

Query Schemas and Webpage Results

Query to Update a Flower

Schema:

UPDATE FLOWERS

SET GENUS = "New Genus Name if Specified", SPECIES = "New Species Name if Specified"

WHERE COMNAME = "Queried Common Name";

Webpage:

Flower Project

Flower Names

Alpine columbine
Alpine lewisia
Alpine penstemon
Alpine sheep sorrel
Bridges gilia
Broad-seeded rock-cress
Butter and eggs
California flannelbush

Update Flower
Scientific Name: Bridges gilia
Genus
New Genus
Species
New Species
Submit

New Sighting
Person
Any Name
Location
Any Location
Sighting Date
Any Date
Submit

Most Recent Sightings

Person	Location	Date Sighted
Maria	Don Levy Mine	2006-07-18
Jennifer	Don Levy Mine	2006-06-28
Maria	Chula Vista Campground	2006-06-26
Jennifer	Bright Star Mine	2006-06-23
Jennifer	Liebel Peak	2006-06-18
Jennifer	Don Levy Mine	2006-06-15
Helen	Breckenridge Fire Tower	2006-06-03

Flower Project

Flower Names

Alpine columbine
Alpine lewisia
Alpine penstemon
Alpine sheep sorrel
Bridges gilia
Broad-seeded rock-cress
Butter and eggs
California flannelbush

Update Flower
Scientific Name: name new
Genus
New Genus
Species
New Species
Submit

New Sighting
Person
Any Name
Location
Any Location
Sighting Date
Any Date
Submit

Most Recent Sightings

Person	Location	Date Sighted
Maria	Don Levy Mine	2006-07-18
Jennifer	Don Levy Mine	2006-06-28
Maria	Chula Vista Campground	2006-06-26
Jennifer	Bright Star Mine	2006-06-23
Jennifer	Liebel Peak	2006-06-18
Jennifer	Don Levy Mine	2006-06-15
Helen	Breckenridge Fire Tower	2006-06-03

Query for Ten Most Recent Sightings of a Flower

Schema:

SELECT SIGHTED, LOCATION, PERSON FROM SIGHTINGS

WHERE NAME="Queried Flower Name"

ORDER BY SIGHTED DESC LIMIT 10;

Webpage:

Flower Project

Flower Names

Alpine columbine
Alpine lewisia
Alpine penstemon
Alpine sheep sorrel
Bridges gilia
Broad-seeded rock-cress
Butter and eggs
California flannelbush

Update Flower
Genus/Species:
Genus
New Genus
Species
New Species
Submit

New Sighting
Person
Any Name
Location
Any Location
Sighting Date
Any Date
Submit

Flower Project

Flower Names

Alpine columbine
Alpine lewisia
Alpine penstemon
Alpine sheep sorrel
Bridges gilia
Broad-seeded rock-cress
Butter and eggs
California flannelbush

Update Flower
Scientific Name: Arabis platysperma
Genus
New Genus
Species
New Species
Submit

New Sighting
Person
Any Name
Location
Any Location
Sighting Date
Any Date
Submit

Most Recent Sightings

Person	Location	Date Sighted
Michael	McGill Campground	2006-09-11
Helen	Scodie Mountains	2006-07-22
James	Plute Spring	2006-07-13
Jennifer	Alaska Flat	2006-07-11
Jennifer	Scodie Mountains	2006-06-28
John	Bright Star Mine	2006-06-24
Jennifer	Double Mountain	2006-06-16
Jennifer	Burton Mill	2006-05-28
Maria	Tehachapi Mountain	2006-05-17
Donna	Plute Lookout	2006-05-16

Query to Insert a New Sighting of a Flower

Schema:

INSERT INTO SIGHTINGS(NAME, PERSON, LOCATION, SIGHTED)

VALUES("Inputted Flower", "Inputted Person", "Inputted Location", "Inputted Date");

Webpage:

Flower Project

Flower Names

Alpine columbine
Alpine lewisia
Alpine penstemon
Alpine sheep sorrel
Bridges gilia
Broad-seeded rock-cress
Butter and eggs
California flannelbush

Update Flower
Scientific Name: Alpine lewisia
Genus
New Genus
Species
New Species
Submit

New Sighting
Person
Any Name
Location
Any Location
Sighting Date
Any Date
Submit

Most Recent Sightings

Person	Location	Date Sighted
Sandra	Scodie Mountains	2006-09-09
Jennifer	Puerto del Suelo	2006-07-25
Helen	Bright Star Mine	2006-07-20
Maria	Alaska Flat	2006-07-16
Sandra	Covington Mountain	2006-07-10
Sandra	Chula Vista Campground	2006-06-19
Jennifer	Breckenridge Fire Tower	2006-05-29
Jennifer	Plute Lookout	2006-05-25

Flower Project

Flower Names

Alpine columbine
Alpine lewisia
Alpine penstemon
Alpine sheep sorrel
Bridges gilia
Broad-seeded rock-cress
Butter and eggs
California flannelbush

Update Flower
Scientific Name: Alpine lewisia
Genus
New Genus
Species
New Species
Submit

New Sighting
Person
Any Name
Location
Any Location
Sighting Date
Any Date
Submit

Most Recent Sightings

Person	Location	Date Sighted
ryan	solomon	2006-09-10
Sandra	Scodie Mountains	2006-09-09
Jennifer	Puerto del Suelo	2006-07-25
Helen	Bright Star Mine	2006-07-20
Maria	Alaska Flat	2006-07-16
Sandra	Covington Mountain	2006-07-10
Sandra	Chula Vista Campground	2006-06-19
Jennifer	Breckenridge Fire Tower	2006-05-29
Jennifer	Plute Lookout	2006-05-25

Extra Credit for Back End

Sightings Indexes: 5 Points

```
CREATE index sightings_name_index on SIGHTINGS(name);
CREATE index sightings_person_index on SIGHTINGS(person);
CREATE index sightings_location_index on SIGHTINGS(location);
CREATE index sightings_sighted_index on SIGHTINGS(sighted);
```

Log Triggers for Events on Tables: 15 Points

Log Table:

```
CREATE TABLE TABLE_LOGS(EVENT_LOG TEXT, TIME_STAMP TEXT);
```

Flowers Table Log Triggers:

```
CREATE TRIGGER flowers_insert_log AFTER INSERT ON FLOWERS
BEGIN
    INSERT INTO TABLE_LOGS(event_log, time_stamp)
    VALUES('(' || NEW.GENUS || ', ' || NEW.SPECIES || ', ' || NEW.COMNAME || ') ' ||
    ' INSERTED INTO FLOWERS AT TIME ', STRFTIME('%Y-%m-%d %H:%M:%f', 'now'));
END;

CREATE TRIGGER flowers_update_log AFTER UPDATE ON FLOWERS
BEGIN
    INSERT INTO TABLE_LOGS(event_log, time_stamp)
    VALUES('(' || OLD.GENUS || ', ' || OLD.SPECIES || ', ' || OLD.COMNAME || ') ' ||
    ' UPDATED TO ' || '(' || NEW.GENUS || ', ' || NEW.SPECIES || ', ' || NEW.COMNAME || ') ' ||
    ' IN FLOWERS AT TIME ', STRFTIME('%Y-%m-%d %H:%M:%f', 'now'));
END;

CREATE TRIGGER flowers_delete_log AFTER DELETE ON FLOWERS
BEGIN
    INSERT INTO TABLE_LOGS(event_log, time_stamp)
    VALUES('(' || OLD.GENUS || ', ' || OLD.SPECIES || ', ' || OLD.COMNAME || ') ' ||
    ' DELETED FROM FLOWERS AT TIME ', STRFTIME('%Y-%m-%d %H:%M:%f', 'now'));
END;
```

Features Table Log Triggers:

```
CREATE TRIGGER features_insert_log AFTER INSERT ON FEATURES
BEGIN
    INSERT INTO TABLE_LOGS(event_log, time_stamp)
    VALUES('(' || NEW.LOCATION || ', ' || NEW.CLASS || ', ' || NEW.LATITUDE || ', ' || NEW.LONGITUDE || ', ' || NEW.MAP || ', ' ||
    NEW.ELEV || ') ' ||
    ' INSERTED INTO FEATURES AT TIME ', STRFTIME('%Y-%m-%d %H:%M:%f', 'now'));
END;

CREATE TRIGGER features_update_log AFTER UPDATE ON FEATURES
BEGIN
    INSERT INTO TABLE_LOGS(event_log, time_stamp)
    VALUES('(' || OLD.LOCATION || ', ' || OLD.CLASS || ', ' || OLD.LATITUDE || ', ' || OLD.LONGITUDE || ', ' || OLD.MAP || ', ' ||
    OLD.ELEV || ') ' ||
    ' UPDATED TO ' ||
    '(' || NEW.LOCATION || ', ' || NEW.CLASS || ', ' || NEW.LATITUDE || ', ' || NEW.LONGITUDE || ', ' || NEW.MAP || ', ' ||
    NEW.ELEV || ') ' ||
    ' IN FEATURES AT TIME ', STRFTIME('%Y-%m-%d %H:%M:%f', 'now'));
END;

CREATE TRIGGER features_delete_log AFTER DELETE ON FEATURES
BEGIN
    INSERT INTO TABLE_LOGS(event_log, time_stamp)
    VALUES('(' || OLD.LOCATION || ', ' || OLD.CLASS || ', ' || OLD.LATITUDE || ', ' || OLD.LONGITUDE || ', ' || OLD.MAP || ', ' ||
    OLD.ELEV || ') ' ||
    ' DELETED FROM FEATURES AT TIME ', STRFTIME('%Y-%m-%d %H:%M:%f', 'now'));
END;
```

Sightings Table Log Triggers:

```
CREATE TRIGGER sightings_insert_log AFTER INSERT ON SIGHTINGS
BEGIN
    INSERT INTO TABLE_LOGS(event_log, time_stamp)
    VALUES('(' || NEW.NAME || ', ' || NEW.PERSON || ', ' || NEW.LOCATION || ', ' || NEW.SIGHTED || ') ' ||
    ' INSERTED INTO SIGHTINGS AT TIME ', STRFTIME('%Y-%m-%d %H:%M:%f', 'now'));
END;
CREATE TRIGGER sightings_update_log AFTER UPDATE ON SIGHTINGS
BEGIN
    INSERT INTO TABLE_LOGS(event_log, time_stamp)
    VALUES('(' || OLD.NAME || ', ' || OLD.PERSON || ', ' || OLD.LOCATION || ', ' || OLD.SIGHTED || ') ' ||
    ' UPDATED TO ' ||
    '(' || NEW.NAME || ', ' || NEW.PERSON || ', ' || NEW.LOCATION || ', ' || NEW.SIGHTED || ') ' ||
    ' IN SIGHTINGS AT TIME ', STRFTIME('%Y-%m-%d %H:%M:%f', 'now'));
END;
CREATE TRIGGER sightings_delete_log AFTER DELETE ON SIGHTINGS
BEGIN
    INSERT INTO TABLE_LOGS(event_log, time_stamp)
    VALUES('(' || OLD.NAME || ', ' || OLD.PERSON || ', ' || OLD.LOCATION || ', ' || OLD.SIGHTED || ') ' ||
    ' DELETED FROM SIGHTINGS AT TIME ', STRFTIME('%Y-%m-%d %H:%M:%f', 'now'));
END;
```

Queries Used to Test Log Triggers

```
-- test set one for sightings
INSERT INTO SIGHTINGS(name, person, location, sighted) VALUES('A','A','A','A');
UPDATE SIGHTINGS SET name='A' where name='A';
DELETE FROM SIGHTINGS WHERE name='A';
-- test set two for sightings
INSERT INTO SIGHTINGS(name, person, location, sighted) VALUES('B','A','A','A');
UPDATE SIGHTINGS SET name='D' where name='B';
DELETE FROM SIGHTINGS WHERE name='D';
-- test set three for flowers
INSERT INTO FLOWERS(genus, species, comname) VALUES('A','A','A');
UPDATE FLOWERS SET comname='A' where comname='A';
DELETE FROM FLOWERS WHERE comname='A';
-- test set four for flowers
INSERT INTO FLOWERS(genus, species, comname) VALUES('A','A','B');
UPDATE FLOWERS SET comname='D' where comname='B';
DELETE FROM FLOWERS WHERE comname='D';
-- test set five for features
INSERT INTO FEATURES(location, class, latitude, longitude, map, elev) VALUES('A','A','A','A','A','A');
UPDATE FEATURES SET location='A' where location='A';
DELETE FROM FEATURES WHERE location='A';
-- test set six for features
INSERT INTO FEATURES(location, class, latitude, longitude, map, elev) VALUES('B','A','A','A','A','A');
UPDATE FEATURES SET location='D' where location='B';
DELETE FROM FEATURES WHERE location='D';
-- show the executed logs
SELECT * from TABLE_LOGS;
```

Initiated Input done as Transaction: 5 Points

We ran our webpage using the flask library in python. In this library any execution of a query is run as a transaction. So, our webpage runs every user-initiated input as a transaction.