**Question 21:**

* The users for the database will be:

**IT** – people who have full access to the database. They will use the mobile and programming interfaces to allow full access and range of features.

**Managers** – people who are in charge of employees. They’ll be able to change employee’s IDs in order to move them from departments and buildings, and they can update salaries and start/end dates. They will also be able to update DEPT and BUILDING info in case something changes like budget or address.. They will use a user-friendly interface that states things in plain English.

**Employees** – people who have minimal access to the database. They can view their current status in IN\_DEPT, IN\_BUILDING, and possibly even BUILDING info depending on how sensitive that information is.

* Addition constraints would be to make EID and DID integers (with their respective limits of 100,000 and 1,000). EName is going to be a String or varchar if possible. Salary is an integer. Start/End date will be a datetime. Percent\_Time will be an integer with a max of 100. BName, DName, and Address will be Strings.
* The Unique trait is tricky because there are certain times when a variable should be unique in one table but not another. I think the easiest way to describe it to highlight the unique columns in the schema below:

**EMP**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| EID | EName | Salary | Start\_Date | End\_Date |

**IN\_DEPT**

|  |  |  |
| --- | --- | --- |
| EID | DID | Percent\_Time |

**BUILDING**

|  |  |  |
| --- | --- | --- |
| BID | BName | Address\* |

**IN\_BUILDING**

|  |  |
| --- | --- |
| EID | BID |

**DEPT**

|  |  |  |
| --- | --- | --- |
| DID | DName | Annual\_Budget |

**MANAGES\_DEPT**

|  |  |
| --- | --- |
| EID | DID |

Highlighted Schema Constructs mean unique data.

\* I would also argue that address could go either way in the future because one address could contain multiple, separate buildings, but the example only shows unique Addresses.