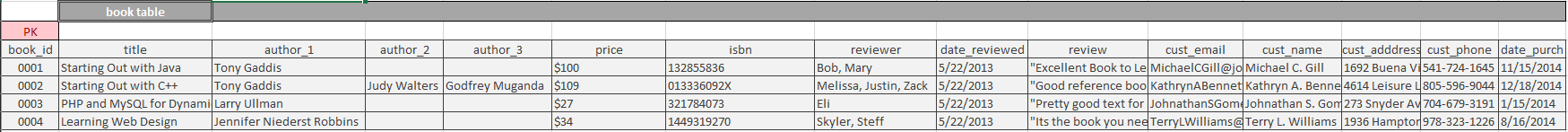
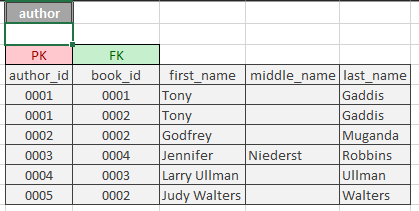
**Final Project**

*Normalize a database to Third Normal Form*

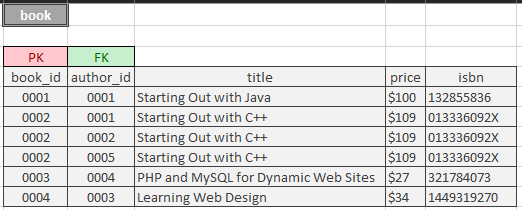
1. Put the “Fake Online Bookstore” dataset in RDBMS format style with lower-case draft table named “book” with arbitrary **primary key “book\_id”** and original column names with words separated by underscores.



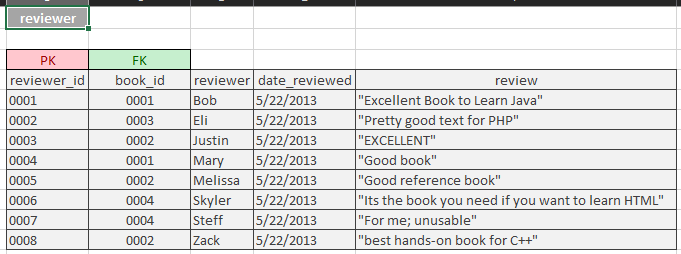
1. *All repeating groups must be removed and placed in new tables* ***(1NF).***
   1. Created an **“author” table** from original author columns (“Author1,” “Author2,” “Author3”) with **primary key “author\_id;”** “author\_id” column enumerated when original “Author” column separated into “first\_name,” “middle\_name,” and “last\_name” columns (so that *each column only has only single value (rule 4)*) and alphabetized by “last\_name.”
   2. Gave each author a **“book\_id” foreign key** column (coming from the initial enumeration of the book table) corresponding to the book(s) they have published or co-published.



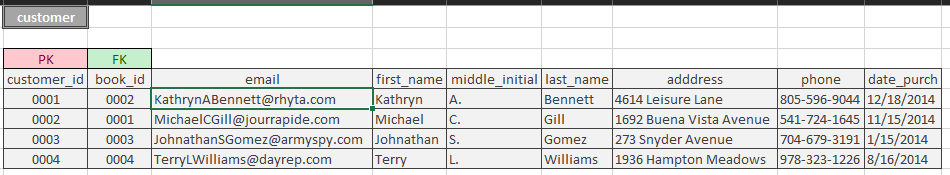
1. *Non-key fields must depend completely on key fields* ***(2NF).*** So, separated out “book” table from author, reviewer and customer information.
   1. Created **“book” table** with **“book\_id” primary key** and **“author\_id” foreign key**.



* 1. Created **“reviewer” table** with **primary key “reviewer\_id”** enumerated when original “reviewer” column (with potentially several reviewers) separated into “first\_name” column (so that *each column only has only single value (rule 4)*) and alphabetized; separated “review” to match comma-separated reviews with their respective reviewers. Also, added **foreign key “book\_id”** to correspond with the book the reviewer reviewed.



* 1. Create an **“customer” table** from original “cust\_name” column with **primary key “customer\_id”** enumerated when original “cust\_name” column separated into “first\_name”, “middle\_initial,” and “last\_name” columns (so that *each column only has only single value (rule 4)*) and alphabetized by “last\_name.” Also, added **foreign key “book\_id”** to correspond with the book the customer purchased. Also, dropped the now redundant “cust\_” prefix from all columns. ­­­



1. With the added primary keys and foreign keys to each table of data separated from the initial dataset, we meet the requirement that *each value is dependent on the primary key* **(3NF).**