SRI LANKA TECHNOLOGICAL CAMPUS

SCHOOL OF ENGINEERING

BACHELOR OF SCIENCE (HONOURS) IN ENGINEERING IN ELECTRONICS AND TELECOMMUNICATION

BATCH 07
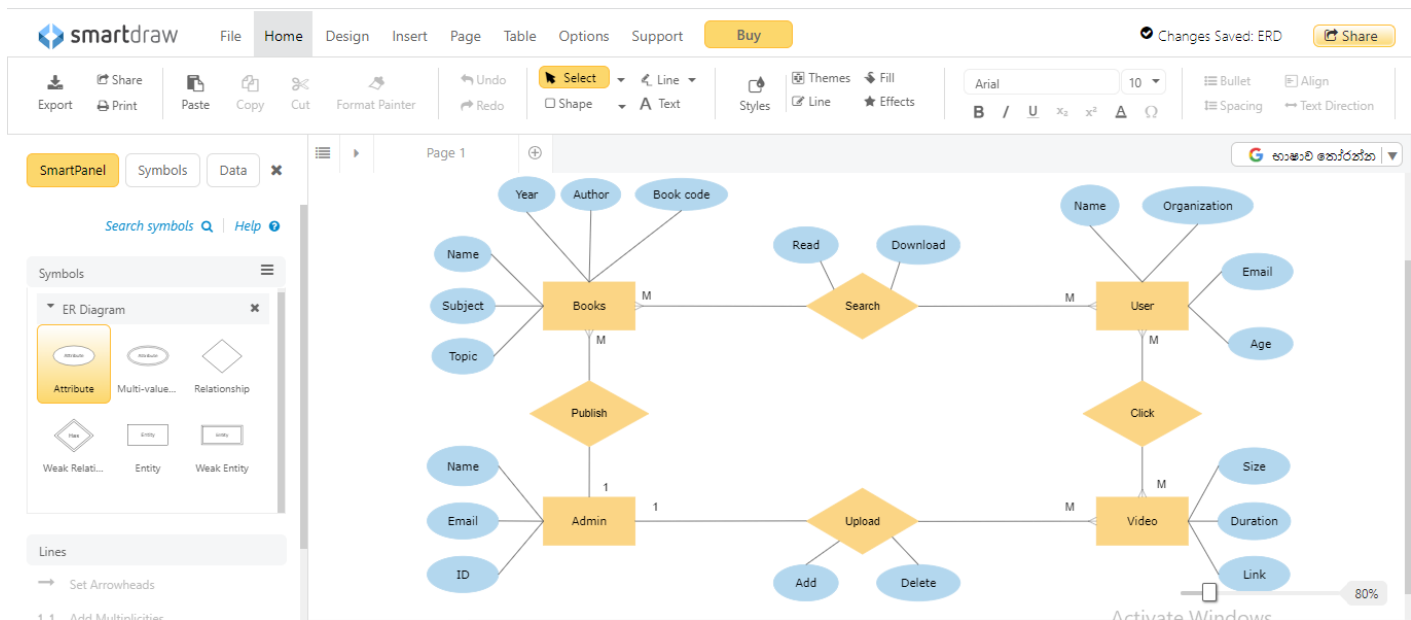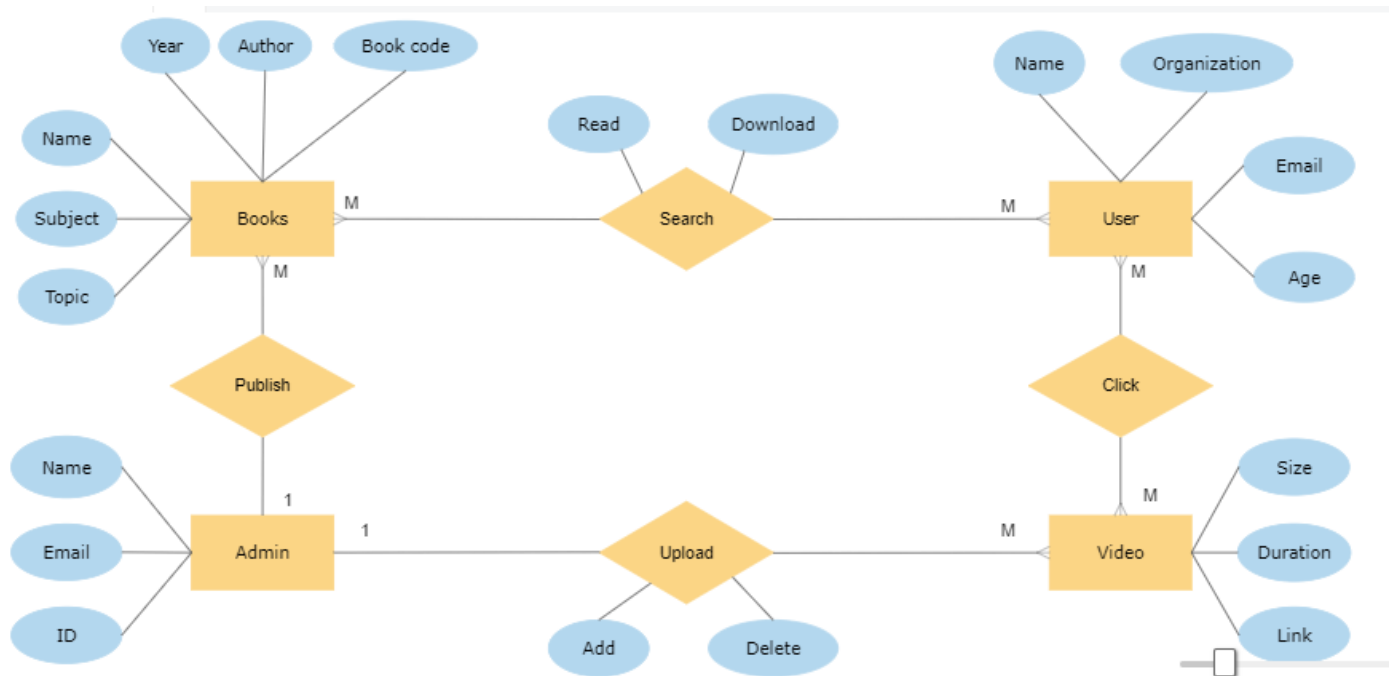
Group "MIND"

CDP01

Databases

AA2028 – B.D.T.P De Silva

AA1609 – H.M.B.D.H Hanwell

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Entity Relationship Diagram

DDL Scripts

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Showing rows 0 - 13 (14 total, Query took 0.0000 seconds.)

SELECT * FROM `book`

	book_id	title	author	topic	paper	subject	year	file_name	cover_picture
Edit Copy Delete	4	Let Us C	Yashavant Kanetkar	C programming	1	14	1	5f00cef1cdb2939a7730f962x4838027.pdf	8dc2d64014780857b
Edit Copy Delete	5	Computer System Architecture	Gurusaran Singh	computer architecture	2	15	1	034e2d0be04b11e6d0b37f791b65495b.pdf	59c88ba763aa07f6667
Edit Copy Delete	6	Data Structures With C	Seymour Lipschutz	Data Structures	3	12	2	e19f4654bfe49372201a07ace88de687.pdf	8a1845d48e59dc5cb6
Edit Copy Delete	7	Programming In C++	Stephen C Dewhurst	C++	4	3	2	d2cd24e0394df97ae69ee1793134d99.pdf	7e560d99cc729c5768
Edit Copy Delete	8	Unix Shell Scripting	Randal K Michael	Unix and Shell Programming	5	10	3	9d9544d5e1d9fd2030e3f700bb70de1d.pdf	1c91b9ee184ba0814e
Edit Copy Delete	9	The Complete Reference Java	Herbert Schildt	Java	6	16	3	2f7a72a83bcf0168a9667e6bf15d9ea6.pdf	613af86c7d45cb4c5c6
Edit Copy Delete	10	Computer Graphics	David J. Eck	Introduction to Graphics	3	17	2	6e83e7bafae5b632df1fcblk86f0ebc3.pdf	3cd183378dd26b792b
Edit Copy Delete	11	Computer Networking	Olivier Bonaventure	Computer Networking	5	13	3	60ab239ed90575b82fc9ef03c5352f02.pdf	9a0fa7d85a5c44e87aa
Edit Copy Delete	12	Operating System	Abraham Silberschatz	Operating System & Concepts	3	1	2	f1c3efce99e0b5996feeac74ae24b527.pdf	9b4c9acb63b0f650177

Performance and Security considerations

1. Performance Enhancing Measures

To ensure the efficient performance of the database, the following performance enhancing measures have been implemented:

1.1 Indexes
Indexes have been created on frequently accessed columns to improve query performance. By creating indexes, the database can quickly locate the required data, reducing the time taken to retrieve information.

1.2 Database Design Optimization
The database schema has been designed in a way that minimizes redundancy and maximizes data integrity. Normalization techniques have been applied to eliminate data duplication and improve overall database performance.

1.3 Query Optimization

Queries have been optimized to minimize the number of table scans and utilize indexes effectively. Techniques such as query rewriting, query caching, and the use of appropriate joins and subqueries have been employed to enhance query performance.

1.4 Data Compression
Data compression techniques have been implemented to reduce the storage space required by the database. Compressing data can improve disk I/O performance and minimize storage costs.

1.5 Caching
Caching mechanisms, such as in-memory caching or query result caching, have been implemented to store frequently accessed data in memory. Caching can significantly reduce database access time and improve overall application performance.

2. Security Measures

To ensure the security of the database, the following security measures have been implemented:

2.1 User Authentication and Authorization:
A robust user authentication and authorization system has been implemented to control access to the database. Each user is required to provide valid credentials to access the database, and their access privileges are defined based on their roles and responsibilities.

2.2 Encryption
Sensitive data stored in the database is encrypted to prevent unauthorized access. Encryption techniques, such as symmetric key encryption or hashing algorithms, have been applied to protect data at rest and during transmission.

2.3 Role-Based Access Control
Access to specific database objects is controlled based on user roles. Only authorized users with the necessary privileges can perform certain operations, such as modifying the database structure or executing critical queries.

2.4 Regular Security Audits
Periodic security audits are conducted to identify and address any vulnerabilities in the database system. This includes reviewing user access permissions, monitoring database logs for suspicious activities, and implementing security patches and updates.

2.5 Data Backup and Recovery
A robust backup and recovery strategy is in place to ensure the integrity and availability of the database. Regular backups are performed to protect against data loss, and recovery procedures are tested to ensure that data can be restored in case of an incident.

References