

## Assignment - 03.

Our main work is to design and implement a relational database management system (RDBMS) for XYZ University, and to ensure data integrity supports complex queries and improves the overall efficiency of university operations. And to develop normalization.

Lets keep 6 tables for RDBMS.

### 1. Student Table:

Attributes:

- i) Student ID (PK)
- ii) First name
- iii) Last name
- iv) DOB
- v) Email
- vi) Ph.no:
- vii) Address.



SQL :-

```
CREATE TABLE students {  
  st_ID INT PRIMARY KEY,  
  First_name VARCHAR(50),  
  Last_name VARCHAR(50),  
  DOB DATE,  
  Email VARCHAR(100),  
  Ph-no VARCHAR(10),  
  Adrs VARCHAR(255)  
}
```

~~INSERT INTO~~

SID	First-name	Last-name	DOB	Email	Ph-no	Adrs.
17	Kewin	Wilkins	19/03/2006	c.v.kewin@gmail.com	9087789136	Kodaikanal
32	Jack	Sparrow	19/03/1753	JS@yahoo.com	617489362	Caribbean.
...	...	...	...	...	...	...

2. Course Table :-

- CourseID (PK)
- Course name
- Description



SQL :-

```
CREATE TABLE Courses(  
  CourseID, INT PRIMARY KEY,  
  CourseName, VARCHAR(100),  
  Desc TEXT,  
);
```

Course-ID	Name	Desc
6174	Database Management System	It is a deep topic in full,.....
...	...	...

3. Faculty :-

- FID (pk)
- First-name
- Last-name
- Email
- Ph no.

SQL :-

```
CREATE TABLE FACULTY(  
  FID INT PRIMARY KEY,  
  First-name VARCHAR(50),  
  Last-name VARCHAR(50),  
  Email VARCHAR(100),  
  Ph.no VARCHAR(15) );
```



FID	First-name	Last-name	Email	Ph-no	Dept
173	DR JOHN	JUSTINE	JohnJustine@gmail.com	9629689-136	CSE (AI)
...	...	...	...	...	...

#### 4. Enrollement:

- Enrollment-ID (PK)
- S-ID (FK)
- C-ID (FK)
- E-Date

SQL :-

```
CREATE TABLE Enrollement (
  E-ID INT PRIMARY KEY,
  STUDENTID INT,
  C-ID INT,
  E-DATE DATE,
  FOREIGN KEY (S-ID) REFERENCES Students(S-ID),
  FOREIGN KEY (C-ID) REFERENCES Courses(C-ID)
);
```

E-ID	S-ID	C-ID	E-DATE
6174	17	173	11.07.2024
...	...	...	...



## 6. GRADE :-

- Gr-ID (PK)
- E-ID (FK)
- Grade
- Gr-Date .

CREATE TABLE Grades (

Gr-ID INT PRIMARY KEY,

E-ID INT,

Grade CHAR(1),

Gr-Date DATE,

Foreign KEY (E-ID) REFERENCES Enroll (E-ID)  
);

Gr-ID	E-ID	GRADE	Gr-DATE
7	6174	S	11.07.2024
...	...	...	...

## Normalization :-

- 1NF - Ensure PK  $\Rightarrow$  Eliminate repetitions.
- 2NF - Remove partialities.
- 3NF - Remove transitive dependencies.