CS 460/660
Database Creation Guide

STEP ONE: CREATING AND USING THE DATABASE

1. First, run the MySQL program and then input the following command:

```
CREATE DATABASE space_missions;
```

- You can verify that the database has been created with the following command:

```
show databases;
```

2, Next, use the database with the following command:

```
use space_missions;
```

We have now created an empty database and we are using it.

STEP TWO: CREATING TABLES

Now that we have created our database we have to add the tables with the following commands:

```
CREATE TABLE spaceships(sid INT NOT NULL PRIMARY KEY
AUTO_INCREMENT, spaceship_name VARCHAR(255), capacity INT, type
VARCHAR(255));

CREATE TABLE destinations(did INT NOT NULL PRIMARY KEY,
destination_name VARCHAR(255), size ENUM('S', 'M', 'L'), type
VARCHAR(255));

CREATE TABLE missions(sid INT NOT NULL PRIMARY KEY, did INT NOT
NULL, description TEXT, duration TEXT);
```

These commands will create three tables: spaceships, destinations, and missions. These tables will have columns with the data types that are defined in the commands. For example, spaceships will have the columns sid, spaceship_name, capacity, and type.

STEP THREE: ADDING FOREIGN KEYS

Because sid and did in the missions table are foreign keys, we must identify them as such:

```
ALTER TABLE missions ADD FOREIGN KEY (sid) REFERENCES
spaceships(sid);

ALTER TABLE missions ADD FOREIGN KEY (did) REFERENCES
destinations(did);
```

This identifies the columns as foreign keys and also shows the column that they reference.

STEP FOUR: INSERTING DATA

Now that the database has been set up, the data can be inserted

```
INSERT INTO spaceships (spaceship_name, capacity, type) VALUES
('Explorer', 5, 'Scientific');

INSERT INTO destinations (did, destination_name, size, type)
VALUES (100, 'Jupiter', 'L', 'Planet');

INSERT INTO missions (sid, did, description, duration) VALUES
(1, 100, 'Research mission', '3 Years');
```

This inserts a row into spaceships, a row into destinations, and a row into missions. In missions we have sent our one spaceship: ‘Explorer’ to our one destination: ‘Jupiter’.

STEP FIVE: TEST

The following command is a sample query that can be used to verify that the database is set up correctly:

```
SELECT s.spaceship_name, d.destination_name, m.description FROM
spaceships s, destinations d, missions m
WHERE s.sid = m.sid AND d.did = m.did;
```

This will output the spaceship name, the destination name, and the description of the message for all missions.