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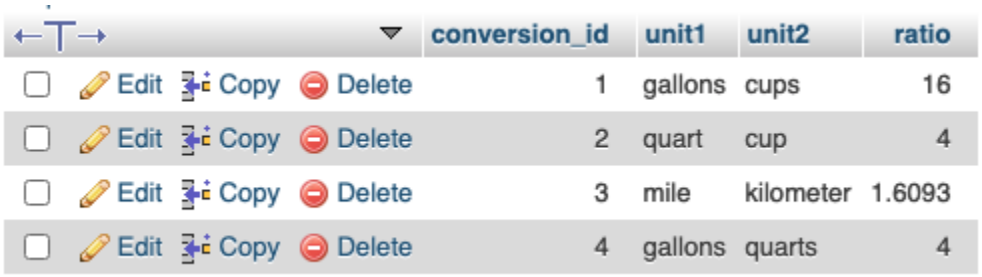
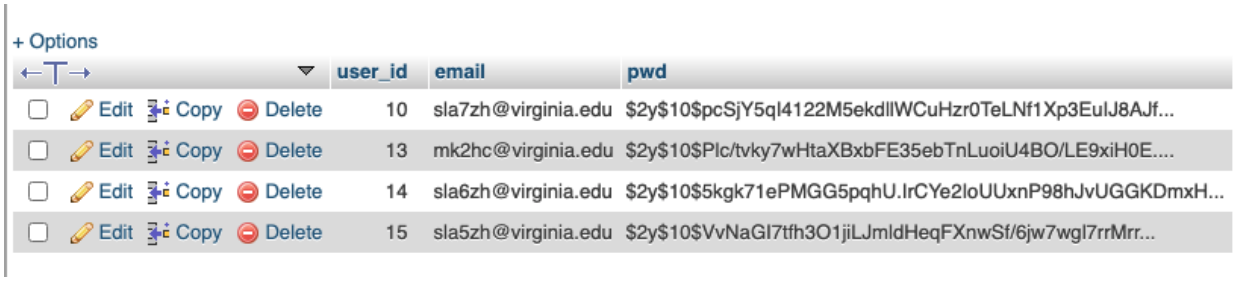
For our project, we created a database called “cs4640-project”. It contains three tables: **conversions**, **user**, and **user_conversions**.

The **conversions** table is where the data for each type of unit conversion is stored. It has four attributes, which are conversion_id, unit1, unit2, and ratio. Conversion_id is the auto-incremented ID of each conversion, and is both a primary and foreign key. Unit1 is the given unit that is being converted, unit2 is the unit into which a value will be converted, and ratio is the ratio of unit1 to unit2, which will be used to calculate the conversion.
Sample conversion data:



	conversion_id	unit1	unit2	ratio
Edit Copy Delete	1	gallons	cups	16
Edit Copy Delete	2	quart	cup	4
Edit Copy Delete	3	mile	kilometer	1.6093
Edit Copy Delete	4	gallons	quarts	4

The **user** table stores the data for each user that creates an account with the system. It contains three attributes: user_id, email, and pwd. User_id is the auto-incremented ID of each user, and is both a primary and foreign key. Email is the user’s email address, and must be unique. Pwd is the user’s chosen password.
Sample user data:



+ Options

	user_id	email	pwd
Edit Copy Delete	10	sla7zh@virginia.edu	$2y$10$pcSjY5ql4122M5ekdllWCuHzr0TeLNf1Xp3EulJ8AJf...
Edit Copy Delete	13	mk2hc@virginia.edu	$2y$10$Plc/tvky7wHtaXBxbFE35ebTnLuoiU4BO/LE9xiH0E....
Edit Copy Delete	14	sla6zh@virginia.edu	$2y$10$5kgk71ePMGG5pqhU.IrCYe2loUUxnP98hJvUGGKDmxH...
Edit Copy Delete	15	sla5zh@virginia.edu	$2y$10$VvNaGI7tfh3O1jiLJmldHeqFXnwSf/6jw7wgI7rrMrr...

The **user_conversions** table contains two attributes: user_id and conversion_id. These are the foreign keys of user_id in the user table and conversion_id in the conversion table. This table contains the associations between users and their “favorited” conversions. It allows for many-to-many relationships in which a user can be associated with multiple different conversions, and a conversion can have multiple different users associated with it.

SQL commands:

```
CREATE TABLE user (
    user_id INT AUTO_INCREMENT,
    email VARCHAR(50),
    pwd VARCHAR(50),
```

```
    PRIMARY KEY (user_id));

CREATE TABLE conversion (
    conversion_id INT AUTO_INCREMENT,
    unit1 VARCHAR(50),
    unit2 VARCHAR(50),
    ratio DOUBLE,
    PRIMARY KEY (conversion_id));

CREATE TABLE `cs4640-project`.`user_conversions` ( `unit_id` INT NOT NULL ,
`conversion_id` INT NOT NULL ) ENGINE = InnoDB;

ALTER TABLE `user_conversions` ADD FOREIGN KEY (`conversion_id`) REFERENCES
`conversions`(`conversion_id`) ON DELETE RESTRICT ON UPDATE RESTRICT;

ALTER TABLE `user_conversions` ADD FOREIGN KEY (`user_id`) REFERENCES
`user`(`user_id`) ON DELETE RESTRICT ON UPDATE RESTRICT;

ALTER TABLE `user_conversions` ADD UNIQUE( `conversion_id`, `user_id`);
```