UNF

CATALOGUE (catal_call_no, catal_title, (author_no, author_fname, author_lname), (subject_id, subject_desc), catal_content, publisher_no, publisher_name, catal_date_published, catal_edition, catal_page_no, catal_language, catal_note, (identifier_isbn, identifier_type))

1NF

CATALOGUE (catal_call_no, catal_title, catal_content, publisher_no, publisher_name, catal_date_published, catal_edition, catal_page_no, catal_language, catal_note)

CK:

- catal_call_no

CATALOGUE_AUTHOR (catal_call_no, author_no, author_fname, author_lname)

CK:

- catal_call_no, author_no

CATALOGUE _SUBJECT (catal_call_no, subject_id, subject_desc)

CK:

- catal_call_no, subject_id

IDENTIFIER (identifier_isbn, identifier_type, catal_call_no)

CK:

- identifier_isbn

Partial dependencies:

author_no → author_fname, author_lname

subject_id → subject_desc

2NF

CATALOGUE (catal_call_no, catal_title, catal_content, publisher_no, publisher_name, catal_date_published, catal_edition, catal_page_no, catal_language, catal_note)

CATALOGUE_AUTHOR (catal_call_no, author_no)

AUTHOR (author_no, author_fname, author_lname)

CATALOGUE _SUBJECT (catal_call_no, subject_id)

SUBJECT (subject_id, subject_desc)

IDENTIFIER (identifier_isbn, identifier_type, catal_call_no)

Transitive Dependency:

publisher_no → publisher_name

3NF

CATALOGUE (<u>catal_call_no</u>, catal_title, catal_content, catal_date_published, catal_edition, catal_page_no, catal_language, catal_note)

CATALOGUE_AUTHOR (<u>catal_call_no</u>, <u>author_no</u>)

AUTHOR (<u>author_no</u>, author_fname, author_lname)

CATALOGUE _SUBJECT (<u>catal_call_no</u>, <u>subject_id</u>)

SUBJECT (<u>subject_id</u>, subject_desc)

IDENTIFIER (<u>identifier_isbn</u>, identifier_type, catal_call_no)

PUBLISHER (<u>publisher_no</u>, publisher_name)

Full dependencies:

catal_call_no → catal_title, catal_content, catal_date_published, catal_edition, catal_page_no, catal_language, catal_note

author_no → author_fname, author_lname

subject_id → subject_desc

identifier_isbn → identifier_type

publisher_no → publisher_name

UNF

BORROWER (borrower_no, borrower_fname, borrower_lname, borrower_phoneno, borrower_class, (branch_code, branch_name, book_copy_id, loan_order_date_time, loan_duedate, loan_return_date_time, loan_fine_amount, loan_fine_paid_date))

1NF

BORROWER (<u>borrower_no</u>, borrower_fname, borrower_lname, borrower_phoneno, borrower_class)

CK:

- borrower_no

LOAN (<u>branch_code</u>, <u>borrower_no</u>, <u>book_copy_id</u>, <u>loan_order_date_time</u>, loan_duedate, loan_return_date_time, loan_fine_amount, loan_fine_paid_date, branch_name)

CK:

- branch_code, copy_id, loan_order_time, borrower_no

Partial Dependencies:

branch_code → branch_name

2NF

BORROWER (<u>borrower_no</u>, borrower_fname, borrower_lname, borrower_phoneno, borrower_class)

LOAN (<u>branch_code</u>, <u>book_copy_id</u>, <u>loan_order_date_time</u>, <u>borrower_no</u>, loan_duedate, loan_return_date_time, loan_fine_amount, loan_fine_paid_date)

BRANCH (<u>branch_code</u>, branch_name)

No transitive dependencies present

3NF

BORROWER (<u>borrower_no</u>, borrower_fname, borrower_lname, borrower_phoneno, borrower_class)

LOAN (<u>branch_code</u>, <u>book_copy_id</u>, <u>loan_order_date_time</u>, <u>borrower_no</u>, loan_duedate, loan_return_date_time, loan_fine_amount, loan_fine_paid_date)

BRANCH (<u>branch_code</u>, branch_name)

Full Dependencies:

borrower_no → borrower_fname, borrower_lname, borrower_phoneno, borrower_class

branch_code, book_copy_id, loan_order_date_time, borrower_no → loan_duedate, loan_return_date_time, loan_fine_amount, loan_fine_paid_date

branch_code → branch_name

COLLECTED 3NF RELATIONS:

1. CATALOGUE (<u>catal_call_no</u>, catal_title, catal_content, catal_date_published, catal_edition, catal_page_no, catal_language, catal_note)

2. CATALOGUE_AUTHOR (<u>catal_call_no</u>, <u>author_no</u>)

3. AUTHOR (<u>author_no</u>, author_fname, author_lname)

4. CATALOGUE _SUBJECT (<u>catal_call_no</u>, <u>subject_id</u>)

5. SUBJECT (<u>subject_id</u>, subject_desc)

6. IDENTIFIER (<u>identifier_isbn</u>, identifier_type, catal_call_no)

7. PUBLISHER (<u>publisher_no</u>, publisher_name)

8. BORROWER (<u>borrower_no</u>, borrower_fname, borrower_lname, borrower_phoneno, borrower_class)

9. LOAN (<u>branch_code</u>, <u>book_copy_id</u>, <u>loan_order_date_time</u>, <u>borrower_no</u>, loan_duedate, loan_return_date_time, loan_fine_amount, loan_fine_paid_date)

10. BRANCH (<u>branch_code</u>, branch_name)

FINAL 3NF Relations:

CATALOGUE (<u>catal_call_no</u>, catal_title, catal_content, catal_date_published, catal_edition, catal_page_no, catal_language, catal_note)

CATALOGUE_AUTHOR (<u>catal_call_no</u>, <u>author_no</u>)

AUTHOR (<u>author_no</u>, author_fname, author_lname)

CATALOGUE _SUBJECT (catal_call_no, subject_id)

SUBJECT (subject_id, subject_desc)

IDENTIFIER (identifier_isbn, identifier_type, catal_call_no)

PUBLISHER (publisher_no, publisher_name)

BORROWER (borrower_no, borrower_fname, borrower_lname, borrower_phoneno, borrower_class)

LOAN (branch_code, book_copy_id, loan_order_date_time, borrower_no, loan_duedate, loan_return_date_time, loan_fine_amount, loan_fine_paid_date)

BRANCH (branch_code, branch_name)