Database Normalization

Staff

staff ID	full name	position	library ID

staff ID	full name	position	library ID
S001,S002	John Smith, Sarah Johnson	Librarian, Assistant	L001
S003	Emily Davis	Librarian	L002
S004,S005	Michael Brown, Olivia Taylor	Technician, Assistant	L003

Step 1: First Normal Form (1NF)

staff ID	full name	position	library ID
S001	John Smith	Librarian	L001
S002	Sarah Johnson	Assistant	L001
S003	Emily Davis	Librarian	L002
S004	Michael Brown	Technician	L003
S005	Olivia Taylor	Assistant	L003

Step 2: Second Normal Form (2NF)

staff table

staff ID	full name	position
S001	John Smith	Librarian
S002	Sarah Johnson	Assistant
S003	Emily Davis	Librarian
S004	Michael Brown	Technician
S005	Olivia Taylor	Assistant

library table

position	library ID
Librarian	L001
Assistant	L001
Librarian	L002
Technician	L003
Assistant	L003

books

Book ID	ISBN	title	genre	price	availability status	shelf location	members ID	library ID

Book ID	ISBN	title	genre	price	availability status	shelf location	members ID	library ID
B001,B002	1357,9753	The Great Gatsby, Murder on the Nile	Fiction, Mystery	10.4, 16.1	Checked out	A1	M004, M008	L003
B003	1029	Brief History of Time	Science	7.9	Available	C3	M001	L005
B004	1512	The Hound of Baskervilles	Mystery	8.5	Available	D4	M005	L002

Step 1: First Normal Form (1NF)

Book ID	ISBN	title	genre	price	availability status	shelf location	members ID	library ID
B001	1357	The Great Gatsby	Fiction	10.4	Checked out	A1	M004	L003
B002	9753	Murder on the Nile	Mystery	16.1	Checked out	A1	M008	LOO3
B003	1029	Brief History of Time	Science	7.9	Available	C3	M001	L005
B004	1512	The Hound of Baskervilles	Mystery	8.5	Available	D4	M005	L002

Step 2: Second Normal Form (2NF)

Book table

Book ID	ISBN	title	genre	price	availability status	shelf location
B001	1357	The Great Gatsby	Fiction	10.4	Checked out	A1
B002	9753	Murder on the Nile	Mystery	16.1	Checked out	A1
B003	1029	Brief History of Time	Science	7.9	Available	C3
B004	1512	The Hound of Baskervilles	Mystery	8.5	Available	D4

library table

shelf location	library ID
A1	L003
A1	LOO3
C3	L005
D4	L002

Members table

members ID	library ID
M004	L003
M008	LOO3
M001	L005
M005	L002