Name: Arun Sharma

Date: 06/16/2024

Assignment Number: 3.2 Assignment of (Module 3: Normalization)

### **Assignment Data Fields:**

* publisher\_name
* publisher\_ID
* publisher\_address
* book\_isbn
* book\_name
* book\_price
* author\_first\_name
* author\_last\_name
* author\_phone
* author\_email
* publisher\_email
* author\_address

### **Normalization Process:**

#### **1. Initial Data Fields in 1NF**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **publisher\_name** | **publisher\_ID** | **publisher\_address** | **book\_isbn** | **book\_name** | **book\_price** | **author\_first\_name** | **author\_last\_name** | **author\_phone** | **author\_email** | **publisher\_email** | **author\_address** |
| Penguin Books | P1 | Address 1 | 123-456789 | Book One | 20.99 | John | Doe | 123-456-7890 | [john.doe@example.com](mailto:john.doe@example.com) | [penguin@example.com](mailto:penguin@example.com) | Address 1 |
| HarperCollins | P2 | Address 2 | 987-654321 | Book Two | 35.99 | Jane | Smith | 098-765-4321 | [jane.smith@example.com](mailto:jane.smith@example.com) | [harper@example.com](mailto:harper@example.com) | Address 2 |
| Penguin Books | P1 | Address 1 | 123-456789 | Book One | 20.99 | Jane | Smith | 098-765-4321 | [jane.smith@example.com](mailto:jane.smith@example.com) | [penguin@example.com](mailto:penguin@example.com) | Address 2 |

#### **2. Organized into Tables and Ensured 2NF**

* **Table: Publisher**

|  |  |  |  |
| --- | --- | --- | --- |
| **publisher\_ID** | **publisher\_name** | **publisher\_address** | **publisher\_email** |
| P1 | Penguin Books | Address 1 | [penguin@example.com](mailto:penguin@example.com) |
| P2 | HarperCollins | Address 2 | [harper@example.com](mailto:harper@example.com) |

* **Table: Book**

|  |  |  |  |
| --- | --- | --- | --- |
| **book\_isbn** | **book\_name** | **book\_price** | **publisher\_ID** |
| 123-456789 | Book One | 20.99 | P1 |
| 987-654321 | Book Two | 35.99 | P2 |

* **Table: Author**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **author\_ID** | **author\_first\_name** | **author\_last\_name** | **author\_phone** | **author\_email** | **author\_address** |
| A1 | John | Doe | 123-456-7890 | [john.doe@example.com](mailto:john.doe@example.com) | Address 1 |
| A2 | Jane | Smith | 098-765-4321 | [jane.smith@example.com](mailto:jane.smith@example.com) | Address 2 |

* **Table: Book\_Author**

|  |  |
| --- | --- |
| **book\_isbn** | **author\_ID** |
| 123-456789 | A1 |
| 123-456789 | A2 |
| 987-654321 | A1 |

#### **3. Ensured 3NF (No transitive dependencies)**

Each table now contains atomic values, and all attributes are fully dependent on the primary key, without any transitive dependencies.

### **Final Normalized Structure:**

* **Table: Publisher**

|  |  |  |  |
| --- | --- | --- | --- |
| **publisher\_ID** | **publisher\_name** | **publisher\_address** | **publisher\_email** |
| P1 | Penguin Books | Address 1 | [penguin@example.com](mailto:penguin@example.com) |
| P2 | HarperCollins | Address 2 | [harper@example.com](mailto:harper@example.com) |

* **Table: Book**

|  |  |  |  |
| --- | --- | --- | --- |
| **book\_isbn** | **book\_name** | **book\_price** | **publisher\_ID** |
| 123-456789 | Book One | 20.99 | P1 |
| 987-654321 | Book Two | 35.99 | P2 |

* **Table: Author**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **author\_ID** | **author\_first\_name** | **author\_last\_name** | **author\_phone** | **author\_email** | **author\_address** |
| A1 | John | Doe | 123-456-7890 | [john.doe@example.com](mailto:john.doe@example.com) | Address 1 |
| A2 | Jane | Smith | 098-765-4321 | [jane.smith@example.com](mailto:jane.smith@example.com) | Address 2 |

* **Table: Book\_Author**

|  |  |
| --- | --- |
| **book\_isbn** | **author\_ID** |
| 123-456789 | A1 |
| 123-456789 | A2 |
| 987-654321 | A1 |