1NF:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| State | City | Governor Name | Mayor  ID  Number | Mayor  Name | Mayor  Telephone |

he definition of first normal form is a table in which every attribute value is atomic, that is, no attribute is multivalued.

2NF:

Since data normalization is a decomposition process, the next step will be to decompose the table into smaller tables to eliminate data redundancy.

In a table in second normal form, every non-key attribute must be fully functionally dependent on the entire key of that table. In plain language, a non-key attribute cannot depend on only part of the key.

(Using functional dependencies from exercise)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| State | City | Mayor ID Number | Mayor Name | Mayor Telephone |

|  |  |
| --- | --- |
| State | Governor Name |

3NF:

In third normal form, non-key attributes are not allowed to define other non-key attributes. Stated more formally, third normal form does not allow transitive dependencies in which one non-key attribute is functionally dependent on another.

|  |  |  |
| --- | --- | --- |
| State | City | Mayor ID Number |

|  |  |  |
| --- | --- | --- |
| Mayor ID Number | Mayor Name | Mayor Telephone |

|  |  |
| --- | --- |
| State | Governor Name |

B.

3NF:

|  |  |  |  |
| --- | --- | --- | --- |
| State | City | Mayor Name | Mayor Telephone |

**C.**

1NF:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| State | City | Federal Agency | Governor Name | Administrator | Annual Grant |

3NF:

|  |  |
| --- | --- |
| State | Governor Name |

|  |  |  |  |
| --- | --- | --- | --- |
| State | City | Federal Agency | Annual Grant |

|  |  |
| --- | --- |
| Federal Agency | Administrator |

**D.**

1NF:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| State | City | Governor Name | State Flower | Mayor Telephone |

3NF:

|  |  |  |
| --- | --- | --- |
| State | Governor Name | State Flower |

|  |  |  |
| --- | --- | --- |
| State | City | Mayor Telephone |

**E.**

2NF:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| State | City | City Hall Address | Mayor ID Number | Mayor Name | Mayor Telephone |

3NF:

|  |  |  |  |
| --- | --- | --- | --- |
| State | City | City Hall Address | Mayor ID Number |

|  |  |  |
| --- | --- | --- |
| Mayor ID Number | Mayor Name | Mayor Telephone |