

# SQL Notes

## Case Study: College DB

Original Excel sheet:

Sr./ID	name	email	contact	city	state	course_name	course_credits	department
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### 1 NF

student(id,name,email,contact,city,state)

course (id,name,credits)

department(id,name)

### 2 NF

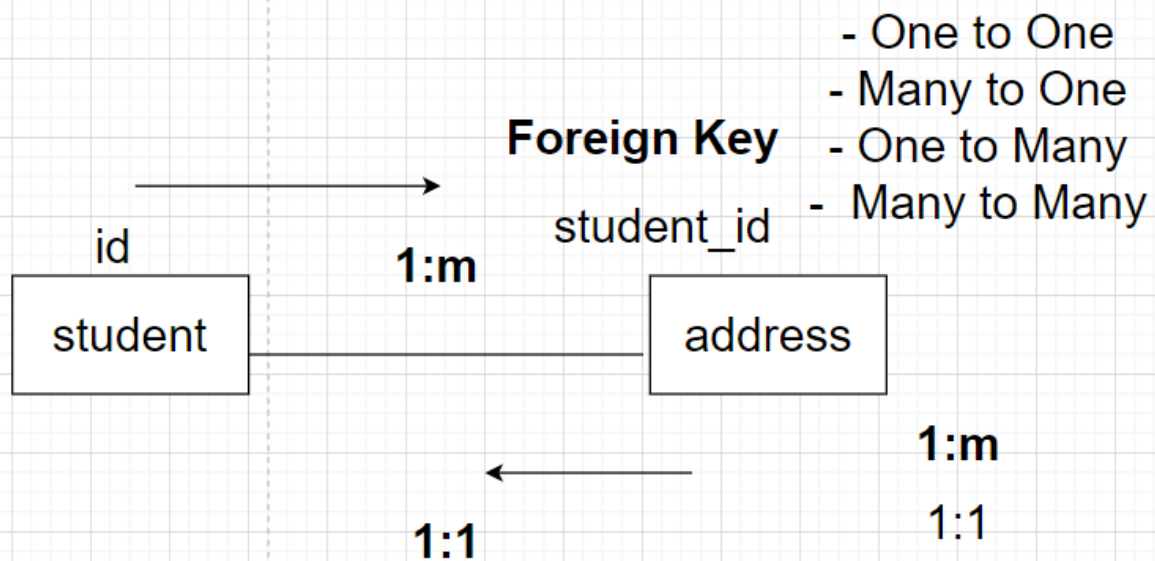
student(id,name,email,contact)

address(id,city,state)

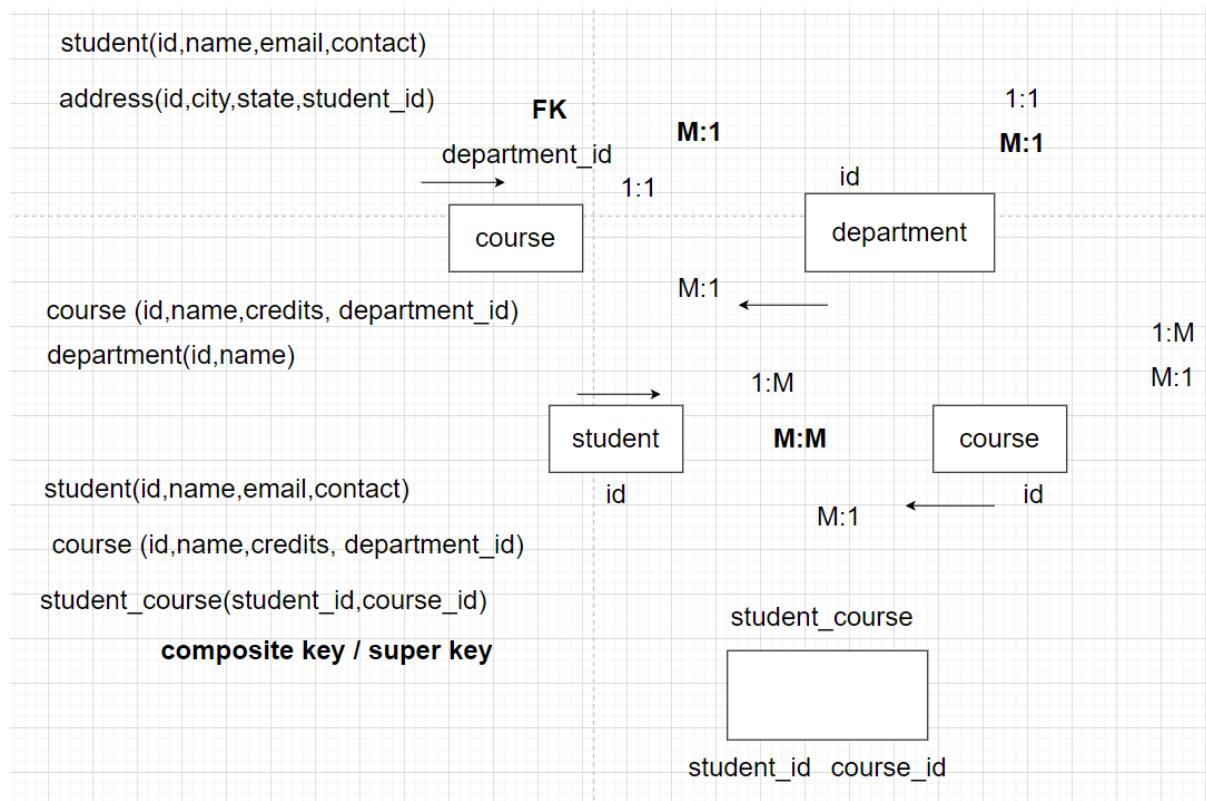
course (id,name,credits)

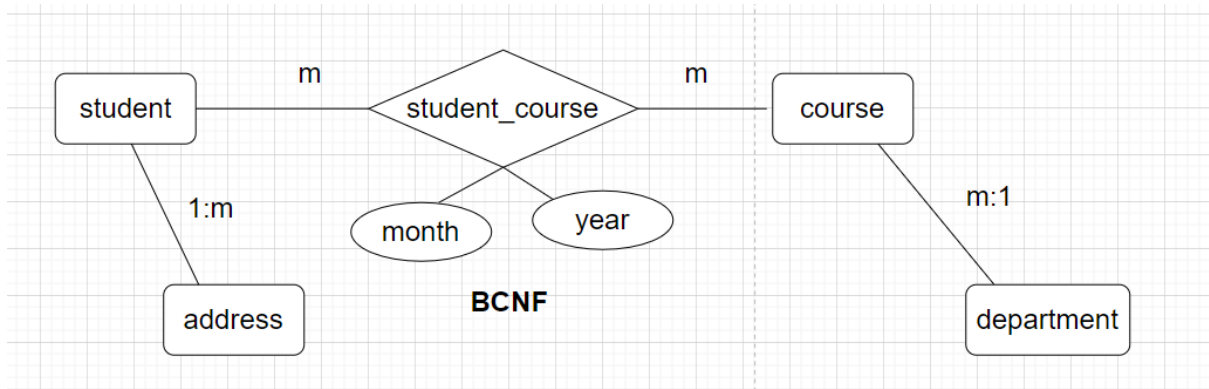
department(id,name)

### 3 NF - connect the tables - define relationships



PK of relation towards 1 and put it in many





SQL Script:

-- MySQL Workbench Forward Engineering

-- Schema collegedb\_hex\_feb\_24

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CREATE SCHEMA IF NOT EXISTS `collegedb\_hex\_feb\_24` DEFAULT CHARACTER SET utf8 ;

USE `collegedb\_hex\_feb\_24` ;

-- Table `collegedb\_hex\_feb\_24`.`student`

CREATE TABLE IF NOT EXISTS `collegedb\_hex\_feb\_24`.`student` (  
 `id` INT NOT NULL AUTO\_INCREMENT,

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`name` VARCHAR(45) NOT NULL,  
`email` VARCHAR(45) NOT NULL,  
`contact` VARCHAR(45) NULL,  
PRIMARY KEY (`id`))  
ENGINE = InnoDB;
```

```
-- -----  
-- Table `collegedb_hex_feb_24`.`address`  
-- -----
```

```
CREATE TABLE IF NOT EXISTS `collegedb_hex_feb_24`.`address` (  
  `id` INT NOT NULL AUTO_INCREMENT,  
  `city` VARCHAR(45) NOT NULL,  
  `state` VARCHAR(45) NOT NULL,  
  `student_id` INT NOT NULL,  
  PRIMARY KEY (`id`, `student_id`),  
  INDEX `fk_address_student_idx` (`student_id` ASC) ,  
  CONSTRAINT `fk_address_student`  
    FOREIGN KEY (`student_id`)  
      REFERENCES `collegedb_hex_feb_24`.`student` (`id`)  
    ON DELETE NO ACTION  
    ON UPDATE NO ACTION)  
ENGINE = InnoDB;
```

-- Table `collegedb\_hex\_feb\_24`.`department`

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```
CREATE TABLE IF NOT EXISTS `collegedb_hex_feb_24`.`department` (  
  `id` INT NOT NULL AUTO_INCREMENT,  
  `name` VARCHAR(45) NOT NULL,  
  PRIMARY KEY (`id`))  
ENGINE = InnoDB;
```

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-- Table `collegedb\_hex\_feb\_24`.`course`

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```
CREATE TABLE IF NOT EXISTS `collegedb_hex_feb_24`.`course` (  
  `id` INT NOT NULL AUTO_INCREMENT,  
  `name` VARCHAR(255) NOT NULL,  
  `credits` DOUBLE NOT NULL,  
  `department_id` INT NOT NULL,  
  PRIMARY KEY (`id`, `department_id`),  
  INDEX `fk_course_department1_idx` (`department_id` ASC),  
  CONSTRAINT `fk_course_department1`  
    FOREIGN KEY (`department_id`)  
    REFERENCES `collegedb_hex_feb_24`.`department` (`id`)  
    ON DELETE NO ACTION  
    ON UPDATE NO ACTION)  
ENGINE = InnoDB;
```

```
-----  
-- Table `collegedb_hex_feb_24`.`student_course`  
-----
```

```
CREATE TABLE IF NOT EXISTS `collegedb_hex_feb_24`.`student_course` (  
  `student_id` INT NOT NULL,  
  `course_id` INT NOT NULL,  
  `month` VARCHAR(45) NOT NULL,  
  `year` VARCHAR(45) NOT NULL,  
  PRIMARY KEY (`student_id`, `course_id`),  
  INDEX `fk_student_has_course_course1_idx` (`course_id` ASC) ,  
  INDEX `fk_student_has_course_student1_idx` (`student_id` ASC) ,  
  CONSTRAINT `fk_student_has_course_student1`  
    FOREIGN KEY (`student_id`)  
      REFERENCES `collegedb_hex_feb_24`.`student` (`id`)  
      ON DELETE NO ACTION  
      ON UPDATE NO ACTION,  
  CONSTRAINT `fk_student_has_course_course1`  
    FOREIGN KEY (`course_id`)  
      REFERENCES `collegedb_hex_feb_24`.`course` (`id`)  
      ON DELETE NO ACTION  
      ON UPDATE NO ACTION)  
ENGINE = InnoDB;
```

