Tables: 16/16

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| StudentsID | First\_name | Last\_name | yearNumber | Faculty | Major | GPA | Phone\_number | Club\_name | Grant\_type |

**1.Students Table**

Keys=Students\_ID, Phone\_Number

FD:

Students\_ID, Phone\_Number🡪ALL ATTRIBUTES

Major🡪Faculty VIOLATES BCNF

**1.Students2:**

|  |  |
| --- | --- |
| Faculty | Major |

{Major}+={Major, Faculty}

Major🡪Faculty SATISFIES BCNF

**2.Students1:**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| StudentsID | First\_name | Last\_name | yearNumber | Major | GPA | Phone\_number | Club\_name | Grant\_type |

{Major}={Major, Studentship, First\_name, last\_name, yearNumber, GPA, Phone\_Number,Club\_name, Grant\_type}

Students\_ID, Phone\_Number🡪ALL ATTRIBUTES. SATISFIES BCNF

Keys=StudentsID, Phone\_Number

**3. Students-scholarships**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| StudentsID | First\_name | Last\_name | Year | Bill | Scholarship |

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 |

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 |

Keys=Prof\_ID

FD:

Prof\_ID🡪ALL ATTRIBUTES

office🡪Faculty\_name VIOLATES BCNF

**5.Professors2**: {Office }+={Office, Faculty\_name}

|  |  |
| --- | --- |
| Faculty\_name | Office |

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 |

Prof\_ID🡪ALL ATTRIBUTES SATISFIES BCNF

**7.Faculties**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Faculty\_name | Block | Student\_quantity | Prof\_quantity | Classroom\_quantity |

Keys=Block, Faculty\_name

FD:

Block🡪ALL attrbts

Faculty\_name🡪ALL attrbts SATISFIES BCNF

**8.Courses**

|  |  |  |
| --- | --- | --- |
| Course\_code | Course\_name | Credits |

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 |

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 |

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 |

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 |

Keys = {Student\_ID, Course\_code}

FD: Student\_ID, Course\_code🡪 Class\_ID, Prof\_ID, Grade VALID BCNF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Hospital\_ID | Hospital\_Name | Student\_ID | First\_name | Last\_name | StudentLivingAddress | address | diseases |

**13.Hospitals**

Keys=Student\_ID

FD: Student\_ID🡪Hospital\_ID, First\_name, Last\_name, StudentLivingAddress, address, diseases

Hospital\_ID🡪Hospital\_name, address VIOLATES BCNF

**13.Hospitals1**: {Hospitals\_ID}+={Hospitals\_ID, Hospital\_name, address}

|  |  |  |
| --- | --- | --- |
| Hospital\_ID | Hospital\_name | address |

Key=Hospitals\_ID

Hospitals\_ID🡪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 |

Keys=Student\_ID

Student\_ID🡪Hospital\_ID, First\_name, Last\_name, StudentLivingAddress, diseases

SATISFIES BCNF

**15.Dormitory**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Students\_ID | Year | Room | Gender | Contribution | PerioudOfStay | Check-In |

Keys=Student\_ID

FD:

Student\_ID🡪Year, Room, Gender, Contribution, PeriodOfStay, Check-In

Room🡪Gender Violates BCNF

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

|  |  |
| --- | --- |
| Room | Gender |

Room🡪Gender Satisfies BCNF

**16.Dormitory1**: {Room}={Students\_ID, Year, Room, Contribution, PeriodOfStay, Check-In}

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Students\_ID | Year | Room | Contribution | PerioudOfStay | Check-In |

Students\_ID🡪ALL ATRBTS satisfies BCNF