IT252 – DATABASE SYSTEMS

Lab Assignment 2 – DDL Constraints

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1. **Primary Key**
   ```
   > ALTER TABLE borrow_request ADD PRIMARY KEY (id);
   ```

2. **Foreign Key**
   ```
   > ALTER TABLE borrow_request ADD FOREIGN KEY (user_id) REFERENCES user(id);
   > ALTER TABLE borrow_request ADD FOREIGN KEY (book_id) REFERENCES book(id);
   ```

3. **Unique**
   ```
   > ALTER TABLE borrow_request ADD UNIQUE (id);
   ```

4. **Not Null**
   ```
   > ALTER TABLE borrow_request MODIFY user_id int NOT NULL;
   > ALTER TABLE borrow_request MODIFY book_id int NOT NULL;
   ```

5. **Null**
   ```
   > ALTER TABLE borrow_request MODIFY status VARCHAR(25) NULL;
   ```

6. **Default**
   ```
   > ALTER TABLE borrow_request ALTER status SET DEFAULT 'requested';
   ```

7. **On Update**
   a. **Cascade**
      ```
      > ALTER TABLE borrow_request ADD FOREIGN KEY (user_id) REFERENCES user(id) ON DELETE CASCADE ON UPDATE CASCADE;
      ```

b. No Action

```
> ALTER TABLE borrow_request ADD FOREIGN KEY (book_id)
REFERENCES book(id) ON DELETE NO ACTION ON UPDATE NO
ACTION;
```

c. Set Null

```
> ALTER TABLE borrow_request ADD FOREIGN KEY (genre_id)
REFERENCES genre(id) ON DELETE SET NULL ON UPDATE SET NULL;
```

d. Set Default

```
> ALTER TABLE borrow_request ADD FOREIGN KEY (admin_id)
REFERENCES admin(id) ON DELETE SET DEFAULT ON UPDATE SET
DEFAULT;
```

Note: As per the official MySQL docs, SET DEFAULT: This action is recognized by the MySQL parser, but both `InnoDB` and `NDB` reject table definitions containing `ON DELETE SET DEFAULT` or `ON UPDATE SET DEFAULT` clauses. Hence you won't see the change as shown in the screenshot.

8. On Delete

a. Cascade

```
> ALTER TABLE borrow_request ADD FOREIGN KEY (user_id)
REFERENCES user(id) ON DELETE CASCADE ON UPDATE CASCADE;
```

b. No Action

```
> ALTER TABLE borrow_request ADD FOREIGN KEY (book_id)
REFERENCES book(id) ON DELETE NO ACTION ON UPDATE NO
ACTION;
```

c. Set Null

```
> ALTER TABLE borrow_request ADD FOREIGN KEY (genre_id)
REFERENCES genre(id) ON DELETE SET NULL ON UPDATE SET NULL;
```

d. Set Default

```
> ALTER TABLE borrow_request ADD FOREIGN KEY (admin_id)
REFERENCES admin(id) ON DELETE SET DEFAULT ON UPDATE SET
DEFAULT;
```

Note: As per the official MySQL docs, SET DEFAULT: This action is recognized by the MySQL parser, but both `InnoDB` and `NDB` reject table definitions containing `ON DELETE SET DEFAULT` or `ON UPDATE SET DEFAULT` clauses. Hence you won't see the change as shown in the screenshot.