FINAL PRESENTATION

SOFTWARE TO DESIGN AN OPTIMAL IRRIGATION SYSTEM- CAD System

BY
SPRINKLERHEADS

Overview

- Introduction
- Problem Description
- System Design
- Team Organization
- Demo
- Test Cases/Test Report
- Deployment Issues
- Process Model
- Technologies Used
- Things Learned/Future Work

Introduction

PROJECT DESCRIPTION:

Optimal irrigation system showing the appropriate placement of sprinkler heads, valves and pipe fittings on an Android device.

NEED FOR THE PROJECT:

- Existing applications such as Rain CAD are built for Desktop environment.
- Today's world is moving towards mobiles and tablets.
- Handy and can be used on site.

Problem Description

Irrigation System is expected to perform:

- Create either new project or open an existing one.
- Take input of all measurements from user.
- Save them to database.
- Draw basic shapes of the objects on the layout based on input.
- Edit shapes as required.
- Save as an image.
- Place the sprinkler heads and show their spray pattern.

Requirements Fulfilled

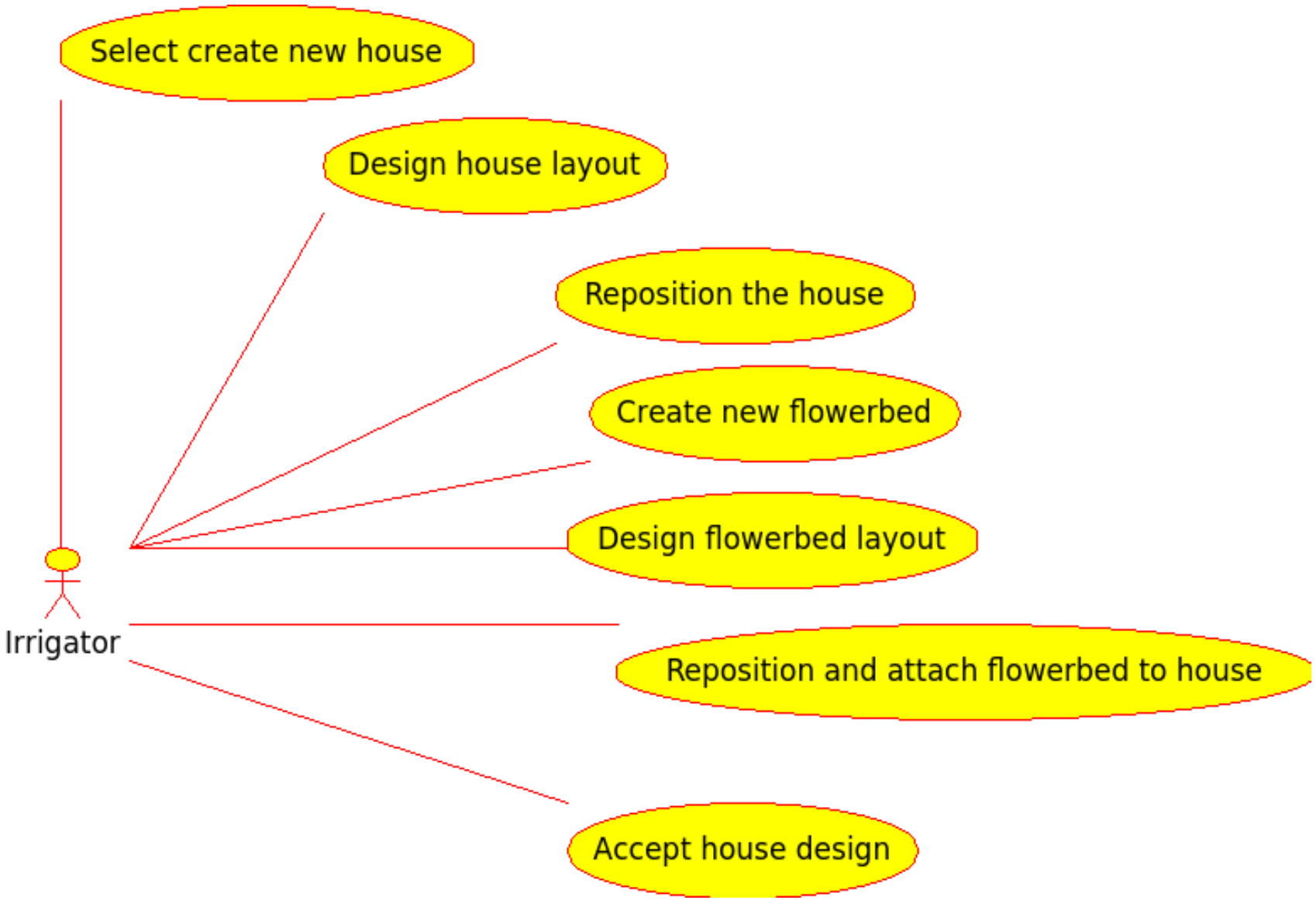
- Create a new project/design.
- Take all the required measurements from the user.
- Draw the basic layout of the property using the measurements.

System Design

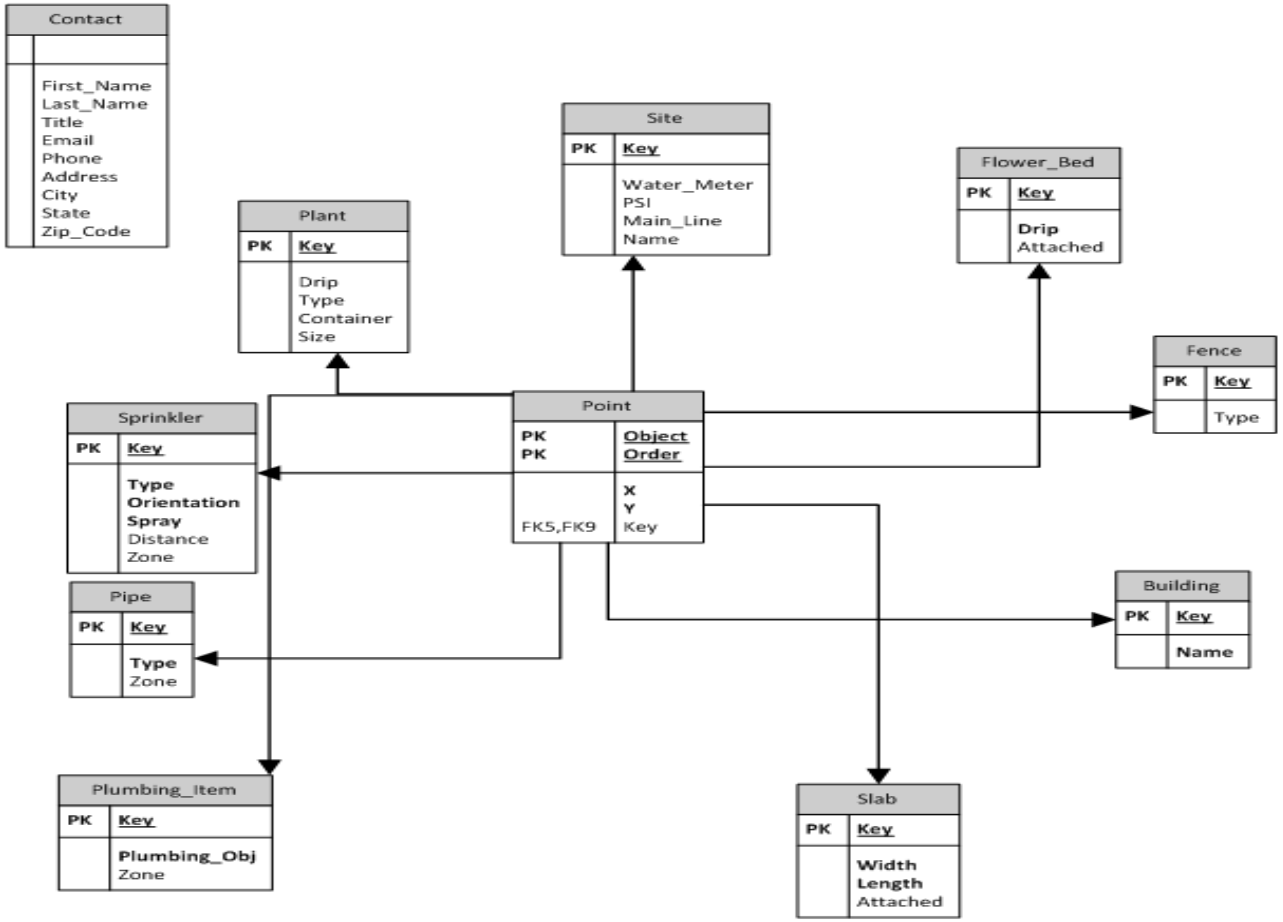
- Use Cases.
- ER Diagram.

Use Case Diagram

Design House



ER Diagram


Contact
First_Name
Last_Name
Title
Email
Phone
Address
City
State
Zip_Code
Site
PK Key
Water_Meter
PSI
Main_Line
Name
Flower_Bed
PK Key
Drip
Attached
Plant
PK Key
Drip
Type
Container
Size
Fence
PK Key
Type
Sprinkler
PK Key
Type
Orientation
Spray
Distance
Zone
Point
PK Object
PK Order
X
Y
FK5,FK9 Key
Pipe
PK Key
Type
Zone
Building
PK Key
Name
Plumbing_Item
PK Key
Plumbing_Obj
Zone
Slab
PK Key
Width
Length
Attached

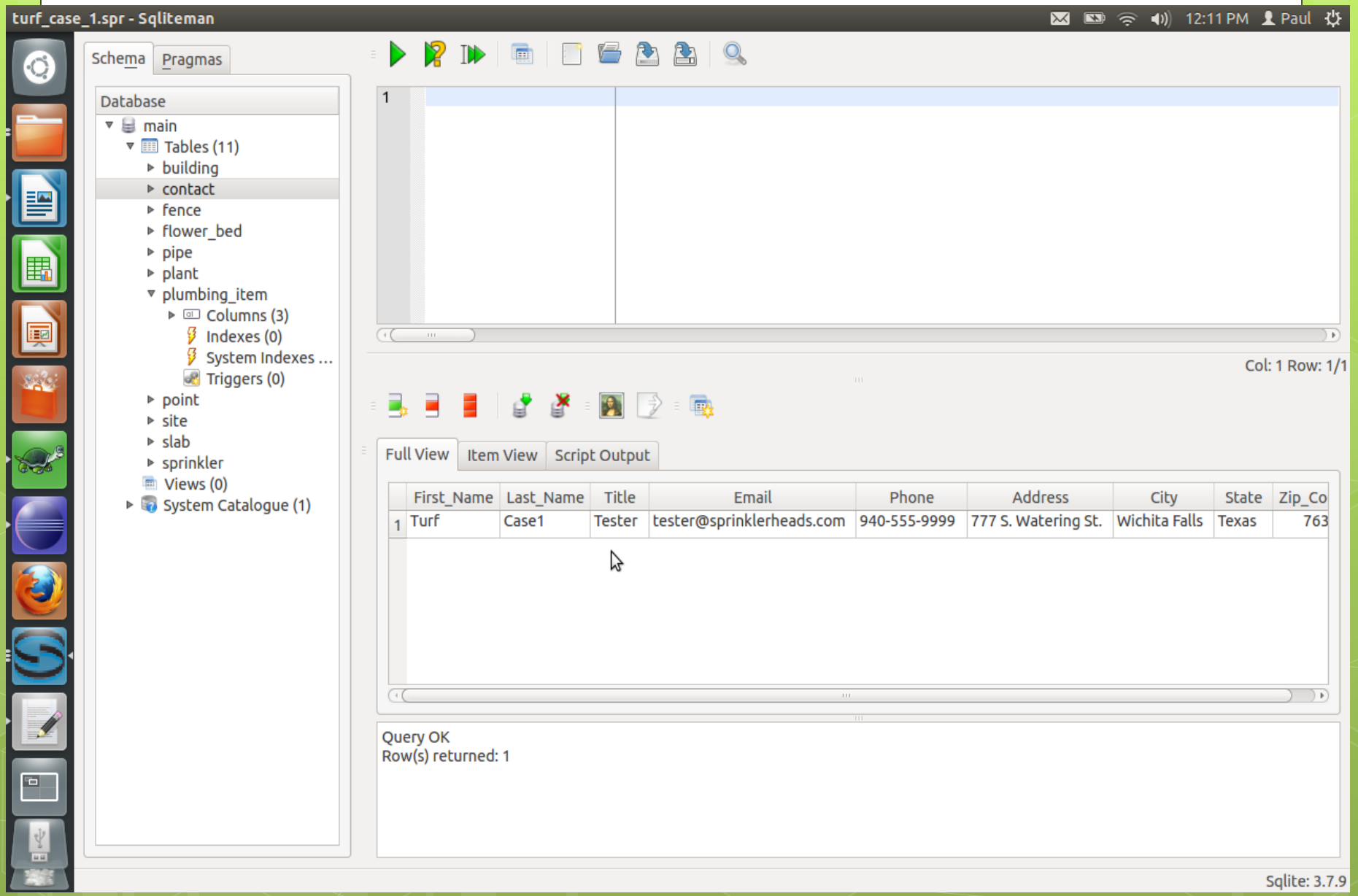
Technologies/Tools Used

- Eclipse
- OpenGL
- Mercurial Plugin (Tortoise hg) for version control (Bitbucket.org)
- Visio and Edraw
- SQLite3 database
- SQLite Maestro
- ORM Lite (dialect of Hibernate for persisting objects).

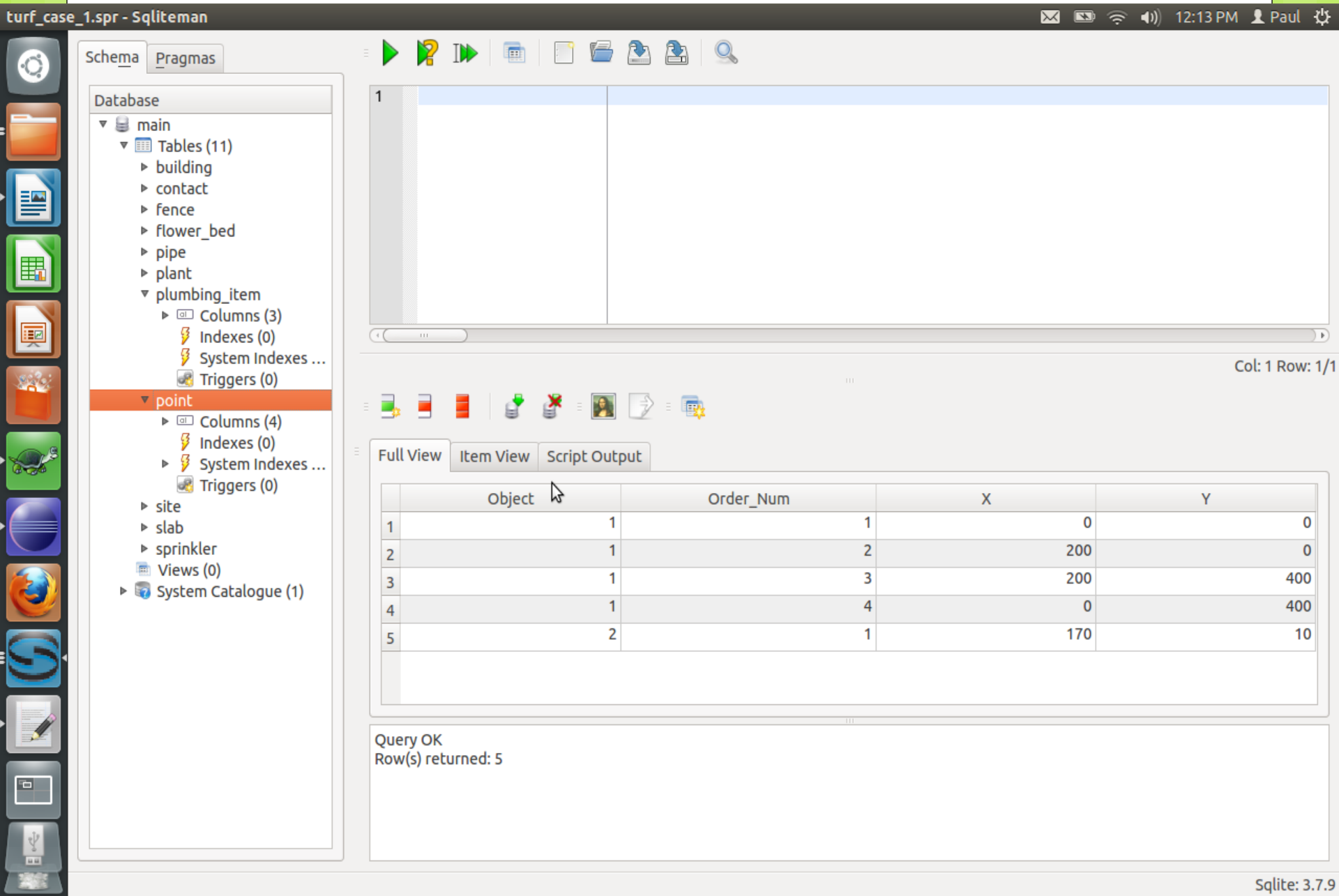
DEMO

Test Cases

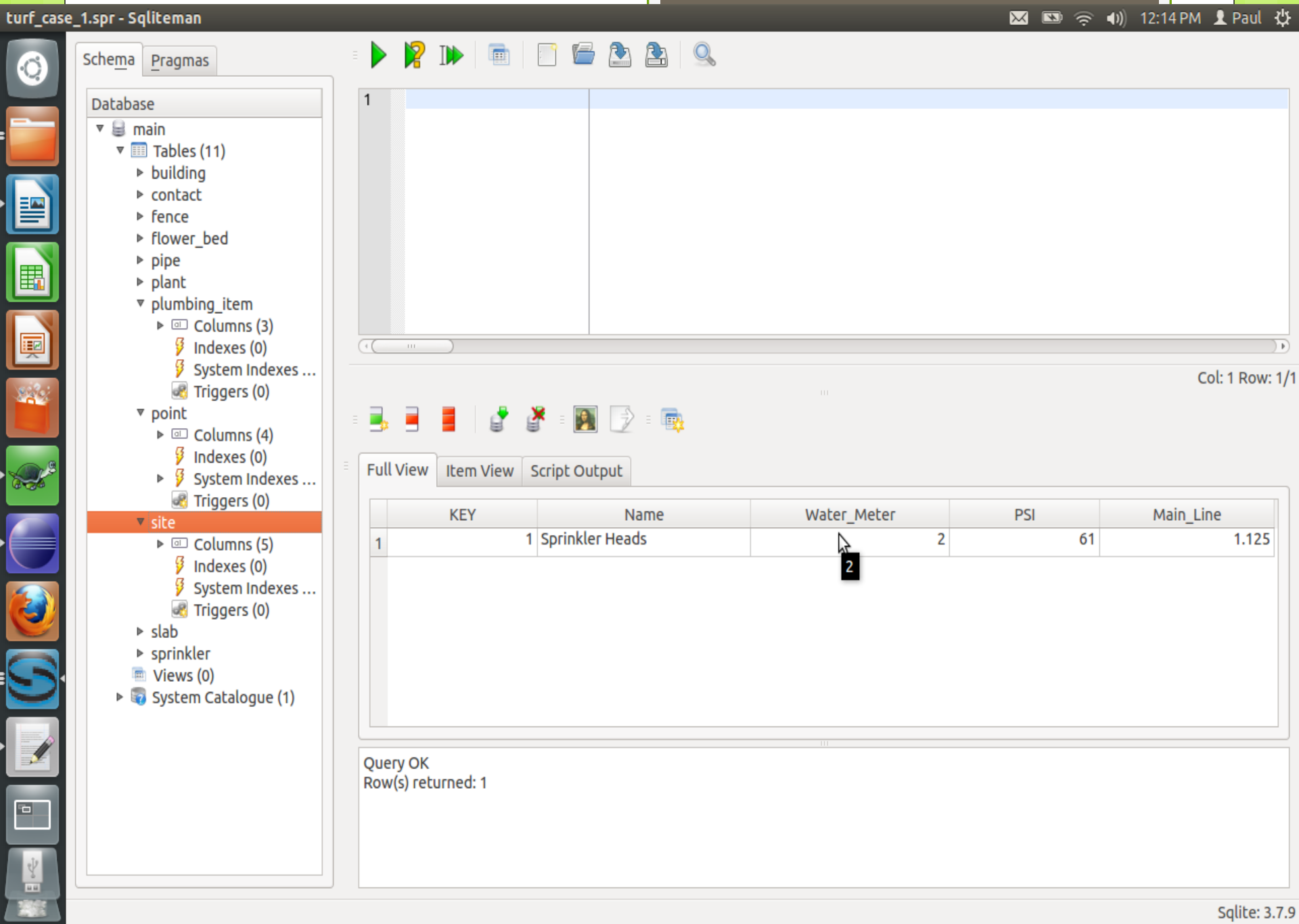
Test case 1:Contact Table



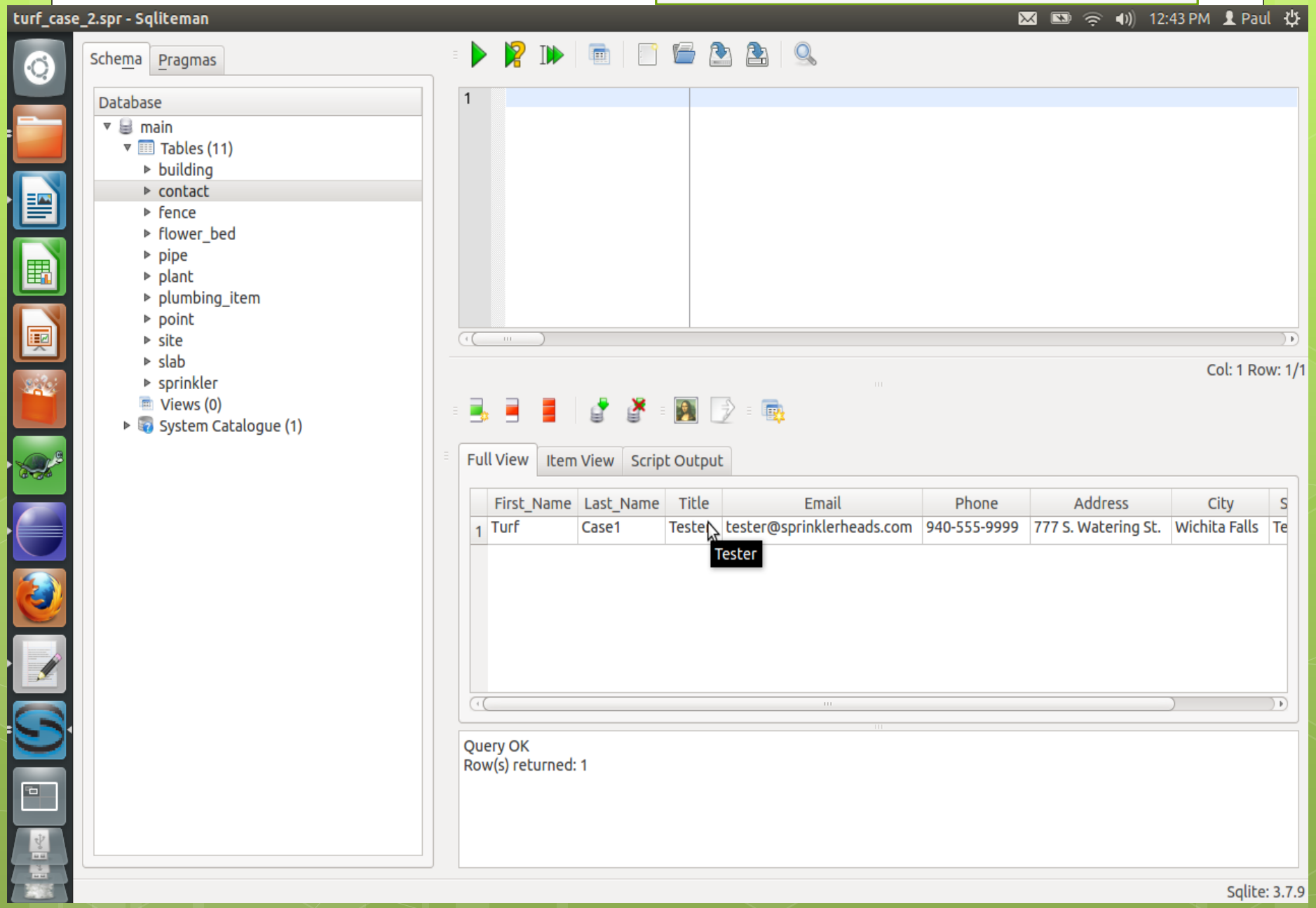
Test case 1:Point Table



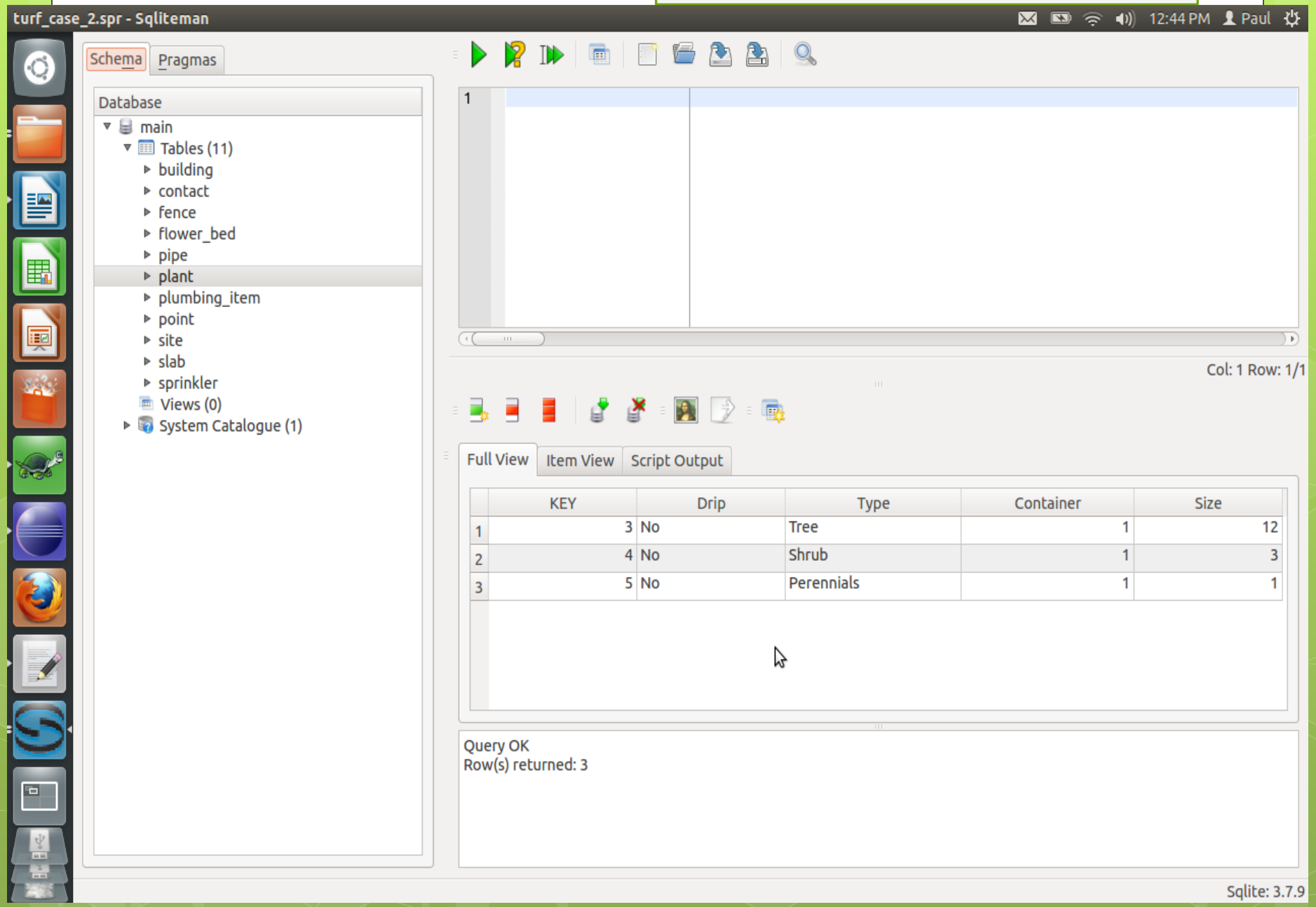
Test case 1:Site Table



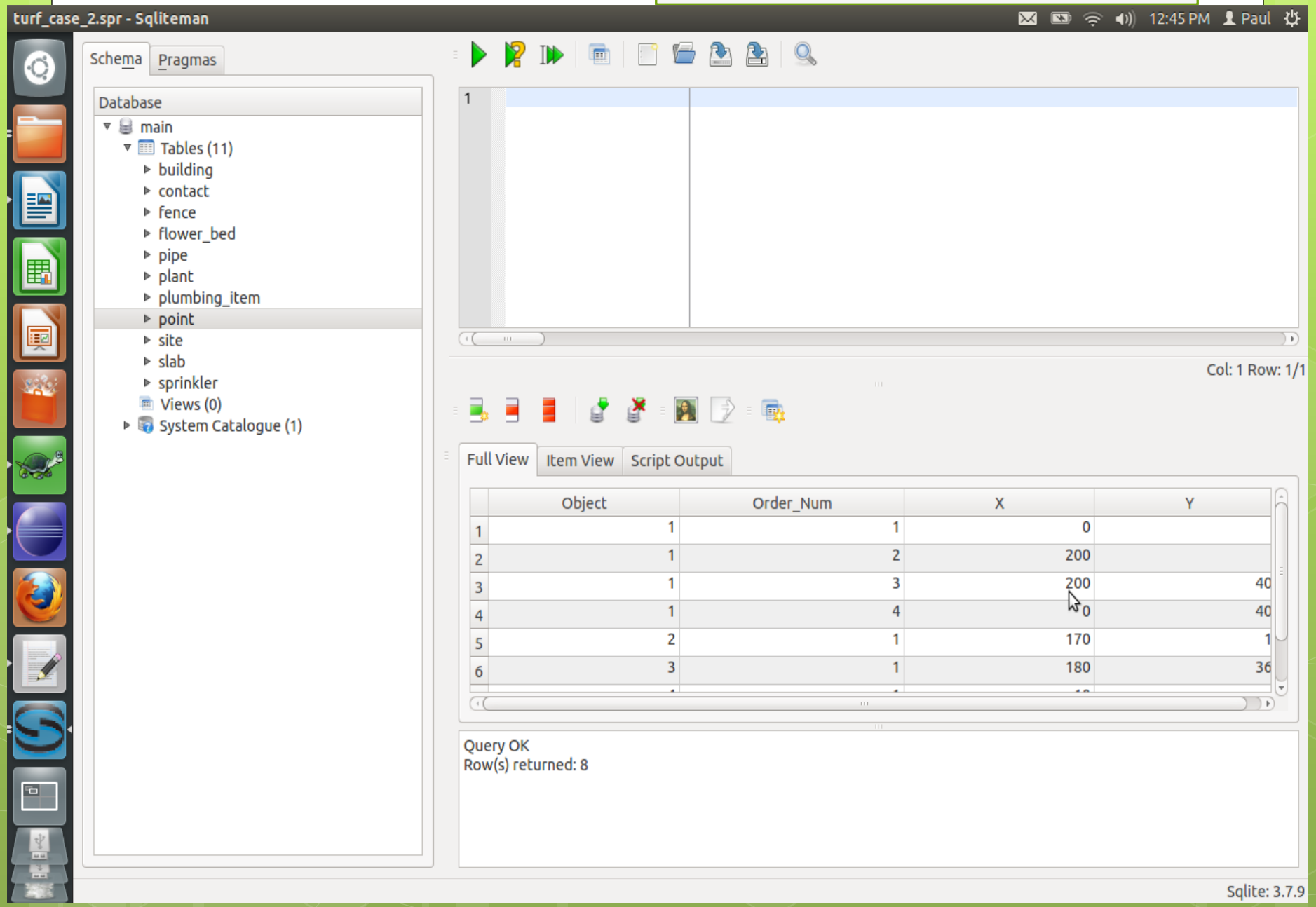
Test Case 2: Contact Table



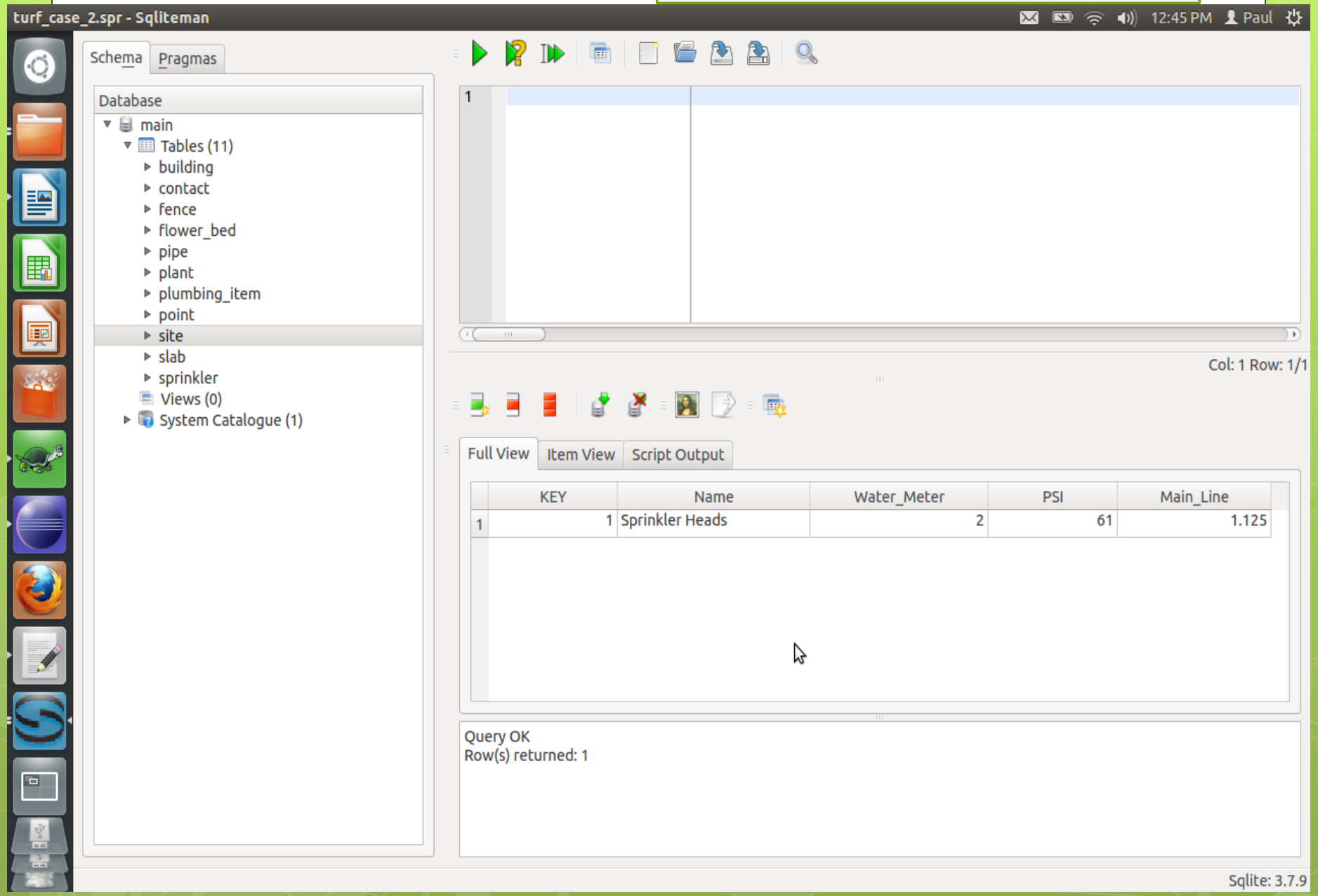
Test Case 2: Plant Table



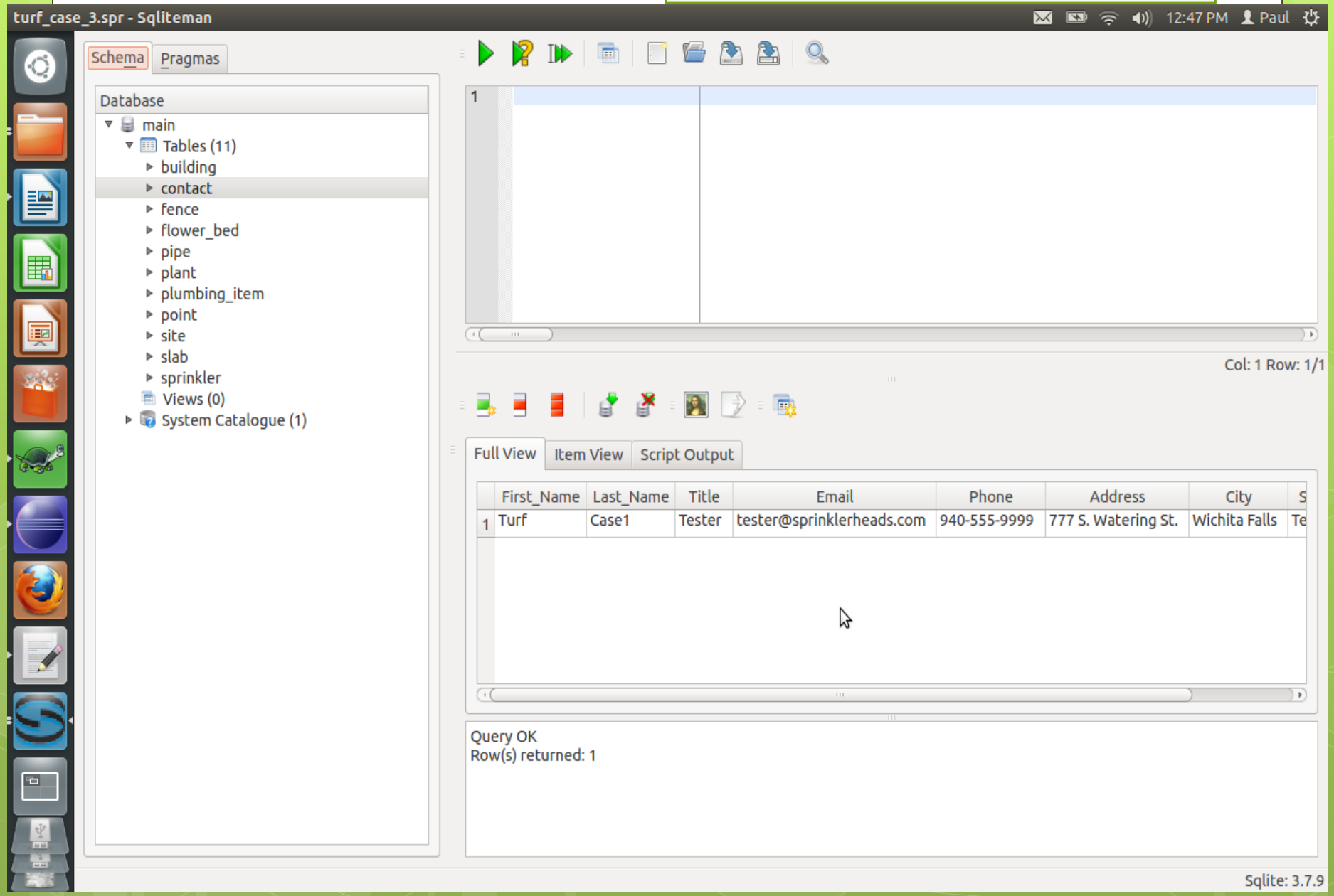
Test Case 2: Point Table



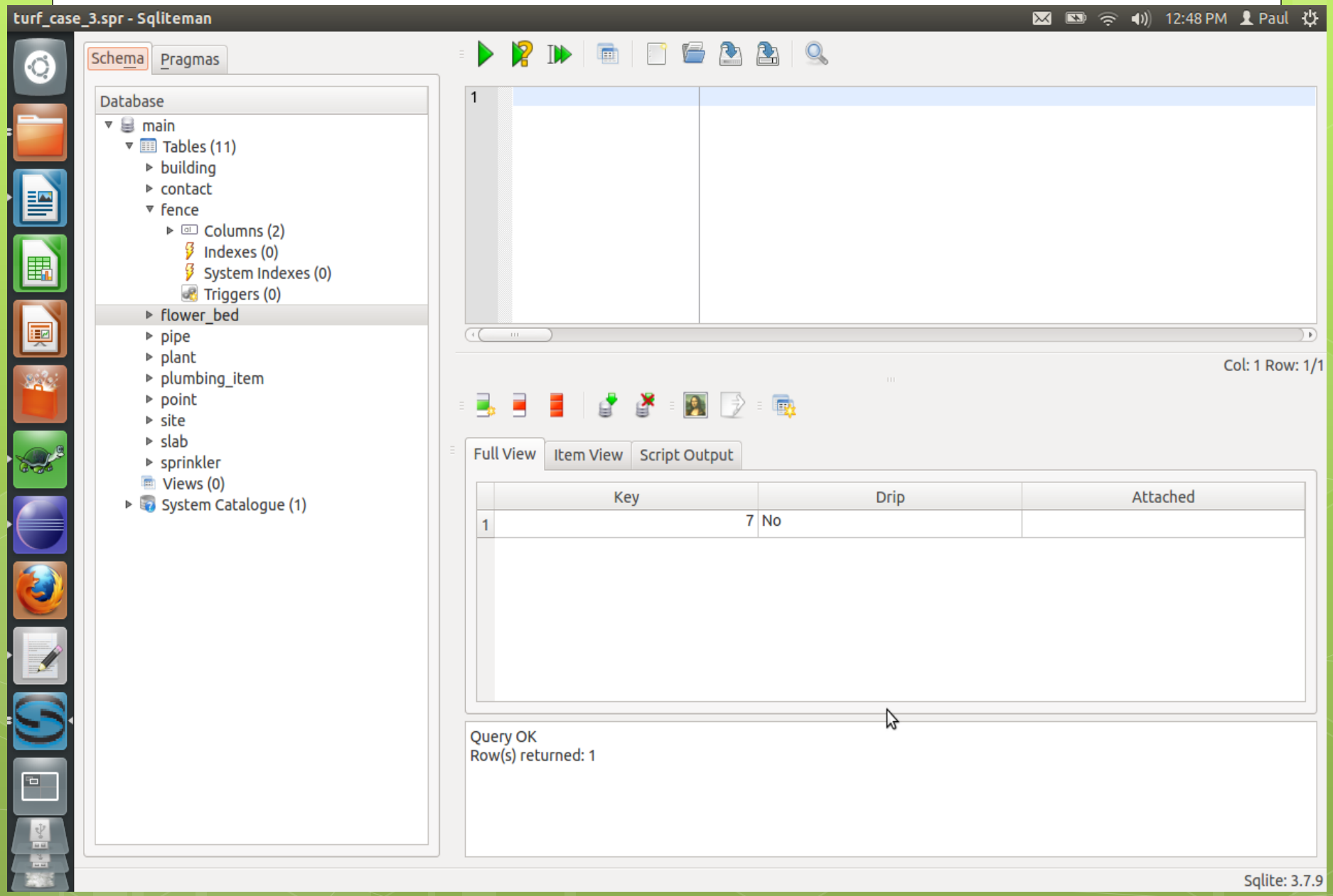
Test Case 2: Site Table



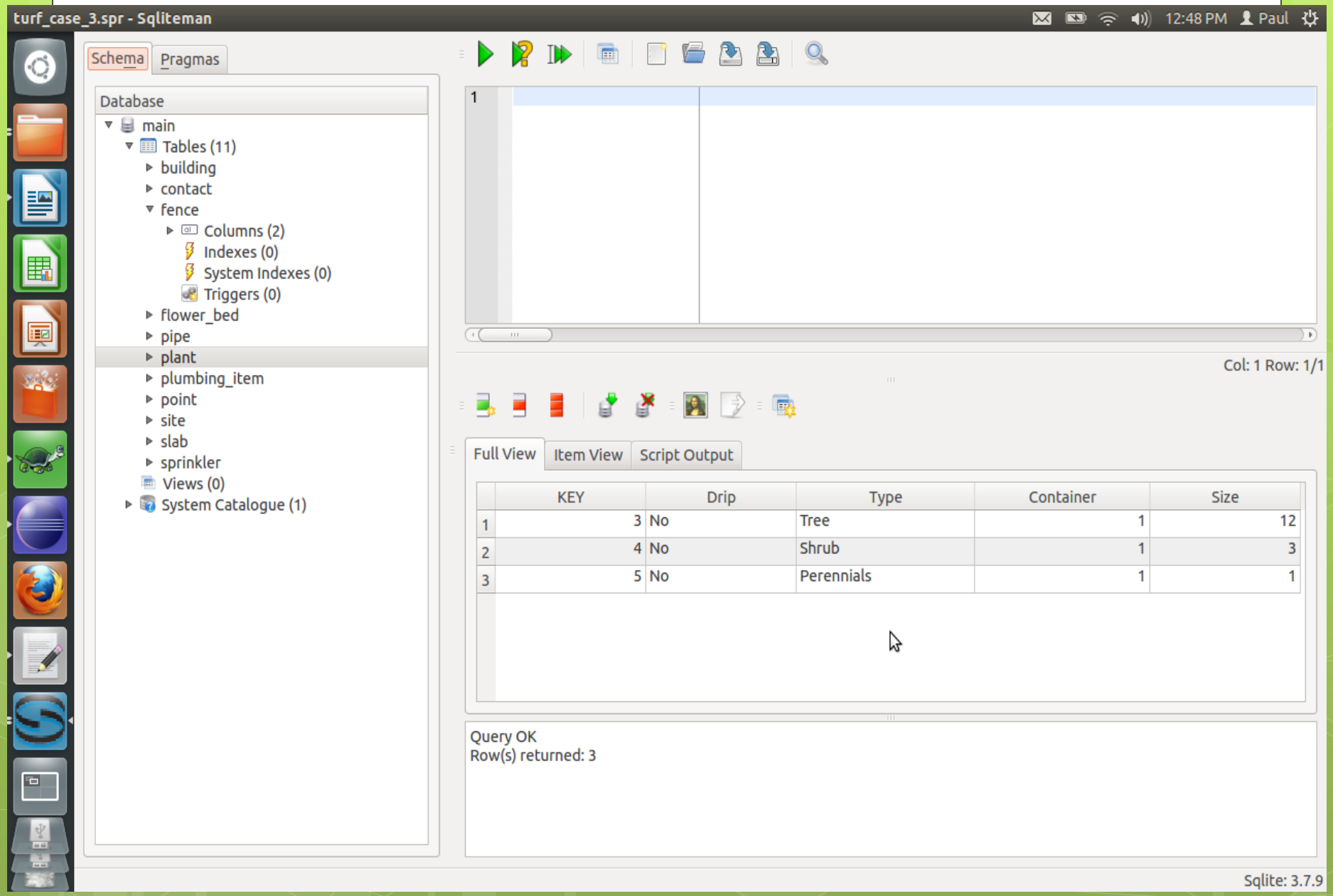
Test Case 3: Contact Table



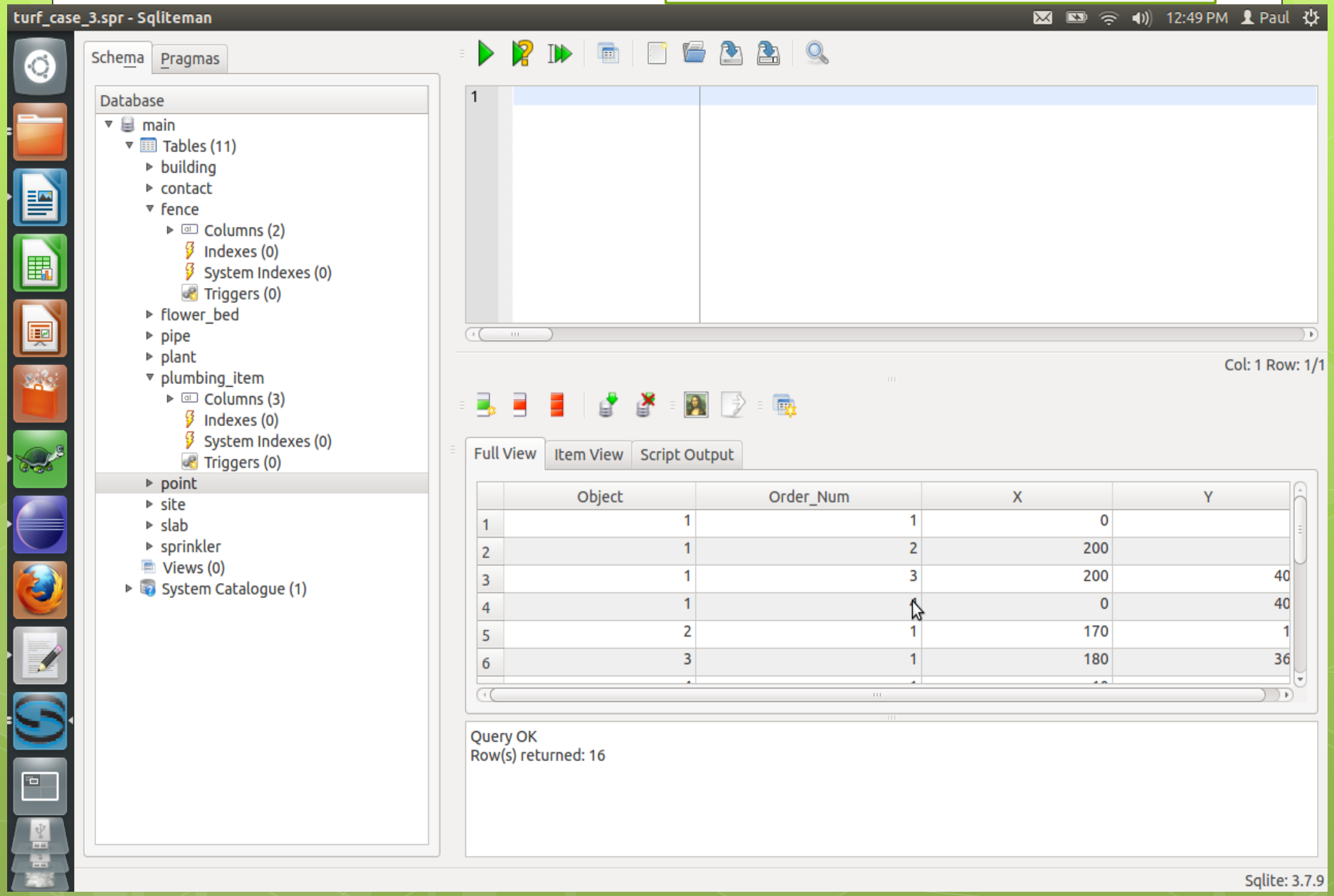
Test Case 3:
Flower Bed Table



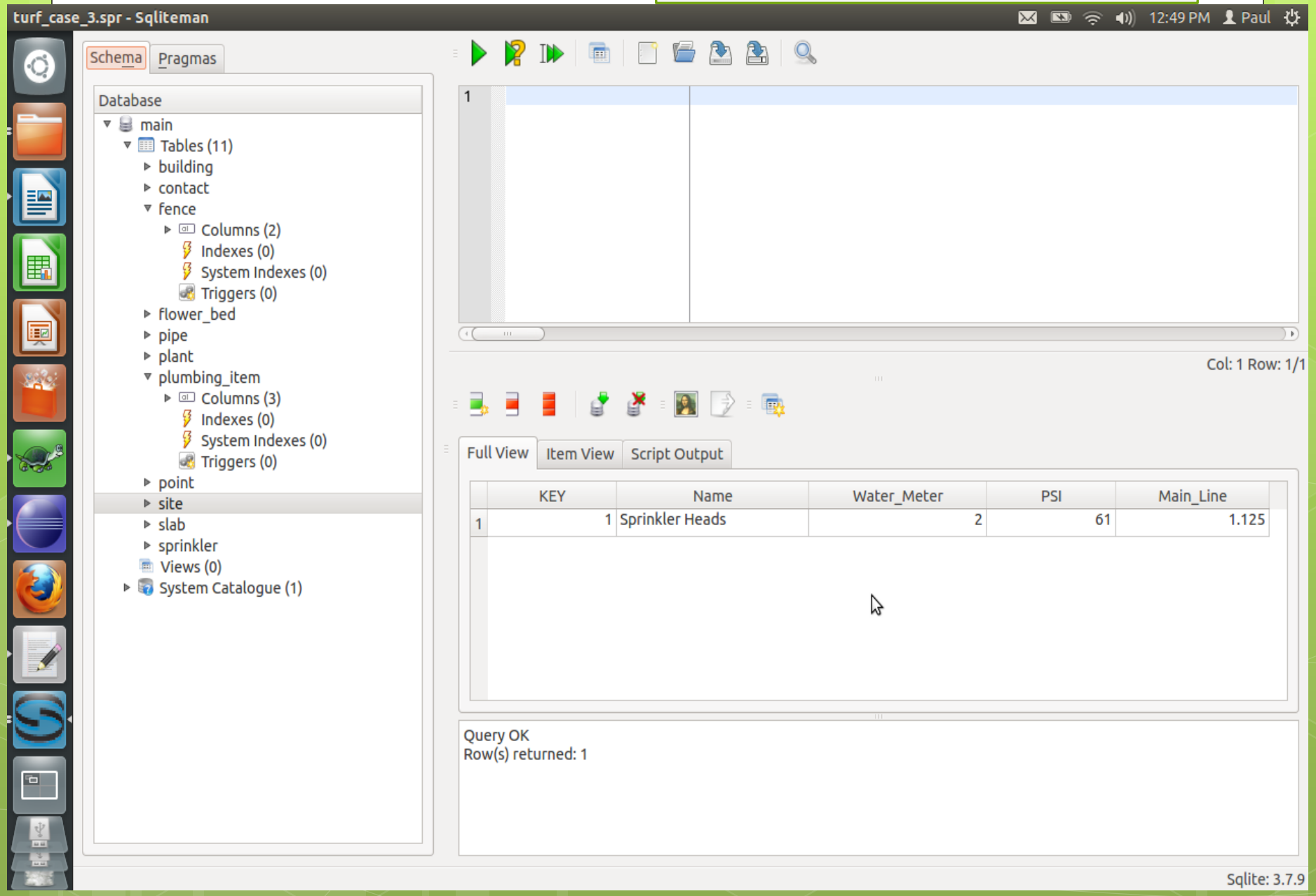
Test Case 3: Plant Table



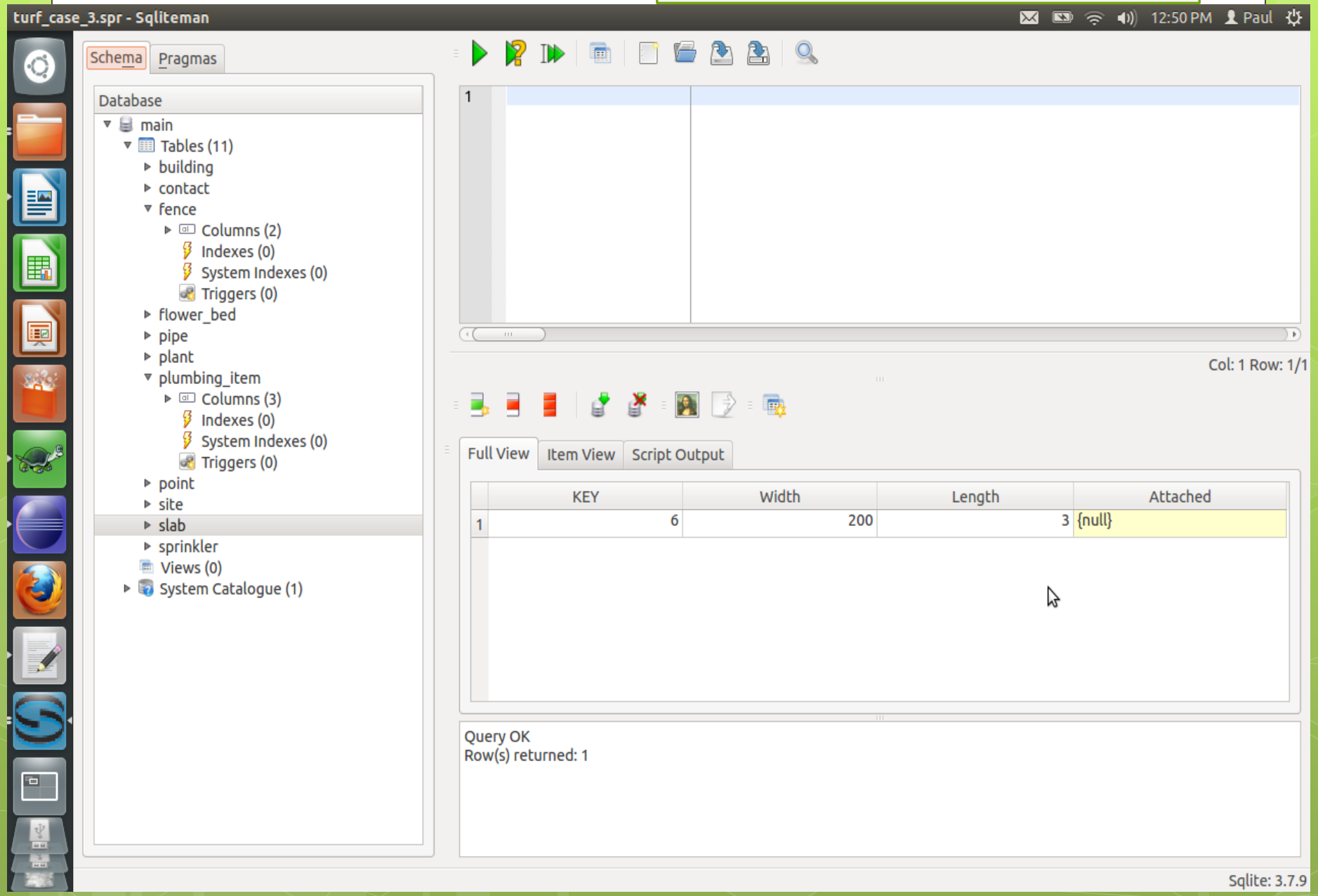
Test Case 3: Plant Table



Test Case 3: Site Table



Test Case 3: Slab Table



Test Report

Known problems:

- Most of the requirements are not yet implemented.
- User input is not validated.
  Invalid phone numbers, zip codes, and measurements are not checked.
- The object locations can overlap. No collision testing is implemented.

Known Problems (Continued)

- The ability to add plants has not been added.
- The ability to edit an existing design is not implemented.
- Placement of sprinkler heads is not implemented.
- Placement of pipes/valves is not implemented.

Test Report

Deviations:

- Not enough of the application has been implemented to deviate from the requirements.

Deployment Issues

- The .apk file will be given to the customer in a CD.
- May be copied to SDcard of android device by connection to a computer.
- It can be attached to email, or dropbox.
- Install .apk file in android device and run it.
- Sometimes application may not be properly installed.
- Application might crash.
- Most of the issues could be solve with reinstalling application.

Future Work

As the project is going to be continued by next semester students, they can do

- Moving of the objects on the plot.
- Calculating pressure levels.
- Placement of sprinkler heads/valves.
- Providing estimate of materials and installation costs.

What we have learned (continued…)

- Handling cursors and asynchronous threads .
- Learned how things work in android applications.
- Working in a group.
- Dividing of works and assigning tasks.
- Better time management.