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CIS4301
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Assignment 4

Task 1)

Program Code:

```
CREATE TRIGGER ERROR
BEFORE INSERT ON SIGHTINGS
BEGIN
    SELECT CASE
        WHEN (SELECT NEW.person FROM SIGHTINGS) NOT IN (SELECT MEMBERS.name
        FROM MEMBERS)
        THEN RAISE (ABORT, 'Error: Insert into the SIGHTINGS table references a person that is
        not found in the database.')
        END;
END;
```

Test Code 1:

```
INSERT INTO SIGHTINGS VALUES
    ("Douglas dustymaiden", "Jennifer", "Double Mountain", "2008-11-28");
INSERT INTO SIGHTINGS VALUES
    ("Douglas dustymaiden", "Brad", "Shirley Peak", "2007-08-18");
INSERT INTO SIGHTINGS VALUES
    ("Douglas dustymaiden", "Donna", "Grouse Meadow", "2011-11-28");
INSERT INTO SIGHTINGS VALUES
    ("Douglas dustymaiden", "Maria", "Grouse Meadow", "2014-08-16");
INSERT INTO SIGHTINGS VALUES
    ("Douglas dustymaiden", "Joe", "Piute Peak", "2007-02-17");
```

Test Code 2:

```
SELECT *
FROM SIGHTINGS
WHERE PERSON = "Jennifer"
    OR PERSON = "Brad"
    OR PERSON = "Donna"
    OR PERSON = "Maria"
    OR PERSON = "Joe";
```

Test Code 3:

```
SELECT *
FROM MEMBERS
WHERE MEMBERSINCE IS NULL;
```

Result 1:

```
INSERT INTO SIGHTINGS VALUES
```

("Douglas dustymaiden", "Jennifer", "Double Mountain", "2008-11-28");
 INSERT INTO SIGHTINGS VALUES
 ("Douglas dustymaiden", "Brad", "Shirley Peak", "2007-08-18");
 INSERT INTO SIGHTINGS VALUES
 ("Douglas dustymaiden", "Donna", "Grouse Meadow", "2011-11-28");
 INSERT INTO SIGHTINGS VALUES
 ("Douglas dustymaiden", "Maria", "Grouse Meadow", "2014-08-16");
 (Inserts 1-4 ran successfully.)

INSERT INTO SIGHTINGS VALUES
 ("Douglas dustymaiden", "Joe", "Piute Peak", "2007-02-17");
 (Trigger occur at Insert 5.)

Error: Insert into the SIGHTINGS table references a person that is not found in the database.

Result 2:

NAME	PERSON	LOCATION	SIGHTED
California flannelbush	Jennifer	Scodie Mountains	6/26/2006
Pale owls clover	Jennifer	Frog Meadows Guard Station	6/1/2006
Draperia	Jennifer	Steve Spring	9/23/2006
Sheltons violet	Jennifer	Covington Mountain	6/18/2006
One-seeded pussy paws	Jennifer	Scodie Mountains	5/29/2006
Ithuriels spear	Jennifer	Scodie Mountains	6/7/2006
Primrose monkeyflower	Jennifer	Bright Star Mine	5/19/2006
Yellow-and-white monkeyflower	Jennifer	Piute Peak	4/18/2006
Large false Solomons seal	Jennifer	Piute Lookout	6/27/2006
Showy Jacobs ladder	Jennifer	Grouse Meadow	6/27/2006
Douglas dustymaiden	Jennifer	Burton Mill	5/29/2006
Varied-leaved jewelflower	Jennifer	Breckenridge Mountain	5/27/2006
Death camas	Jennifer	Scodie Mountains	7/9/2006
Broad-seeded rock-cress	Jennifer	Double Mountain	6/16/2006
Diamond clarkia	Jennifer	Puerto del Suelo	6/20/2006
Leopard lily	Jennifer	Burton Mill	7/25/2006
Torreys lomatium	Jennifer	Puerto del Suelo	9/21/2006
Alpine penstemon	Jennifer	Scodie Mountains	8/21/2006
Alpine sheep sorrel	Jennifer	Camp Alto Campground	6/15/2006
Woodland star	Jennifer	Mack Meadow	8/8/2006
Rangers buttons	Jennifer	Breckenridge Fire Tower	7/18/2006
Doves-foot geranium	Jennifer	The George Lodge	5/3/2006
Globe gilia	Jennifer	Puerto del Suelo	7/23/2006
Canyon dudleya	Jennifer	Moreland Mill	7/12/2006
Red mountain heather	Jennifer	The George Lodge	6/20/2006
Hartwegs wild ginger	Jennifer	Piute Lookout	5/18/2006

Snow plant	Jennifer	Scodie Mountains	6/9/2006
Alpine lewisia	Jennifer	Piute Lookout	5/25/2006
Cow parsnip	Jennifer	Liebel Peak	6/29/2006
Sierra daisy	Jennifer	Double Mountain	8/12/2006
Bridges gilia	Jennifer	Don Levy Mine	6/28/2006
Sierra Nevada rush	Jennifer	Gwynnette Mine	8/10/2006
Purple penstemon	Jennifer	Piute Lookout	6/30/2006
Mud sedge	Jennifer	Alaska Flat	5/17/2006
Showy milkweed	Jennifer	Sawtooth Peak	7/18/2006
Kings sandwort	Jennifer	Sorrell Peak	6/30/2006
Ithuriels spear	Jennifer	Double Mountain	8/20/2006
One-seeded pussy paws	Jennifer	Scodie Mountains	5/7/2006
Alpine sheep sorrel	Jennifer	Scodie Mountains	9/26/2006
Varied-leaved jewelflower	Jennifer	San Emigdio Mountain	5/26/2006
Primrose monkeyflower	Jennifer	Puerto del Suelo	7/11/2006
Rangers buttons	Jennifer	Sorrell Peak	5/8/2006
Leopard lily	Jennifer	Piute Lookout	7/27/2006
Torreys lomatium	Jennifer	Alaska Flat	5/13/2006
Tinkers penny	Jennifer	Campo Alto Campground	6/30/2006
Sheltons violet	Jennifer	Burton Mill	7/1/2006
Bridges gilia	Jennifer	Don Levy Mine	6/15/2006
Broad-seeded rock-cress	Jennifer	Scodie Mountains	6/26/2006
Sierra stonecrop	Jennifer	Alaska Flat	7/7/2006
Death camas	Jennifer	Alaska Flat	6/9/2006
Alpine penstemon	Jennifer	Burton Mill	5/21/2006
Showy Jacobs ladder	Jennifer	McGill Campground	6/3/2006
Butter and eggs	Jennifer	Don Levy Mine	6/29/2006
Sierra daisy	Jennifer	Breckenridge Fire Tower	5/20/2006
Douglas dustymaiden	Jennifer	Scodie Mountains	5/19/2006
Cow parsnip	Jennifer	Black Mountain	7/9/2006
Pale owls clover	Jennifer	Alaska Flat	7/11/2006
Woodland star	Jennifer	Bright Star Mine	6/22/2006
Cow parsnip	Jennifer	Puerto del Suelo	7/12/2006
Sierra stonecrop	Jennifer	Inspiration Point	6/3/2006
Sheltons violet	Jennifer	Campo Alto Campground	9/2/2006
Primrose monkeyflower	Jennifer	Mack Meadow	9/26/2006
Broad-seeded rock-cress	Jennifer	Alaska Flat	7/11/2006
Douglas dustymaiden	Jennifer	Black Mountain	6/7/2006
Ithuriels spear	Jennifer	Frog Meadows Campground	6/28/2006
Showy Jacobs ladder	Jennifer	Don Levy Mine	7/11/2006
Death camas	Jennifer	Don Levy Mine	6/24/2006

Leopard lily	Jennifer	Inmans	6/23/2006
Pale owls clover	Jennifer	Scodie Mountains	6/2/2006
California flannelbush	Jennifer	Puerto del Suelo	5/23/2006
Red mountain heather	Jennifer	Piute Lookout	6/29/2006
Woodland star	Jennifer	Owens Peak	8/17/2006
One-seeded pussy paws	Jennifer	Tehachapi Mountain	8/13/2006
Alpine columbine	Jennifer	Bright Star Mine	7/11/2006
Varied-leaved jewelflower	Jennifer	Piute Lookout	8/9/2006
Torreys lomatium	Jennifer	King Solomons Ridge	4/16/2006
Tinkers penny	Jennifer	Scodie Mountains	6/3/2006
Alpine penstemon	Jennifer	Piute Lookout	5/26/2006
Large-leaved lupine	Jennifer	Alaska Flat	6/18/2006
Rangers buttons	Jennifer	Scodie Mountains	7/21/2006
One-sided wintergreen	Jennifer	Alaska Flat	6/9/2006
Condensed phlox	Jennifer	Breckenridge Mountain	8/1/2006
Doves-foot geranium	Jennifer	Skinner Peak	5/25/2006
Globe gilia	Jennifer	Puerto del Suelo	6/12/2006
Diamond clarkia	Jennifer	Brush Mountain	6/16/2006
Canyon dudleya	Jennifer	Steve Spring	9/28/2006
Large false Solomons seal	Jennifer	Liebel Peak	6/25/2006
Hartwegs wild ginger	Jennifer	Sorrell Peak	8/27/2006
Alpine lewisia	Jennifer	Breckenridge Fire Tower	5/29/2006
Sierra Nevada rush	Jennifer	McGill Campground	7/29/2006
Bridges gilia	Jennifer	Liebel Peak	6/18/2006
Alpine sheep sorrel	Jennifer	Scodie Mountains	8/1/2006
Mud sedge	Jennifer	Brown Peak	7/18/2006
Alpine penstemon	Jennifer	Frog Meadows Guard Station	7/22/2006
One-seeded pussy paws	Jennifer	Alaska Flat	5/14/2006
California flannelbush	Jennifer	Lone Star Mine	5/9/2006
Canyon dudleya	Jennifer	Breckenridge Mountain	6/3/2006
Broad-seeded rock-cress	Jennifer	Burton Mill	5/28/2006
Woodland star	Jennifer	Scodie Mountains	6/14/2006
Rangers buttons	Jennifer	Bright Star Mine	7/22/2006
Butter and eggs	Jennifer	Piute Lookout	5/15/2006
Showy Jacobs ladder	Jennifer	Scodie Mountains	6/8/2006
Ithuriels spear	Jennifer	Covington Mountain	5/17/2006
Primrose monkeyflower	Jennifer	Steve Spring	6/1/2006
Sheltons violet	Jennifer	Piute Lookout	6/21/2006
Douglas dustymaiden	Jennifer	Grouse Meadow	5/6/2006
Pale owls clover	Jennifer	Don Levy Mine	7/15/2006
Torreys lomatium	Jennifer	Liebel Peak	5/19/2006

Death camas	Jennifer	Piute Lookout	5/7/2006
Alpine sheep sorrel	Jennifer	Chula Vista Campground	7/20/2006
Varied-leaved jewelflower	Jennifer	Burton Mill	7/8/2006
Leopard lily	Jennifer	Scodie Mountains	7/4/2006
Doves-foot geranium	Jennifer	Tehachapi Mountain	8/10/2006
Globe gilia	Jennifer	King Solomons Ridge	6/14/2006
Large false Solomons seal	Jennifer	Breckenridge Fire Tower	6/10/2006
Hartwegs wild ginger	Jennifer	Cerro Noroeste	8/4/2006
Alpine lewisia	Jennifer	Puerto del Suelo	7/25/2006
Cow parsnip	Jennifer	Breckenridge Mountain	6/1/2006
Bridges gilia	Jennifer	Bright Star Mine	6/23/2006
Purple penstemon	Jennifer	Scodie Mountains	9/22/2006
Sierra angelica	Jennifer	Covington Mountain	8/22/2006
Sierra Nevada rush	Jennifer	Sawtooth Peak	5/13/2006
Mud sedge	Jennifer	Sorrell Peak	8/20/2006
Draperia	Jennifer	Mount Jenkins	7/3/2006
Showy milkweed	Jennifer	Scodie Mountains	5/12/2006
Sierra stonecrop	Jennifer	King Solomons Ridge	5/21/2006
Hoary buckwheat	Jennifer	Scodie Mountains	5/12/2006
Ithuriels spear	Jennifer	Scodie Mountains	7/3/2006
Bridges gilia	Maria	Chula Vista Campground	6/26/2006
Oak violet	Maria	Don Levy Mine	6/1/2006
California flannelbush	Maria	Scodie Mountains	6/2/2006
Condensed phlox	Maria	Sawtooth Peak	5/7/2006
Douglas dustymaiden	Maria	Piute Lookout	7/11/2006
Pale owls clover	Maria	Covington Mountain	6/28/2006
Diamond clarkia	Maria	Cerro Noroeste	7/16/2006
Primrose monkeyflower	Maria	Double Mountain	8/10/2006
Sheltons violet	Maria	Campo Alto Campground	8/1/2006
Showy Jacobs ladder	Maria	Inmans	5/2/2006
Death camas	Maria	Scodie Mountains	6/4/2006
Broad-seeded rock-cress	Maria	Tehachapi Mountain	5/17/2006
Woodland star	Maria	Cerro Noroeste	9/12/2006
One-seeded pussy paws	Maria	Double Mountain	9/14/2006
Varied-leaved jewelflower	Maria	Scodie Mountains	6/4/2006
Cow parsnip	Maria	Puerto del Suelo	5/14/2006
Leopard lily	Maria	Chula Vista Campground	8/14/2006
Torreys lomatium	Maria	Piute Peak	5/15/2006
Alpine penstemon	Maria	Mack Meadow	9/13/2006
Rangers buttons	Maria	Moreland Mill	7/22/2006
Doves-foot geranium	Maria	Alaska Flat	9/17/2006

Globe gilia	Maria	Liebel Peak	7/14/2006
Canyon dudleya	Maria	Frog Meadows Campground	7/6/2006
Large false Solomons seal	Maria	Scodie Mountains	4/20/2006
Hartwegs wild ginger	Maria	Lone Star Mine	6/16/2006
Alpine lewisia	Maria	Alaska Flat	7/16/2006
Alpine sheep sorrel	Maria	Scodie Mountains	9/23/2006
Sierra Nevada rush	Maria	Alaska Flat	5/1/2006
Mud sedge	Maria	Piute Peak	6/26/2006
Draperia	Maria	Scodie Mountains	5/11/2006
Showy milkweed	Maria	Cerro Noroeste	6/11/2006
Butter and eggs	Maria	Scodie Mountains	8/6/2006
Snow plant	Maria	Piute Lookout	7/10/2006
Sierra stonecrop	Maria	Scodie Mountains	6/30/2006
Sierra daisy	Maria	Alaska Flat	5/16/2006
Large-leaved lupine	Maria	Piute Lookout	7/3/2006
Hoary buckwheat	Maria	Puerto del Suelo	8/24/2006
Sierra angelica	Maria	Grouse Meadow	5/19/2006
Alpine columbine	Maria	Chula Vista Campground	8/28/2006
Water groundsel	Maria	Piute Lookout	5/19/2006
Kings sandwort	Maria	Don Levy Mine	6/1/2006
Woolly sunflower	Maria	Don Levy Mine	7/23/2006
One-sided wintergreen	Maria	Frog Meadows Campground	6/11/2006
Red mountain heather	Maria	Puerto del Suelo	8/14/2006
Purple penstemon	Maria	Bright Star Mine	5/23/2006
Fireweed	Maria	Cerro Noroeste	5/29/2006
Tinkers penny	Maria	Scodie Mountains	7/14/2006
Yellow-and-white monkeyflower	Maria	Burton Mill	6/7/2006
Lovage	Maria	Burton Mill	5/14/2006
Broad-seeded rock-cress	Maria	Cerro Noroeste	4/2/2006
Primrose monkeyflower	Maria	Don Levy Mine	6/12/2006
Cow parsnip	Maria	Scodie Mountains	6/5/2006
Ithuriels spear	Maria	Burton Mill	6/26/2006
Death camas	Maria	Inspiration Point	6/7/2006
Sierra stonecrop	Maria	Inspiration Point	6/16/2006
Sheltons violet	Maria	KBAK-TV	7/6/2006
Pale owls clover	Maria	Scodie Mountains	6/12/2006
Showy Jacobs ladder	Maria	Burton Mill	8/22/2006
Showy milkweed	Maria	Piute Lookout	5/30/2006
Oak violet	Maria	Steve Spring	6/28/2006
Douglas dustymaiden	Maria	Burton Mill	4/14/2006
Canyon dudleya	Maria	Sawtooth Peak	5/8/2006

One-seeded pussy paws	Maria	The George Lodge	6/21/2006
Varied-leaved jewelflower	Maria	Covington Mountain	4/16/2006
Woodland star	Maria	Liebel Peak	5/8/2006
Leopard lily	Maria	Scodie Mountains	6/2/2006
Bridges gilia	Maria	Don Levy Mine	7/18/2006
Torreys lomatium	Maria	Piute Peak	7/5/2006
Alpine penstemon	Maria	Inspiration Point	7/16/2006
Rangers buttons	Maria	Alaska Flat	8/11/2006
Doves-foot geranium	Maria	Chula Vista Campground	6/6/2006
Butter and eggs	Maria	Scodie Mountains	5/20/2006
Globe gilia	Maria	Moreland Mill	5/1/2006
Large false Solomons seal	Maria	Brown Meadow	5/10/2006
Hoary buckwheat	Maria	Scodie Mountains	7/26/2006
Alpine columbine	Donna	Chula Vista Campground	7/3/2006
California flannelbush	Donna	Piute Lookout	9/1/2006
Pale owls clover	Donna	San Emigdio Mountain	4/20/2006
Ithuriels spear	Donna	Piute Lookout	4/30/2006
Primrose monkeyflower	Donna	Breckenridge Mountain	8/23/2006
Kings sandwort	Donna	Frog Meadows Campground	6/27/2006
Sheltons violet	Donna	Piute Lookout	9/24/2006
Sierra angelica	Donna	Puerto del Suelo	6/16/2006
Alpine sheep sorrel	Donna	Sorrell Peak	6/16/2006
Showy Jacobs ladder	Donna	Skinner Peak	7/13/2006
Cow parsnip	Donna	Alaska Flat	6/21/2006
Doves-foot geranium	Donna	Puerto del Suelo	6/8/2006
Ithuriels spear	Donna	Piute Lookout	8/4/2006
Globe gilia	Donna	Scodie Mountains	9/14/2006
Primrose monkeyflower	Donna	Tecuya Mountain	7/19/2006
California flannelbush	Donna	Scodie Mountains	5/21/2006
Broad-seeded rock-cress	Donna	Piute Lookout	5/16/2006
Death camas	Donna	Don Levy Mine	8/11/2006
Rangers buttons	Donna	Double Mountain	7/7/2006
Sierra stonecrop	Donna	Double Mountain	5/1/2006
Sheltons violet	Donna	Don Levy Mine	6/18/2006
Sierra Nevada rush	Donna	Sorrell Peak	5/20/2006
Showy Jacobs ladder	Donna	Scodie Mountains	7/19/2006
Sheltons violet	Brad	Piute Spring	6/5/2006
California flannelbush	Brad	Scodie Mountains	7/10/2006
Douglas dustymaiden	Brad	Chula Vista Campground	7/9/2006
Douglas dustymaiden	Jennifer	Double Mountain	11/28/2008
Douglas dustymaiden	Brad	Shirley Peak	8/18/2007

Douglas dustymaiden	Donna	Grouse Meadow	11/28/2011
Douglas dustymaiden	Maria	Grouse Meadow	8/16/2014

Result 3:

(Empty/ No output.)

Task 2)

Program Code:

```
CREATE TRIGGER NewMember
BEFORE INSERT ON SIGHTINGS
WHEN (SELECT NEW.person FROM SIGHTINGS) NOT IN (SELECT MEMBERS.name
FROM MEMBERS)
BEGIN
    INSERT INTO MEMBERS(name, membersince, numsightings)
    VALUES (NEW.person, NULL, 1);
END;
```

Test Code 1:

```
INSERT INTO SIGHTINGS VALUES
    ("Douglas dustymaiden", "Jennifer", "Double Mountain", "2008-11-28");
INSERT INTO SIGHTINGS VALUES
    ("Douglas dustymaiden", "Brad", "Shirley Peak", "2007-08-18");
INSERT INTO SIGHTINGS VALUES
    ("Douglas dustymaiden", "Donna", "Grouse Meadow", "2011-11-28");
INSERT INTO SIGHTINGS VALUES
    ("Douglas dustymaiden", "Maria", "Grouse Meadow", "2014-08-16");
INSERT INTO SIGHTINGS VALUES
    ("Douglas dustymaiden", "Joe", "Piute Peak", "2007-02-17");
```

Test Code 2:

```
SELECT *
FROM SIGHTINGS
WHERE PERSON = "Jennifer"
    OR PERSON = "Brad"
    OR PERSON = "Donna"
    OR PERSON = "Maria"
    OR PERSON = "Joe";
```

Test Code 3:

```
SELECT *
FROM MEMBERS
WHERE MEMBERSINCE IS NULL;
```

Result 1:

(Empty/ No output for all Inserts.)

Result 2:

NAME	PERSON	LOCATION	SIGHTED
California flannelbush	Jennifer	Scodie Mountains	6/26/2006
Pale owls clover	Jennifer	Frog Meadows Guard Station	6/1/2006
Draperia	Jennifer	Steve Spring	9/23/2006
Sheltons violet	Jennifer	Covington Mountain	6/18/2006
One-seeded pussy paws	Jennifer	Scodie Mountains	5/29/2006
Ithuriels spear	Jennifer	Scodie Mountains	6/7/2006
Primrose monkeyflower	Jennifer	Bright Star Mine	5/19/2006
Yellow-and-white monkeyflower	Jennifer	Piute Peak	4/18/2006
Large false Solomons seal	Jennifer	Piute Lookout	6/27/2006
Showy Jacobs ladder	Jennifer	Grouse Meadow	6/27/2006
Douglas dustymaiden	Jennifer	Burton Mill	5/29/2006
Varied-leaved jewelflower	Jennifer	Breckenridge Mountain	5/27/2006
Death camas	Jennifer	Scodie Mountains	7/9/2006
Broad-seeded rock-cress	Jennifer	Double Mountain	6/16/2006
Diamond clarkia	Jennifer	Puerto del Suelo	6/20/2006
Leopard lily	Jennifer	Burton Mill	7/25/2006
Torreys lomatium	Jennifer	Puerto del Suelo	9/21/2006
Alpine penstemon	Jennifer	Scodie Mountains	8/21/2006
Alpine sheep sorrel	Jennifer	Camp Alto Campground	6/15/2006
Woodland star	Jennifer	Mack Meadow	8/8/2006
Rangers buttons	Jennifer	Breckenridge Fire Tower	7/18/2006
Doves-foot geranium	Jennifer	The George Lodge	5/3/2006
Globe gilia	Jennifer	Puerto del Suelo	7/23/2006
Canyon dudleya	Jennifer	Moreland Mill	7/12/2006
Red mountain heather	Jennifer	The George Lodge	6/20/2006
Hartwegs wild ginger	Jennifer	Piute Lookout	5/18/2006
Snow plant	Jennifer	Scodie Mountains	6/9/2006
Alpine lewisia	Jennifer	Piute Lookout	5/25/2006
Cow parsnip	Jennifer	Liebel Peak	6/29/2006
Sierra daisy	Jennifer	Double Mountain	8/12/2006
Bridges gilia	Jennifer	Don Levy Mine	6/28/2006
Sierra Nevada rush	Jennifer	Gwynnette Mine	8/10/2006
Purple penstemon	Jennifer	Piute Lookout	6/30/2006
Mud sedge	Jennifer	Alaska Flat	5/17/2006
Showy milkweed	Jennifer	Sawtooth Peak	7/18/2006
Kings sandwort	Jennifer	Sorrell Peak	6/30/2006
Ithuriels spear	Jennifer	Double Mountain	8/20/2006
One-seeded pussy paws	Jennifer	Scodie Mountains	5/7/2006
Alpine sheep sorrel	Jennifer	Scodie Mountains	9/26/2006

Varied-leaved jewelflower	Jennifer	San Emigdio Mountain	5/26/2006
Primrose monkeyflower	Jennifer	Puerto del Suelo	7/11/2006
Rangers buttons	Jennifer	Sorrell Peak	5/8/2006
Leopard lily	Jennifer	Piute Lookout	7/27/2006
Torreys lomatium	Jennifer	Alaska Flat	5/13/2006
Tinkers penny	Jennifer	Campo Alto Campground	6/30/2006
Sheltons violet	Jennifer	Burton Mill	7/1/2006
Bridges gilia	Jennifer	Don Levy Mine	6/15/2006
Broad-seeded rock-cress	Jennifer	Scodie Mountains	6/26/2006
Sierra stonecrop	Jennifer	Alaska Flat	7/7/2006
Death camas	Jennifer	Alaska Flat	6/9/2006
Alpine penstemon	Jennifer	Burton Mill	5/21/2006
Showy Jacobs ladder	Jennifer	McGill Campground	6/3/2006
Butter and eggs	Jennifer	Don Levy Mine	6/29/2006
Sierra daisy	Jennifer	Breckenridge Fire Tower	5/20/2006
Douglas dustymaiden	Jennifer	Scodie Mountains	5/19/2006
Cow parsnip	Jennifer	Black Mountain	7/9/2006
Pale owls clover	Jennifer	Alaska Flat	7/11/2006
Woodland star	Jennifer	Bright Star Mine	6/22/2006
Cow parsnip	Jennifer	Puerto del Suelo	7/12/2006
Sierra stonecrop	Jennifer	Inspiration Point	6/3/2006
Sheltons violet	Jennifer	Campo Alto Campground	9/2/2006
Primrose monkeyflower	Jennifer	Mack Meadow	9/26/2006
Broad-seeded rock-cress	Jennifer	Alaska Flat	7/11/2006
Douglas dustymaiden	Jennifer	Black Mountain	6/7/2006
Ithuriels spear	Jennifer	Frog Meadows Campground	6/28/2006
Showy Jacobs ladder	Jennifer	Don Levy Mine	7/11/2006
Death camas	Jennifer	Don Levy Mine	6/24/2006
Leopard lily	Jennifer	Inmans	6/23/2006
Pale owls clover	Jennifer	Scodie Mountains	6/2/2006
California flannelbush	Jennifer	Puerto del Suelo	5/23/2006
Red mountain heather	Jennifer	Piute Lookout	6/29/2006
Woodland star	Jennifer	Owens Peak	8/17/2006
One-seeded pussy paws	Jennifer	Tehachapi Mountain	8/13/2006
Alpine columbine	Jennifer	Bright Star Mine	7/11/2006
Varied-leaved jewelflower	Jennifer	Piute Lookout	8/9/2006
Torreys lomatium	Jennifer	King Solomons Ridge	4/16/2006
Tinkers penny	Jennifer	Scodie Mountains	6/3/2006
Alpine penstemon	Jennifer	Piute Lookout	5/26/2006
Large-leaved lupine	Jennifer	Alaska Flat	6/18/2006
Rangers buttons	Jennifer	Scodie Mountains	7/21/2006

One-sided wintergreen	Jennifer	Alaska Flat	6/9/2006
Condensed phlox	Jennifer	Breckenridge Mountain	8/1/2006
Doves-foot geranium	Jennifer	Skinner Peak	5/25/2006
Globe gilia	Jennifer	Puerto del Suelo	6/12/2006
Diamond clarkia	Jennifer	Brush Mountain	6/16/2006
Canyon dudleya	Jennifer	Steve Spring	9/28/2006
Large false Solomons seal	Jennifer	Liebel Peak	6/25/2006
Hartwegs wild ginger	Jennifer	Sorrell Peak	8/27/2006
Alpine lewisia	Jennifer	Breckenridge Fire Tower	5/29/2006
Sierra Nevada rush	Jennifer	McGill Campground	7/29/2006
Bridges gilia	Jennifer	Liebel Peak	6/18/2006
Alpine sheep sorrel	Jennifer	Scodie Mountains	8/1/2006
Mud sedge	Jennifer	Brown Peak	7/18/2006
Alpine penstemon	Jennifer	Frog Meadows Guard Station	7/22/2006
One-seeded pussy paws	Jennifer	Alaska Flat	5/14/2006
California flannelbush	Jennifer	Lone Star Mine	5/9/2006
Canyon dudleya	Jennifer	Breckenridge Mountain	6/3/2006
Broad-seeded rock-cress	Jennifer	Burton Mill	5/28/2006
Woodland star	Jennifer	Scodie Mountains	6/14/2006
Rangers buttons	Jennifer	Bright Star Mine	7/22/2006
Butter and eggs	Jennifer	Piute Lookout	5/15/2006
Showy Jacobs ladder	Jennifer	Scodie Mountains	6/8/2006
Ithuriels spear	Jennifer	Covington Mountain	5/17/2006
Primrose monkeyflower	Jennifer	Steve Spring	6/1/2006
Sheltons violet	Jennifer	Piute Lookout	6/21/2006
Douglas dustymaiden	Jennifer	Grouse Meadow	5/6/2006
Pale owls clover	Jennifer	Don Levy Mine	7/15/2006
Torreys lomatium	Jennifer	Liebel Peak	5/19/2006
Death camas	Jennifer	Piute Lookout	5/7/2006
Alpine sheep sorrel	Jennifer	Chula Vista Campground	7/20/2006
Varied-leaved jewelflower	Jennifer	Burton Mill	7/8/2006
Leopard lily	Jennifer	Scodie Mountains	7/4/2006
Doves-foot geranium	Jennifer	Tehachapi Mountain	8/10/2006
Globe gilia	Jennifer	King Solomons Ridge	6/14/2006
Large false Solomons seal	Jennifer	Breckenridge Fire Tower	6/10/2006
Hartwegs wild ginger	Jennifer	Cerro Noroeste	8/4/2006
Alpine lewisia	Jennifer	Puerto del Suelo	7/25/2006
Cow parsnip	Jennifer	Breckenridge Mountain	6/1/2006
Bridges gilia	Jennifer	Bright Star Mine	6/23/2006
Purple penstemon	Jennifer	Scodie Mountains	9/22/2006
Sierra angelica	Jennifer	Covington Mountain	8/22/2006

Sierra Nevada rush	Jennifer	Sawtooth Peak	5/13/2006
Mud sedge	Jennifer	Sorrell Peak	8/20/2006
Draperia	Jennifer	Mount Jenkins	7/3/2006
Showy milkweed	Jennifer	Scodie Mountains	5/12/2006
Sierra stonecrop	Jennifer	King Solomons Ridge	5/21/2006
Hoary buckwheat	Jennifer	Scodie Mountains	5/12/2006
Ithuriels spear	Jennifer	Scodie Mountains	7/3/2006
Bridges gilia	Maria	Chula Vista Campground	6/26/2006
Oak violet	Maria	Don Levy Mine	6/1/2006
California flannelbush	Maria	Scodie Mountains	6/2/2006
Condensed phlox	Maria	Sawtooth Peak	5/7/2006
Douglas dustymaiden	Maria	Piute Lookout	7/11/2006
Pale owls clover	Maria	Covington Mountain	6/28/2006
Diamond clarkia	Maria	Cerro Noroeste	7/16/2006
Primrose monkeyflower	Maria	Double Mountain	8/10/2006
Sheltons violet	Maria	Campo Alto Campground	8/1/2006
Showy Jacobs ladder	Maria	Inmans	5/2/2006
Death camas	Maria	Scodie Mountains	6/4/2006
Broad-seeded rock-cress	Maria	Tehachapi Mountain	5/17/2006
Woodland star	Maria	Cerro Noroeste	9/12/2006
One-seeded pussy paws	Maria	Double Mountain	9/14/2006
Varied-leaved jewelflower	Maria	Scodie Mountains	6/4/2006
Cow parsnip	Maria	Puerto del Suelo	5/14/2006
Leopard lily	Maria	Chula Vista Campground	8/14/2006
Torreys lomatium	Maria	Piute Peak	5/15/2006
Alpine penstemon	Maria	Mack Meadow	9/13/2006
Rangers buttons	Maria	Moreland Mill	7/22/2006
Doves-foot geranium	Maria	Alaska Flat	9/17/2006
Globe gilia	Maria	Liebel Peak	7/14/2006
Canyon dudleya	Maria	Frog Meadows Campground	7/6/2006
Large false Solomons seal	Maria	Scodie Mountains	4/20/2006
Hartwegs wild ginger	Maria	Lone Star Mine	6/16/2006
Alpine lewisia	Maria	Alaska Flat	7/16/2006
Alpine sheep sorrel	Maria	Scodie Mountains	9/23/2006
Sierra Nevada rush	Maria	Alaska Flat	5/1/2006
Mud sedge	Maria	Piute Peak	6/26/2006
Draperia	Maria	Scodie Mountains	5/11/2006
Showy milkweed	Maria	Cerro Noroeste	6/11/2006
Butter and eggs	Maria	Scodie Mountains	8/6/2006
Snow plant	Maria	Piute Lookout	7/10/2006
Sierra stonecrop	Maria	Scodie Mountains	6/30/2006

Sierra daisy	Maria	Alaska Flat	5/16/2006
Large-leaved lupine	Maria	Piute Lookout	7/3/2006
Hoary buckwheat	Maria	Puerto del Suelo	8/24/2006
Sierra angelica	Maria	Grouse Meadow	5/19/2006
Alpine columbine	Maria	Chula Vista Campground	8/28/2006
Water groundsel	Maria	Piute Lookout	5/19/2006
Kings sandwort	Maria	Don Levy Mine	6/1/2006
Woolly sunflower	Maria	Don Levy Mine	7/23/2006
One-sided wintergreen	Maria	Frog Meadows Campground	6/11/2006
Red mountain heather	Maria	Puerto del Suelo	8/14/2006
Purple penstemon	Maria	Bright Star Mine	5/23/2006
Fireweed	Maria	Cerro Noroeste	5/29/2006
Tinkers penny	Maria	Scodie Mountains	7/14/2006
Yellow-and-white monkeyflower	Maria	Burton Mill	6/7/2006
Lovage	Maria	Burton Mill	5/14/2006
Broad-seeded rock-cress	Maria	Cerro Noroeste	4/2/2006
Primrose monkeyflower	Maria	Don Levy Mine	6/12/2006
Cow parsnip	Maria	Scodie Mountains	6/5/2006
Ithuriels spear	Maria	Burton Mill	6/26/2006
Death camas	Maria	Inspiration Point	6/7/2006
Sierra stonecrop	Maria	Inspiration Point	6/16/2006
Sheltons violet	Maria	KBAK-TV	7/6/2006
Pale owls clover	Maria	Scodie Mountains	6/12/2006
Showy Jacobs ladder	Maria	Burton Mill	8/22/2006
Showy milkweed	Maria	Piute Lookout	5/30/2006
Oak violet	Maria	Steve Spring	6/28/2006
Douglas dustymaiden	Maria	Burton Mill	4/14/2006
Canyon dudleya	Maria	Sawtooth Peak	5/8/2006
One-seeded pussy paws	Maria	The George Lodge	6/21/2006
Varied-leaved jewelflower	Maria	Covington Mountain	4/16/2006
Woodland star	Maria	Liebel Peak	5/8/2006
Leopard lily	Maria	Scodie Mountains	6/2/2006
Bridges gilia	Maria	Don Levy Mine	7/18/2006
Torreys lomatium	Maria	Piute Peak	7/5/2006
Alpine penstemon	Maria	Inspiration Point	7/16/2006
Rangers buttons	Maria	Alaska Flat	8/11/2006
Doves-foot geranium	Maria	Chula Vista Campground	6/6/2006
Butter and eggs	Maria	Scodie Mountains	5/20/2006
Globe gilia	Maria	Moreland Mill	5/1/2006
Large false Solomons seal	Maria	Brown Meadow	5/10/2006
Hoary buckwheat	Maria	Scodie Mountains	7/26/2006

Alpine columbine	Donna	Chula Vista Campground	7/3/2006
California flannelbush	Donna	Piute Lookout	9/1/2006
Pale owls clover	Donna	San Emigdio Mountain	4/20/2006
Ithuriels spear	Donna	Piute Lookout	4/30/2006
Primrose monkeyflower	Donna	Breckenridge Mountain	8/23/2006
Kings sandwort	Donna	Frog Meadows Campground	6/27/2006
Sheltons violet	Donna	Piute Lookout	9/24/2006
Sierra angelica	Donna	Puerto del Suelo	6/16/2006
Alpine sheep sorrel	Donna	Sorrell Peak	6/16/2006
Showy Jacobs ladder	Donna	Skinner Peak	7/13/2006
Cow parsnip	Donna	Alaska Flat	6/21/2006
Doves-foot geranium	Donna	Puerto del Suelo	6/8/2006
Ithuriels spear	Donna	Piute Lookout	8/4/2006
Globe gilia	Donna	Scodie Mountains	9/14/2006
Primrose monkeyflower	Donna	Tecuya Mountain	7/19/2006
California flannelbush	Donna	Scodie Mountains	5/21/2006
Broad-seeded rock-cress	Donna	Piute Lookout	5/16/2006
Death camas	Donna	Don Levy Mine	8/11/2006
Rangers buttons	Donna	Double Mountain	7/7/2006
Sierra stonecrop	Donna	Double Mountain	5/1/2006
Sheltons violet	Donna	Don Levy Mine	6/18/2006
Sierra Nevada rush	Donna	Sorrell Peak	5/20/2006
Showy Jacobs ladder	Donna	Scodie Mountains	7/19/2006
Sheltons violet	Brad	Piute Spring	6/5/2006
California flannelbush	Brad	Scodie Mountains	7/10/2006
Douglas dustymaiden	Brad	Chula Vista Campground	7/9/2006
Douglas dustymaiden	Jennifer	Double Mountain	11/28/2008
Douglas dustymaiden	Brad	Shirley Peak	8/18/2007
Douglas dustymaiden	Donna	Grouse Meadow	11/28/2011
Douglas dustymaiden	Maria	Grouse Meadow	8/16/2014
Douglas dustymaiden	Joe	Piute Peak	2/17/2007

Result 3:

NAME	MEMBERSINCE	NUMSIGHTINGS
Joe	null	1

Task 3)

Program Code:

```
CREATE TRIGGER FlowerName
```

```
BEFORE INSERT ON SIGHTINGS
```

```
WHEN ((SELECT NEW.name FROM SIGHTINGS) IN (SELECT FLOWERS.genus || " " ||  
FLOWERS.species FROM FLOWERS))
```

```

BEGIN
  INSERT INTO SIGHTINGS(name, person, location, sighted)
  VALUES
  ((SELECT FLOWERS.comname
  FROM FLOWERS
  WHERE (FLOWERS.genus || " " || FLOWERS.species) = NEW.name), NEW.person,
  NEW.location, NEW.sighted);
  SELECT RAISE (FAIL, 'Error: Latin name of flower detected, converted to common name.');
```

END;

Test Code 1:

```

INSERT INTO SIGHTINGS VALUES
  ("Sky pilot", "Person X", "Grouse Meadow", "2006-08-18");
INSERT INTO SIGHTINGS VALUES
  ("Hoar buckwheat", "Person X", "Grouse Meadow", "2006-08-18");
INSERT INTO SIGHTINGS VALUES
  ("Zigadenus venenosus", "Person X", "Grouse Meadow", "2006-08-18");
INSERT INTO SIGHTINGS VALUES
  ("Carex limosa", "Person Y", "Grouse Meadow", "2006-08-18");
INSERT INTO SIGHTINGS VALUES
  ("Draperia", "Person Z", "Grouse Meadow", "2006-08-18");
```

Test Code 2:

```

SELECT *
FROM SIGHTINGS
WHERE PERSON = "Person X"
OR PERSON = "Person Y"
OR PERSON = "Person Z";
```

Result 1:

```

INSERT INTO SIGHTINGS VALUES
  ("Sky pilot", "Person X", "Grouse Meadow", "2006-08-18");
(Empty/ No output for the Insert.)

INSERT INTO SIGHTINGS VALUES
  ("Hoar buckwheat", "Person X", "Grouse Meadow", "2006-08-18");
(Empty/ No output for the Insert.)

INSERT INTO SIGHTINGS VALUES
  ("Zigadenus venenosus", "Person X", "Grouse Meadow", "2006-08-18");
Error: Latin name of flower detected, converted to common name.

INSERT INTO SIGHTINGS VALUES
  ("Carex limosa", "Person Y", "Grouse Meadow", "2006-08-18");
Error: Latin name of flower detected, converted to common name.

INSERT INTO SIGHTINGS VALUES
```

("Draperia", "Person Z", "Grouse Meadow", "2006-08-18");
(Empty/ No output for the Insert.)

Result 2:

NAME	PERSON	LOCATION	SIGHTED
Sky pilot	Person X	Grouse Meadow	8/18/2006
Hoar buckwheat	Person X	Grouse Meadow	8/18/2006
Death camas	Person X	Grouse Meadow	8/18/2006
Mud sedge	Person Y	Grouse Meadow	8/18/2006
Draperia	Person Z	Grouse Meadow	8/18/2006