Question 1: Normalization

Consider the following unnormalized table for a bookstore database:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Book ID | Title | Author | Genre | Publisher | ISBN | P |
| 101 | To Kill a Mockingbird | Harper Lee | Fiction | HarperCollins | 978-0061120084 | 10.99 |
| 102 | The Great Gatsby | F. Scott Fitzgerald | Fiction | Scribner | 978-0743273565 | 12.50 |
| 103 | Principles of Physics | Jearl Walker | Science | Wiley | 978-0321976444 | 50.00 |

Normalize the table to 1NF, 2NF, and 3NF, explaining the steps you took at each normalization level.

Solution -

Table is already in 1st Normal form. Because -

1. All values are atomic
2. Each column has an unique name
3. Columns have the values of same type

Table is already in 2nd Normal form. Because -

1. Table is in 1st Normal form.
2. Book ID can be considered as primary key since it is unique & all other attributes are fully functionally dependent on the primary key Book ID. There is no partial dependency.

Table is already in 3rd Normal form. Because -

1. Table is in 2nd Normal form.
2. There is no transitive dependency.