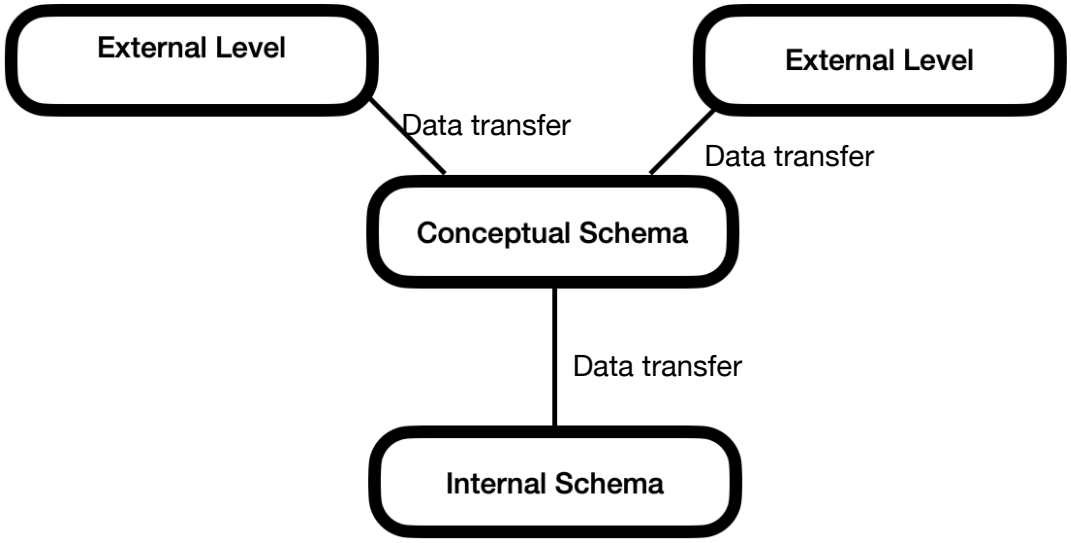
Task 1:
Database schema: It is used to specify the structure, relationships and constrains required for whole database. Schema changes only when data item is modified.

Database state: The data of a database at a particular instance of time is called database state.
A database state changes every time the data/Instance is added. State is empty when first time Database is added to DBMS.

Task 2:
In 3-schema architecture internal schema has physical storage structure of database, conceptual schema has logical details like data-types, relationship which help accessing of data in physical storage by user. Finally, external schema is the application/User interface which is managed by user. When a user request for data retrieval the data from the physical level should be processed to match the user interface representation. Mappings is used to process these requests and obtain results between the 3- schema levels.



Task 3:
Logical Data Independency - Database is said to have Logical Data Independency when data/ schema in conceptual level is changed without affecting external level. When instances or columns are added/deleted for updating other levels remain unchanged.
Physical Data Independency- Database is said to have Physical Data Independency when data/ schema at internal level is changed without affecting conceptual level. Location of a file is changed or Access point is changed other level remain unknown.

Task 4:
University Database
A. Structure of database : relational model.
B. Operation : UPDATE, DELETE
C. Constraint : NOT NULL, UNIQUEs

Task 5:
DDL: Data Definition Lang
DML: Data Manipulation Language.

Task 6:
Bank Database: Bank of Texas

Fig:1.2
Account

Accoount_number	Customer_name	address	Account_open_date	Account_bal	Phone_number
1002	JOHN	South Cooper street	04-12-2021	$400	897-231-1232
1004	JENNY	Davis drive	05-12-2022	$300	897-731-0987
1005	JULIA	Peacon Street	06-12-2019	$600	897-980-1267

Transaction

Transaction_id	Sender_account_num	Receiver_account_number	Amount	Curency
BTA0974	1002	1004	$200	Dollars
BTA8751	1005	1002	$100	Dollars

Staff

Staff_id	Join_date	Role	Email	Phone_number
STR10874	02-27-2010	Branch Manager	marysmith@bt.org	892-387-2131
STR10203	07-10-2005	Regional Manager	jackcooly@bt.org	892-234-9703

Department

Dept_number	Department_name
BT971	Home Mortgage
BT972	Educational Mortgage
BT973	Investment Banking

Fig:2.1

Account

Account_number	Customer_name	address	Account_open_date	Account_bal	Phone_number

Transaction

Transaction_id	Sender_account_num	Receiver_account_number	Amount	Currency

Staff

Staff_id	Join_date	Role	Email	Phone_number

Department

Dept_number	Department_name

Task 7:
Table Name: unique columns.
STUDENT : Student_number
COURSE: Course:number
SECTION: Section_identifier & Course_number
GRADE_REPORT: Student_number & Section_identifier
PREREQUISITE: Course_number & Prerequisite_number