Quang Tran

CIS 310 Section 02

Prof. Guan

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**Part 1**

1.)

|  |  |  |
| --- | --- | --- |
| **Table** | **Primary Key** | **Foreign Key(s)** |
| Employee | EMP\_CODE | STORE\_CODE |
| Store | STORE\_CODE | REGION\_CODE, EMP CODE |
| Region | REGION\_CODE | N/A |

2.)

|  |  |  |
| --- | --- | --- |
| **Table** | **Entity Integrity** | **Explanation** |
| Employee | Yes | All values in EMP\_CODE are unique and no key attributes in the primary key are null |
| Store | Yes | All values in STORE\_CODE are unique and no key attributes in the primary key are null |
| Region | Yes | All values in REGION\_CODE are unique and no key attributes in the primary key are null |

3.)

|  |  |  |
| --- | --- | --- |
| **Table** | **Referential Integrity** | **Explanation** |
| Employee | Yes | References from the foreign key STORE\_CODE are valid based off values in Store table |
| Store | Yes | References from the foreign keys REGION\_CODE and EMP\_CODE are valid based off values in Employee and Region tables. |
| Region | Yes | Table has no foreign key |

**Part 2**

**Tables**

|  |  |
| --- | --- |
| Student | |
| **STU\_CODE** | **PROF\_CODE** |
| 100278 |  |
| 128569 | 2 |
| 512272 | 4 |
| 531235 | 2 |
| 531268 |  |
| 553427 | 1 |

|  |  |
| --- | --- |
| Professor | |
| **PROF\_CODE** | **DEPT\_CODE** |
| 1 | 2 |
| 2 | 6 |
| 3 | 6 |
| 4 | 4 |

**Natural Join, Step 1: Product**

|  |  |  |  |
| --- | --- | --- | --- |
| **STU\_CODE** | **Student.PROF\_CODE** | **Professor.PROF\_CODE** | **DEPT\_CODE** |
| 100278 |  | 1 | 2 |
| 100278 |  | 2 | 6 |
| 100278 |  | 3 | 6 |
| 100278 |  | 4 | 4 |
| 128569 | 2 | 1 | 2 |
| 128569 | 2 | 2 | 6 |
| 128569 | 2 | 3 | 6 |
| 128569 | 2 | 4 | 4 |
| 512272 | 4 | 1 | 2 |
| 512272 | 4 | 2 | 6 |
| 512272 | 4 | 3 | 6 |
| 512272 | 4 | 4 | 4 |
| 531235 | 2 | 1 | 2 |
| 531235 | 2 | 2 | 6 |
| 531235 | 2 | 3 | 6 |
| 531235 | 2 | 4 | 4 |
| 531268 |  | 1 | 2 |
| 531268 |  | 2 | 6 |
| 531268 |  | 3 | 6 |
| 531268 |  | 4 | 4 |
| 553427 | 1 | 1 | 2 |
| 553427 | 1 | 2 | 6 |
| 553427 | 1 | 3 | 6 |
| 553427 | 1 | 4 | 4 |

**Natural Join, Step 2: Select**

|  |  |  |  |
| --- | --- | --- | --- |
| **STU\_CODE** | **Student.PROF\_CODE** | **Professor.PROF\_CODE** | **DEPT\_CODE** |
| 128569 | 2 | 2 | 6 |
| 512272 | 4 | 4 | 4 |
| 531235 | 2 | 2 | 6 |
| 553427 | 1 | 1 | 2 |

**Natural Join, Step 3: Project**

|  |  |  |
| --- | --- | --- |
| **STU\_CODE** | **PROF\_CODE** | **DEPT\_CODE** |
| 128569 | 2 | 6 |
| 512272 | 4 | 4 |
| 531235 | 2 | 6 |
| 553427 | 1 | 2 |