Patrick Warren

Assignment 3 – A4

Due: 09/18/17

CIS 310-01

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Assignment 4

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1. The Primary and Foreign keys are shown below for the tables listed.

|  |  |  |
| --- | --- | --- |
| **TABLE** | **PRIMARY KEY** | **FOREIGN KEY(S)** |
| EMPLOYEE | EMP\_CODE | STORE\_CODE |
| STORE | STORE\_CODE | EMP\_CODE, REGION\_CODE |
| REGION | REGION\_CODE | None |

1. Below is the explanation as to the entity integrity of the tables.

|  |  |  |
| --- | --- | --- |
| **TABLE** | **ENTITY INTEGRITY** | **EXPLANATION** |
| EMPLOYEE | Yes | No two of the twenty rows are the same. Zero duplicates. No Null key attributes either. |
| STORE | Yes | No two rows are the same and they contain no Null key attributes |
| REGION | Yes | Only two rows, no duplication, and no null key attributes. |

1. Do the tables exhibit referential integrity?

|  |  |  |
| --- | --- | --- |
| **TABLE** | **REFERENTIAL INTEGRITY** | **EXPLANATION** |
| EMPLOYEE | Yes | All foreign key entries are within the range of 1-5. |
| STORE | Yes | Both REGION\_CODE and EMP\_CODE is referencing valid rows in their respective databases |
| REGION | NA |  |

Part 2

1. To complete a NATURAL JOIN between STUDENT and PROFESSOR we must first create a table from the PRODUCT of the two. For this exercise, see below for that result.

|  |  |  |  |
| --- | --- | --- | --- |
| STU\_CODE | STUDENT PROF\_CODE | PROFESSOR PROF\_CODE | DEPT\_CODE |
| 100278 |  | 1 | 2 |
| 100278 |  | 2 | 6 |
| 100278 |  | 3 | 6 |
| 100278 |  | 4 | 4 |
| 126569 | 2 | 1 | 2 |
| 126569 | 2 | 2 | 6 |
| 126569 | 2 | 3 | 6 |
| 126569 | 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 |

1. Next, we will use the SELECT command to pick the rows where the two Primary Keys match and group those rows into another table. See below:

|  |  |  |  |
| --- | --- | --- | --- |
| STU\_CODE | STUDENT PROF\_CODE | PROFESSOR PROF\_CODE | DEPT\_CODE |
| 126569 | 2 | 2 | 6 |
| 512272 | 4 | 4 | 4 |
| 531235 | 2 | 2 | 6 |
| 553427 | 1 | 1 | 2 |

1. The last step is to PROJECT the results and eliminate the duplicate attributes. In this case, PROFESSOR PROF\_CODE will be dropped and STUDENT PROF\_CODE will become PROF\_CODE, leaving us with 3 columns.

|  |  |  |
| --- | --- | --- |
| STU\_CODE | PROF\_CODE | DEPT\_CODE |
| 126569 | 2 | 6 |
| 512272 | 4 | 4 |
| 531235 | 2 | 6 |
| 553427 | 1 | 2 |