)
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Functional dependencies: SIN -> Student_number

Student_ numbe r(PK)	U o G	First_ name	Last_ name	Phone_numbe r	indig	Citizenship	Disability
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Functional dependencies: Student_number -> UoG, firstname, last name, phone number, indig, citizenship, disability

Transaction Table (Transitive -> 3NF):

Student_number (PK)	TID(U)	TAmount	Tdesc	Tterm	Tdate
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Includes a primary key relationship of student number to the Table student, with a unique transaction ID.

Functional Dependencies of Transaction Table:

Student_number -> TID

TID -> TAmount, Tdesc, Tterm, tdate

After normalisation to 3NF:

STrans table

Student_number (PK)	TID(U,F)
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Functional dependencies: Student_number -> TID

Transaction table

TID(PK)	TAmount	Tdesc	Tterm	Tdate
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Functional dependencies: TID -> TAmount, Tdesc, Tterm, Tdate

Addresses Table:

Student_number (PK)	Address (U)	City	Prov	Country	Postal
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Includes primary key of student number references student table.

Functional Dependencies of Addresses Table:

Student_number -> city, prov, country, postal

postal, prov -> address

After normalisation to 2NF:

Student_number (PK)	City	Prov	Country	Postal
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Student_number -> city, prov, country, postal

Postal	Address(U)
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Postal -> Address

Course Table:

Course_number(PK)	Course_name	Credits
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Includes a primary key Course number

Functional Dependencies of Course Table:

Course_number -> Course_name, Credits

Section Table(Transitive -> 3NF):

Course_number	Instructor	Section_number (PK)	SYear	Sterm
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Includes a reference to course number, and also a primary key of section number

Functional Dependencies of Section Table:

Course_number -> Section_number

Section_number -> Instructor, Syear, Sterm

After normalisation to 3NF:

Course_number	Section_number (PK)
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Functional dependencies: Course_number -> Section_number

Section_number (PK)	Instructor	SYear	Sterm
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Functional dependencies: Section_number -> Instructor, Syear, Sterm

Department Table: (Transitive -> 3NF)

Course_number (PK)	Dhead	Dphone	Demail	Dname	Doffice
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Includes a primary key reference of course number.

Functional Dependencies of Department Table:

Course_number -> Dname

Dname -> Dhead, Dphone, Demail, Doffice

After normalisation to 3NF:

Course_number (PK)	Dname
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Functional dependencies: Course_number -> Dname

Dname	Dphone	Demail	Dhead	Doffice
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Functional dependencies: Dname -> Dhead, Dphone, Demail, Doffice

Registered Table: (Transitive -> 3NF)

Student_number	Course_number	Section_number
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Includes a relationship between all of the main keys, section number, course number and student number.

Compound Primary keys (Student_number, Course_number, Section_number)

Functional Dependencies of Registered Table:

Student_number -> Course_number

Course_number -> Section_number

Student_number -> Section_number

After normalization to 3NF:

Registered table:

Student_number (PK)	Course_number (F)
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Functional dependencies: Student_number -> Course_number

Sections table:

Course_number (PK)	Section_number
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Functional dependencies: Course_number -> Section_number

Undergrad Table:

Student_number(U)	UoG	Udegree
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Includes a unique reference to the student number.

Functional Dependencies of Undergrad Table:

Student_number -> UoG, Udegree

Graduate Table:

Student_number (U)	UoG	GDegree	Gphone	Goffice
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Includes a unique key reference to the student number.

Functional Dependencies of Graduate Table:

Student_number -> UoG, GDegree, GPhone, GOffice

SDegree Table:

Student_number(PK)	UDegree	School
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Includes a primary key reference to student number

Functional Dependencies of SDegree Table:

Student_number -> UDegree, School

Documents Table:

Student_number(U)	Enrollment	Transcript	TransferCredits
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Includes a unique reference to the student number.

Functional Dependencies of Documents Table:

Student_number -> Enrollment, Transcript, TransferCredits