Tech Module Exercises: 0 / 3

RDBMS

* Mini Projects

|  |  |  |
| --- | --- | --- |
| S.No. | Mini-project Description | Topics Covered |
| 1 |  |  |

* + In this TECH Module, you are expected to complete the below Mini-Project(s)
* Topics to Learn

To complete the above project, you will need to lean the below technical topics-

* + **Introduction to Database Management System (DBMS)**

Learning Material for **Introduction to Database Management System (DBMS)**

Below is the learning material that you are expected to read along with completion of the hands-on assignments. The material is mentioned is the order in which it should be read.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Material Title | Material Location | Type of Material | Classification |
| 1. | Introduction to DBMS | <https://www.youtube.com/watch?v=T7AxM7Vqvaw> | Video | Mandatory |
| 2. | Overview | <https://www.tutorialspoint.com/dbms/dbms_overview.htm> | Web | Mandatory |
| 3. | Architecture | <https://www.tutorialspoint.com/dbms/dbms_architecture.htm> | Web | Suggestive |
| 4. | Data Models | <https://www.tutorialspoint.com/dbms/dbms_data_models.htm> | Web | Mandatory |
| 5. | Data Schemas | <https://www.tutorialspoint.com/dbms/dbms_data_schemas.htm> | Web | Mandatory |
| 6. | Data Independence | <https://www.tutorialspoint.com/dbms/dbms_data_independence.htm> | Web | Mandatory |

* + - Hands-on Assignments for **Introduction to Database Management System (DBMS)**
      * No Hands-on Assignments for this topic
  + **Introduction to Relational Database Management System**

Learning Material for **Introduction to Relational Database Management System**

Below is the learning material that you are expected to read along with completion of the hands-on assignments. The material is mentioned is the order in which it should be read.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Material Title | Material Location | Type of Material | Classification |
| 1. | Codd’s 12 Rules | <https://www.tutorialspoint.com/dbms/dbms_codds_rules.htm> | Web | Mandatory |
| 2. | Relational Data Model | <https://www.tutorialspoint.com/dbms/relational_data_model.htm> | Web | Mandatory |
| 3. | Relational Algebra | <https://www.tutorialspoint.com/dbms/relational_algebra.htm> | Web | Mandatory |
| 4. | ER Model to Relational Model | <https://www.tutorialspoint.com/dbms/er_model_to_relational_model.htm> | Web | Suggestive |

* + Hands-on Assignments for **Introduction to Relational Database Management System**
    - * No Hands-on Assignments for this topic
  + **Normalization**

Learning Material for **Normalization**

Below is the learning material that you are expected to read along with completion of the hands-on assignments. The material is mentioned is the order in which it should be read.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Material Title | Material Location | Type of Material | Classification |
| 1. | Super Key | Candidate Key | Primary Key | Types of keys in DBMS | <https://www.youtube.com/watch?v=MjwaP18s0Xs> | Video | Mandatory |
| 2. | Normalization | <https://www.tutorialspoint.com/dbms/database_normalization.htm> | Web | Mandatory |
| 3. | Basic concept of normalization | Need of Normalization in DBMS | <https://www.youtube.com/watch?v=p-j9emhNVTg> | Video | Mandatory |
| 4. | 1st normal form | <https://www.youtube.com/watch?v=g2yF2gyaN7I> | Video | Mandatory |
| 5. | 2nd normal form | <https://www.youtube.com/watch?v=O16btnzfuYU&list=PLdo5W4Nhv31b33kF46f9aFjoJPOkdlsRc&index=11> | Video | Mandatory |
| 6. | 3rd normal form | <https://www.youtube.com/watch?v=R2Z-DgZ6QFQ&list=PLdo5W4Nhv31b33kF46f9aFjoJPOkdlsRc&index=12> | Video | Mandatory |
| 7. | BCNF in DBMS | <https://www.youtube.com/watch?v=nSnaGLtwgMc&list=PLdo5W4Nhv31b33kF46f9aFjoJPOkdlsRc&index=13> | Video | Mandatory |
| 8. | Part 1 in How to identify normal form in dbms | <https://www.youtube.com/watch?v=rQib0A1oUfg&list=PLdo5W4Nhv31b33kF46f9aFjoJPOkdlsRc&index=14> | Video | Mandatory |
| 9. | Part 2 in How to identify the highest normal form of a relation | <https://www.youtube.com/watch?v=M9_JPdlcCHQ&list=PLdo5W4Nhv31b33kF46f9aFjoJPOkdlsRc&index=15> | Video | Mandatory |
| 10. | Dependency preserving decomposition in DBMS | <https://www.youtube.com/watch?v=h_Va-DLQnBQ&list=PLdo5W4Nhv31b33kF46f9aFjoJPOkdlsRc&index=16> | Video | Mandatory |

* + - Hands-on Assignments for **Normalization**

Complete the below hands-on assignments before proceeding with the next Topic

|  |  |  |  |
| --- | --- | --- | --- |
| No. | Hands-on Assignment | Topic Covered | Status |
| 1. | Observe the structureas of a given EMPLOYEE table as below and suggest if this table can be further Normalized EMPNO,ENAME,SAL,DEPTNO,DNAME,LOC Explain what normal form this table is and how you can make this into next normal form | Normalization |  |
| 2. | Observe the structureas of a given STUDENT table as below and suggest if this table can be further Normalized ROLLNO, NAME,AGE,EXAM, MARKS, GRADE Explain what normal form this table is and how you can make this into next normal form | Normalization |  |
| 3. | Observe the structure of a given EMPLOYEE table and suggest what kind of problem this table has and how to solve the problem EMPNO,PROJECT\_NO,NO\_OF\_DAYS,CUSTOMERNAME In the above table EMPNO AND PROJECT\_NO both are together a composite primary key | Normalization |  |

* Learning Outcomes

Upon completion of this TECH Module, you should be able to:

* + You have learnt what is Database
  + Learnt different Data Models
  + How to use ER Model
  + How to Normalize Tables
* Sample Questions

After gaining knowledge of the above module, below are the possible interview questions that you should be able to confidently answer.

|  |  |
| --- | --- |
| No. | Questions |
| 1 | What is Database |
| 2 | What is DBMS |
| 3 | What is RDBMS |
| 4 | What is the 5th Codd’s Rule |
| 5 | What is a Table |
| 6 | What is a Weak Entity |
| 7 | Explain the Codd Rules |
| 8 | Identify the difference between File system and the RDBMS Application |
| 9 | Why RDBMS applications are better |
| 10 | What is a Tuple |
| 11 | What is a Relation |
| 12 | What is a Relationship |
| 13 | What is the use of Primary key and Foreign key |