# Practice Exercise 4B

After further analysis, the following constraints (business rules) have been determined:

# locations

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute** | **Data Type** | **Length** | **NULL Capable** | **Constraints** |
| Location ID (PK) | Numeric | 2,0 | N |  |
| City | Character | 20 | N |  |
| Store Manager | Numeric | 5,0 | Y | Must be a valid employee |

locations data:

|  |  |  |
| --- | --- | --- |
| **location\_id** | **city** | **store\_manager** |
| 11 | Sarnia | null |
| 22 | London | null |
| 33 | Toronto | null |

# locations\_departments

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute** | **Data Type** | **Length** | **NULL Capable** | **Constraints** |
| location ID (PK) | Numeric | 2,0 | N | Must be a valid location |
| department\_id (PK) | Numeric | 4,0 | N | Must be a valid department |
| department\_manager | Numeric | 5,0 | Y | Must be a valid employee |

**departments**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Data Type** | **Length** | **NULL Capable** |
| Department ID (PK) | Numeric | 4,0 | N |
| Department name | Character | 50 | N |

departments data:

|  |  |
| --- | --- |
| **department\_id** | **department\_name** |
| 1001 | IT |
| 1002 | Administration |
| 1003 | Men's Clothing |
| 1004 | Women's Clothing |
| 1005 | Kids |
| 1006 | Toys |

# employees

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute** | **Data Type** | **Length** | **NULL**  **Capable** | **Constraints** |
| Employee ID (PK) | Numeric | 5,0 | N | * Unique identifier |
| First name | Character | 15 | N |  |
| Middle Initial | Character | 1 | Y |  |
| Last Name | Character | 15 | N |  |
| Social Security No | Numeric | 9,0 | N | * Unique * Between 0 and 999999999 |
| Birth Date | Date | 10 | N | * Greater than 1970-01-01 |
| Sex | Character | 1 | N | * Must be 'F' or 'M' |
| Pension Contributor | Boolean | 1 | N | * 1=Yes; 0=No |
| Hire Date | Date | 10 | N | * If unknown, use current date * Must be greater than birth date |
| Store Location | Numeric | 2,0 | N | * Must be a valid location |
| Work Department | Numeric | 4,0 | Y | * If unknown, use '1000' * Must be a valid department |
| Job Class | Character | 1 | Y | * If unknown, use 'T' * Must be 'T', 'J', 'C', or 'M' |
| Job level | Numeric | 2,0 | N | * Greater than 0 and less than 10 |
| Coach ID | Numeric | 5,0 | Y | * Must be a valid employee |
| Salary | Numeric | 9,2 | N | * Must be less than 92000.00 * Must be greater than commission |
| Bonus | Numeric | 7,2 | Y | * Must have commission or bonus |
| Commission | Numeric | 7,2 | Y | * Must have commission or bonus |

1. Modify the HR database to include constraints
2. Constraint Testing – Test each constraint by listing each constraint and providing a test to validate that each constraint is working:
   1. Include an INSERT statement to "force" a constraint error. For example, modify the employee\_id so that it is the same as the employee\_id in the previous row. This will force a primary key error when the INSERT statement is run
   2. Run the INSERT statement and verify that the error occurred
   3. Take a screen shot of the error and insert into the constraint testing document
   4. Move to the next constraint and perform a constraint test