**ITAS 288 Assignment 02**

**Database Design**

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**Submitted to**

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**Introduction**

This project deals with physical design, data conversion and queries. This also entailed in creation of tables from the csv file. We also create different tables from the source table with appropriate data. We also created the logical structure of data like 1NF and 3NF. We also make queries from the table.

**Responsibilities**

This project needs to complete as a group project. Basically, we create logical and physical design of the data. Different type pf normalization form are created in this project. We used to create and load data commands to import the data into the database table.

**Part B - Physical Design**

**SET @OLD\_UNIQUE\_CHECKS=@@UNIQUE\_CHECKS, UNIQUE\_CHECKS=0;**

**SET @OLD\_FOREIGN\_KEY\_CHECKS=@@FOREIGN\_KEY\_CHECKS, FOREIGN\_KEY\_CHECKS=0;**

**SET @OLD\_SQL\_MODE=@@SQL\_MODE, SQL\_MODE='ONLY\_FULL\_GROUP\_BY,STRICT\_TRANS\_TABLES,NO\_ZERO\_IN\_DATE,NO\_ZERO\_DATE,ERROR\_FOR\_DIVISION\_BY\_ZERO,NO\_ENGINE\_SUBSTITUTION';**

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**-- Schema mydb**

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**-- Schema itas288\_assign02\_jose**

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**-- -----------------------------------------------------**

**-- Schema itas288\_assign02\_jose**

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**CREATE SCHEMA IF NOT EXISTS `itas288\_assign02\_jose` DEFAULT CHARACTER SET latin1 ;**

**USE `itas288\_assign02\_jose` ;**

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**-- Table `itas288\_assign02\_jose`.`instructor`**

**-- -----------------------------------------------------**

**CREATE TABLE IF NOT EXISTS `itas288\_assign02\_jose`.`instructor` (**

**`Instructor\_ID` INT(11) NOT NULL AUTO\_INCREMENT,**

**`Instructor` VARCHAR(50) NOT NULL DEFAULT '0',**

**`Instructor\_Office` VARCHAR(50) NOT NULL DEFAULT '0',**

**`Instructor\_Phonenumber` VARCHAR(50) NOT NULL DEFAULT '0',**

**`Instructor\_Homephone` VARCHAR(50) NOT NULL DEFAULT '0',**

**PRIMARY KEY (`Instructor\_ID`))**

**ENGINE = InnoDB**

**AUTO\_INCREMENT = 5**

**DEFAULT CHARACTER SET = latin1;**

**-- -----------------------------------------------------**

**-- Table `itas288\_assign02\_jose`.`course`**

**-- -----------------------------------------------------**

**CREATE TABLE IF NOT EXISTS `itas288\_assign02\_jose`.`course` (**

**`Course\_ID` INT(11) NOT NULL AUTO\_INCREMENT,**

**`Course\_Name` VARCHAR(100) NOT NULL DEFAULT '0',**

**`Course\_Data` VARCHAR(100) NOT NULL DEFAULT '0',**

**`Classroom` VARCHAR(100) NOT NULL DEFAULT '0',**

**`Instructor\_ID` INT(11) NOT NULL DEFAULT '0',**

**PRIMARY KEY (`Course\_ID`),**

**INDEX `FK\_course\_instructor` (`Instructor\_ID` ASC) VISIBLE,**

**CONSTRAINT `FK\_course\_instructor`**

**FOREIGN KEY (`Instructor\_ID`)**

**REFERENCES `itas288\_assign02\_jose`.`instructor` (`Instructor\_ID`))**

**ENGINE = InnoDB**

**AUTO\_INCREMENT = 23**

**DEFAULT CHARACTER SET = latin1;**

**-- -----------------------------------------------------**

**-- Table `itas288\_assign02\_jose`.`student`**

**-- -----------------------------------------------------**

**CREATE TABLE IF NOT EXISTS `itas288\_assign02\_jose`.`student` (**

**`Student\_ID` INT(11) NOT NULL AUTO\_INCREMENT,**

**`Student\_Firstname` VARCHAR(50) NOT NULL DEFAULT '0',**

**`Student\_Lastname` VARCHAR(50) NOT NULL DEFAULT '0',**

**`Student\_Birthdate` VARCHAR(50) NOT NULL DEFAULT '0',**

**`Student\_Phonenumber` VARCHAR(50) NOT NULL DEFAULT '0',**

**PRIMARY KEY (`Student\_ID`))**

**ENGINE = InnoDB**

**AUTO\_INCREMENT = 33**

**DEFAULT CHARACTER SET = latin1;**

**-- -----------------------------------------------------**

**-- Table `itas288\_assign02\_jose`.`grade`**

**-- -----------------------------------------------------**

**CREATE TABLE IF NOT EXISTS `itas288\_assign02\_jose`.`grade` (**

**`Grade\_ID` INT(11) NOT NULL AUTO\_INCREMENT,**

**`Student\_ID` INT(11) NULL DEFAULT NULL,**

**`Course\_ID` INT(11) NULL DEFAULT NULL,**

**`Course\_Credit` INT(11) NULL DEFAULT NULL,**

**`Final\_Grade` INT(11) NULL DEFAULT NULL,**

**`Letter\_Grade` CHAR(50) NULL DEFAULT NULL,**

**PRIMARY KEY (`Grade\_ID`),**

**INDEX `FK\_grade\_student` (`Student\_ID` ASC) VISIBLE,**

**INDEX `FK\_grade\_course` (`Course\_ID` ASC) VISIBLE,**

**CONSTRAINT `FK\_grade\_course`**

**FOREIGN KEY (`Course\_ID`)**

**REFERENCES `itas288\_assign02\_jose`.`course` (`Course\_ID`),**

**CONSTRAINT `FK\_grade\_student`**

**FOREIGN KEY (`Student\_ID`)**

**REFERENCES `itas288\_assign02\_jose`.`student` (`Student\_ID`))**

**ENGINE = InnoDB**

**AUTO\_INCREMENT = 344**

**DEFAULT CHARACTER SET = latin1;**

**-- -----------------------------------------------------**

**-- Table `itas288\_assign02\_jose`.`srs\_data`**

**-- -----------------------------------------------------**

**CREATE TABLE IF NOT EXISTS `itas288\_assign02\_jose`.`srs\_data` (**

**`StudentFirstname` CHAR(32) NOT NULL,**

**`StudentLastname` CHAR(32) NOT NULL,**

**`StudentBirthDate` VARCHAR(50) NOT NULL,**

**`StudentPhone` CHAR(15) NOT NULL,**

**`CourseData` CHAR(32) NOT NULL,**

**`CourseName` CHAR(64) NOT NULL,**

**`Classroom` CHAR(10) NULL DEFAULT NULL,**

**`CourseCredits` TINYINT(1) NOT NULL,**

**`FinalGrade` TINYINT(3) NOT NULL,**

**`LetterGrade` CHAR(2) NOT NULL,**

**`Instructor` CHAR(64) NOT NULL,**

**`Office` CHAR(10) NOT NULL,**

**`InstructorOfficePhone` CHAR(15) NOT NULL,**

**`InstructorHomePhone` CHAR(15) NOT NULL)**

**ENGINE = InnoDB**

**DEFAULT CHARACTER SET = latin1;**

**SET SQL\_MODE=@OLD\_SQL\_MODE;**

**SET FOREIGN\_KEY\_CHECKS=@OLD\_FOREIGN\_KEY\_CHECKS;**

**SET UNIQUE\_CHECKS=@OLD\_UNIQUE\_CHECKS;**

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**Part C – Data Conversion**

**CREATE TABLE `srs\_data` (**

**`StudentFirstname` CHAR(32) NOT NULL,**

**`StudentLastname` CHAR(32) NOT NULL,**

**`StudentBirthDate` VARCHAR(50) NOT NULL,**

**`StudentPhone` CHAR(15) NOT NULL,**

**`CourseData` CHAR(32) NOT NULL,**

**`CourseName` CHAR(64) NOT NULL,**

**`Classroom` CHAR(10) NULL,**

**`CourseCredits` TINYINT(1) NOT NULL,**

**`FinalGrade` TINYINT(3) NOT NULL,**

**`LetterGrade` CHAR(2) NOT NULL,**

**`Instructor` CHAR(64) NOT NULL,**

**`Office` CHAR(10) NOT NULL,**

**`InstructorOfficePhone` CHAR(15) NOT NULL,**

**`InstructorHomePhone` CHAR(15) NOT NULL**

**);**

**-- Load the CSV File**

**LOAD DATA INFILE 'SRSData2018.csv' INTO TABLE `ITAS288\_Assignment02\_jose`.`srs\_data`**

**FIELDS TERMINATED BY ','**

**ENCLOSED BY '"'**

**ESCAPED BY '"'**

**LINES TERMINATED BY '\r\n'**

**IGNORE 1 LINES**

**(`StudentFirstname`, `StudentLastname`, `StudentBirthDate`, `StudentPhone`, `CourseData`, `CourseName`, `Classroom`, `CourseCredits`, `FinalGrade`, `LetterGrade`, `Instructor`, `Office`, `InstructorOfficePhone`, `InstructorHomePhone`);**

**-- Creation of the table**

**INSERT INTO `course` ( `CourseData`, `CourseName`, `Classroom`) SELECT DISTINCT `CourseData`, `CourseName`, `Classroom` FROM `srs\_data`;**

**INSERT INTO `Instructor` ( `InstructorName`, `Office`, `InstructorHomePhone`, `InstructorOfficePhone`) SELECT DISTINCT `Instructor`, `Office`, `InstructorHomePhone`, `InstructorOfficePhone` FROM `srs\_data`;**

**INSERT INTO `student` ( `StudentFirstname`, `StudentLastname`, `StudentBirthDate`, `StudentPhone`) SELECT DISTINCT `StudentFirstname`, `StudentLastname`, `StudentBirthDate`, `StudentPhone` FROM `srs\_data`;**

**INSERT INTO `grade` ( `CourseCredits`, `FinalGrade`, `LetterGrade`) SELECT `CourseCredits`, `FinalGrade`, `LetterGrade` FROM `srs\_data`;Data Conversion**

**Part D- Test Queries**

1. List the first & last names of all students enrolled in ITAS290.

**SELECT `StudentFirstname`, `StudentLastname`FROM `srs\_data` WHERE `CourseData` = 'ITAS290\_I12N01';**

**![A screenshot of a social media post

Description automatically generated]()**

1. Produce a list of all students taught by Mark Dutchuk. Output the first and last name of the student, and instructor’s full name. Don’t list the same  
   student more than once!

**SELECT DISTINCT `StudentFirstname`, `StudentLastname`, `Instructor` FROM `srs\_data` WHERE `Instructor` = 'Dutchuk, Mark' order BY `StudentFirstname` ;**

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Description automatically generated]()**

1. Produce a result set showing the total number of courses taught by instructor sorted in order of ‘Number of courses taught’ from highest  
   to lowest. Output the ‘Number of Courses Taught’ and the instructor’s  
   first and last names. Compare this list to the data above to confirm  
   your results.

**SELECT `Instructor` AS InstructorName, count(DISTINCT `CourseName`) AS 'Number Of Courses' FROM `srs\_data` GROUP BY `Instructor` order by count(DISTINCT CourseName) DESC;**

**![A screenshot of a social media post

Description automatically generated]()**

1. Produce a list of the number of students enrolled in each course.   
   Output a single table with just two columns: The course number  
   (for example, ITAS 185), and the ‘Number of students in class’.

**SELECT `CourseData` , count(DISTINCT `StudentFirstname`, `StudentLastname`) AS 'Number Of Students' FROM `srs\_data` GROUP BY `CourseData`;**

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Description automatically generated]()**

1. Produce a list of the total number of credits being taken by each student Output a single table with just two columns: The student’s full name, and the ‘Total number of credits taken’ by that student.

![A screenshot of a social media post

Description automatically generated]()