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Assignment 4

Initial Functional dependencies :

STUNUMB-> STUNAME

{STUNUMB, CRSENUMB} -> {NUMCRED, CRSEDESC, GRADE}

CRSENUMB-> {CRSEDESC, NUMCRED}

ADVNUMB -> ADVNAME

STUNUMB-> ADVNUMB

1NF decompose table into two tables:

1) STUDENT(STUNUMB, STUNAME, ADVNUMB, ADVNAME) with key = STUNUMB

2) STUDENT_COURSE(STUNUMB, CRSENUMB, CRSEDESC, NUMCRED, GRADE) with Key = {STUNUMB, CRSENUMB}

these tables will be in 1NF

Functional dependencies:

STUDENT table:

STUNUMB-> STUNAME

ADVNUMB -> ADVNAME

STUNUMB-> ADVNUMB

STUDENT_COURSE table :

{STUNUMB, CRSENUMB} -> {NUMCRED, CRSEDESC, GRADE}

CRSENUMB-> {CRSEDESC, NUMCRED}

2NF Look to remove partial dependencies

decompose STUDENT_COURSE table into two tables.

1) STUDENT(STUNUMB, STUNAME, ADVNUMB, ADVNAME)) with key = STUNUMB

2) STUDENT_COURSE(STUNUMB, CRSENUMB, GRADE) with key = {STUNUMB, CRSENUMB}

3) COURSE(CRSENUMB, CRSEDESC, NUMCRED) with key CRSENUMB

Functional dependencies :

STUDENT table :

STUNUMB-> STUNAME

ADVNUMB -> ADVNAME

STUNUMB-> ADVNUMB

STUDENT_COURSE table:

{STUNUMB, CRSENUMB} -> {GRADE}

COURSE table:

CRSENUMB-> {CRSEDESC, NUMCRED}

3NF Look at transitive dependencies

decompose STUDENT table into two tables

- 1) STUDENT(STUNUMB, STUNAME, ADVNUMB) with key = STUNUMB
- 2) ADV(ADVNUMB, ADVNAME) with key = ADVNUMB
- 3) STUDENT_COURSE(STUNUMB, CRSENUMB, GRADE) with key = {STUNUMB, CRSENUMB}
- 4) COURSE(CRSENUMB, CRSEDESC, NUMCRED) with key CRSENUMB

Functional dependencies for all tables:

STUDENT table :

STUNUMB-> STUNAME

STUNUMB-> ADVNUMB

ADV table:

ADVNUMB -> ADVNAME

STUDENT_COURSE table:

{STUNUMB, CRSENUMB} -> {GRADE}

COURSE table:

CRSENUMB-> {CRSEDESC, NUMCRED}

All tables will be in 3NF.