

StudentsID	First_name	Last_name	yearNumber	Faculty	Major	GPA	Phone_number	Club_name	Grant_type
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1.Students Table

Keys=Students_ID, Phone_Number

FD:

Students_ID, Phone_Number→ALL ATTRIBUTES

Major→Faculty VIOLATES BCNF

1.Students2:

{Major}+= {Major, Faculty}

Faculty	Major
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Major→Faculty SATISFIES BCNF

2.Students1:

{Major}= {Major, Studentship, First_name, last_name, yearNumber, GPA, Phone_Number, Club_name, Grant_type}

StudentsID	First_name	Last_name	yearNumber	Major	GPA	Phone_number	Club_name	Grant_type
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Students_ID, Phone_Number→ALL ATTRIBUTES. SATISFIES BCNF

Keys=StudentsID, Phone_Number

3. Students-scholarships

StudentsID	First_name	Last_name	Year	Bill	Scholarship
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Keys=Students_ID

FD: Students_ID→First_name, last_name, YearNumber, Bill, Scholarship SATISFIES BCNF

4. Payers

StudentsID	First_name	Last_name	Year	Bill	Payment
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Keys=Students_ID

FD:

Students_ID→First_name, last_name, YearNumber, Bill, Scholarship SATISFIES BCNF

5.Proffesors

Prof_ID	First_name	Last_name	Hire_date	Faculty_name	Office	Salary
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Keys=Prof_ID

FD:

Prof_ID→ALL ATTRIBUTES

office→Faculty_name VIOLATES BCNF

5.Professors2: {Office }+={Office, Faculty_name}

Faculty_name	Office
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Office→Faculty_name SATISFIES BCNF

6.Professors1:{Office}={Prof_ID, First_name,Last_name,Hire_date, salary,Office}

Prof_ID	First_name	Last_name	Hire_date	Salary	Office
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Prof_ID→ALL ATTRIBUTES SATISFIES BCNF

7.Faculties

Faculty_name	Block	Student_quantity	Prof_quantity	Classroom_quantity
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Keys=Block, Faculty_name

FD:

Block→ALL attrbts

Faculty_name→ALL attrbts SATISFIES BCNF

8.Courses

Course_code	Course_name	Credits
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Keys=Course_code, Course_name

FD:

Course_code→Credits, Course_name

Course_name→Course_code, Credits SATISFIES BCNF

9.Clubs

Club_name	Student_Quantity	Budget	Header_name
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Keys=Club_name

FD:Club_name→Student_number, Budget, Header_name

SATISFIES BCNF

10.Classes

Class_ID	Course_code	Student_number	Prof_ID	Classroom	Time
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Keys={Class_ID, Course_code}, {Classroom, Time}

FD:

Class_ID, Course_code→Prof_ID, Student_number, Classroom, Time

Classroom, Time→Prof_ID, Course_Code, Class_ID, Student_number SATISFIES BCNF

11.Attendance

Student_ID	Present_quantity	Absence_quantity	Course_Code
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Keys={Student_ID, Course_Code}

FD:Student_ID, Course_code→Present_quantity, Absence_quantity

SATISFIES BCNF

12.Grades

Student_ID	Class_ID	Prof_ID	Course_Code	Grade
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Keys = {Student_ID, Course_code}

FD: Student_ID, Course_code \rightarrow Class_ID, Prof_ID, Grade VALID BCNF

13.Hospitals

Hospital_ID	Hospital_Name	Student_ID	First_name	Last_name	StudentLivingAddress	address	diseases
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Keys=Student_ID

FD: Student_ID \rightarrow Hospital_ID, First_name, Last_name, StudentLivingAddress, address, diseases

Hospital_ID \rightarrow Hospital_name, address VIOLATES BCNF

13.Hospitals1: {Hospitals_ID} += {Hospitals_ID, Hospital_name, address}

Hospital_ID	Hospital_name	address
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Key=Hospitals_ID

Hospitals_ID \rightarrow Hospital_name, address

SATISFIES BCNF

14.Hospital2: {Hospital_ID} = {Hospital_ID, Student_ID, First_name, Last_name, StudentLivingAddress, diseases}

Hospital_ID	Student_ID	First_name	Last_name	StudentLivingAddress	diseases
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Keys=Student_ID

Student_ID \rightarrow Hospital_ID, First_name, Last_name, StudentLivingAddress, diseases

SATISFIES BCNF

15.Dormitory

Students_ID	Year	Room	Gender	Contribution	PeriodOfStay	Check-In
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Keys=Student_ID

FD:

Student_ID \rightarrow Year, Room, Gender, Contribution, PeriodOfStay, Check-In

Room \rightarrow Gender Violates BCNF

15.Dormitory2: {Room} += {Room, Gender}

Room	Gender
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Room \rightarrow Gender Satisfies BCNF

16.Dormitory1: {Room} = {Students_ID, Year, Room, Contribution, PeriodOfStay, Check-In}

Students_ID	Year	Room	Contribution	PeriodOfStay	Check-In
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Students_ID \rightarrow ALL ATRBTS satisfies BCNF