**CREATE** **TABLE** Employee (

EmployeeID INTEGER **PRIMARY** **KEY**,

Name VARCHAR(255) **NOT** **NULL**,

**Position** VARCHAR(255) **NOT** **NULL**,

Salary REAL **NOT** **NULL**,

Remarks VARCHAR(255)

) ENGINE = InnoDB;

**CREATE** **TABLE** Planet (

PlanetID INTEGER **PRIMARY** **KEY**,

Name VARCHAR(255) **NOT** **NULL**,

Coordinates REAL **NOT** **NULL**

) ENGINE = InnoDB;

**CREATE** **TABLE** Shipment (

ShipmentID INTEGER **PRIMARY** **KEY**,

Date DATE,

Manager INTEGER **NOT** **NULL**,

Planet INTEGER **NOT** **NULL**,

**FOREIGN** **KEY** (Manager) **REFERENCES** Employee(EmployeeID),

**FOREIGN** **KEY** (Planet) **REFERENCES** Planet(PlanetID)

) ENGINE = InnoDB;

**CREATE** **TABLE** Has\_Clearance (

Employee INTEGER **NOT** **NULL**,

Planet INTEGER **NOT** **NULL**,

**Level** INTEGER **NOT** **NULL**,

**PRIMARY** **KEY**(Employee, Planet),

**FOREIGN** **KEY** (Employee) **REFERENCES** Employee(EmployeeID),

**FOREIGN** **KEY** (Planet) **REFERENCES** Planet(PlanetID)

) ENGINE = InnoDB;

**CREATE** **TABLE** Client (

AccountNumber INTEGER **PRIMARY** **KEY**,

Name VARCHAR(255) **NOT** **NULL**

) ENGINE = InnoDB;

**CREATE** **TABLE** Package (

Shipment INTEGER **NOT** **NULL**,

PackageNumber INTEGER **NOT** **NULL**,

Contents VARCHAR(255) **NOT** **NULL**,

Weight REAL **NOT** **NULL**,

Sender INTEGER **NOT** **NULL**,

Recipient INTEGER **NOT** **NULL**,

**PRIMARY** **KEY**(Shipment, PackageNumber),

**FOREIGN** **KEY** (Shipment) **REFERENCES** Shipment(ShipmentID),

**FOREIGN** **KEY** (Sender) **REFERENCES** Client(AccountNumber),

**FOREIGN** **KEY** (Recipient) **REFERENCES** Client(AccountNumber)

) ENGINE = InnoDB;

Sample dataset

INSERT INTO Client VALUES(1, 'Zapp Brannigan');

INSERT INTO Client VALUES(2, "Al Gore's Head");

INSERT INTO Client VALUES(3, 'Barbados Slim');

INSERT INTO Client VALUES(4, 'Ogden Wernstrom');

INSERT INTO Client VALUES(5, 'Leo Wong');

INSERT INTO Client VALUES(6, 'Lrrr');

INSERT INTO Client VALUES(7, 'John Zoidberg');

INSERT INTO Client VALUES(8, 'John Zoidfarb');

INSERT INTO Client VALUES(9, 'Morbo');

INSERT INTO Client VALUES(10, 'Judge John Whitey');

INSERT INTO Client VALUES(11, 'Calculon');

INSERT INTO Employee VALUES(1, 'Phillip J. Fry', 'Delivery boy', 7500.0, 'Not to be confused with the Philip J. Fry from Hovering Squid World 97a');

INSERT INTO Employee VALUES(2, 'Turanga Leela', 'Captain', 10000.0, NULL);

INSERT INTO Employee VALUES(3, 'Bender Bending Rodriguez', 'Robot', 7500.0, NULL);

INSERT INTO Employee VALUES(4, 'Hubert J. Farnsworth', 'CEO', 20000.0, NULL);

INSERT INTO Employee VALUES(5, 'John A. Zoidberg', 'Physician', 25.0, NULL);

INSERT INTO Employee VALUES(6, 'Amy Wong', 'Intern', 5000.0, NULL);

INSERT INTO Employee VALUES(7, 'Hermes Conrad', 'Bureaucrat', 10000.0, NULL);

INSERT INTO Employee VALUES(8, 'Scruffy Scruffington', 'Janitor', 5000.0, NULL);

INSERT INTO Planet VALUES(1, 'Omicron Persei 8', 89475345.3545);

INSERT INTO Planet VALUES(2, 'Decapod X', 65498463216.3466);

INSERT INTO Planet VALUES(3, 'Mars', 32435021.65468);

INSERT INTO Planet VALUES(4, 'Omega III', 98432121.5464);

INSERT INTO Planet VALUES(5, 'Tarantulon VI', 849842198.354654);

INSERT INTO Planet VALUES(6, 'Cannibalon', 654321987.21654);

INSERT INTO Planet VALUES(7, 'DogDoo VII', 65498721354.688);

INSERT INTO Planet VALUES(8, 'Nintenduu 64', 6543219894.1654);

INSERT INTO Planet VALUES(9, 'Amazonia', 65432135979.6547);

INSERT INTO Has\_Clearance VALUES(1, 1, 2);

INSERT INTO Has\_Clearance VALUES(1, 2, 3);

INSERT INTO Has\_Clearance VALUES(2, 3, 2);

INSERT INTO Has\_Clearance VALUES(2, 4, 4);

INSERT INTO Has\_Clearance VALUES(3, 5, 2);

INSERT INTO Has\_Clearance VALUES(3, 6, 4);

INSERT INTO Has\_Clearance VALUES(4, 7, 1);

INSERT INTO Shipment VALUES(1, '3004/05/11', 1, 1);

INSERT INTO Shipment VALUES(2, '3004/05/11', 1, 2);

INSERT INTO Shipment VALUES(3, NULL, 2, 3);

INSERT INTO Shipment VALUES(4, NULL, 2, 4);

INSERT INTO Shipment VALUES(5, NULL, 7, 5);

INSERT INTO Package VALUES(1, 1, 'Undeclared', 1.5, 1, 2);

INSERT INTO Package VALUES(2, 1, 'Undeclared', 10.0, 2, 3);

INSERT INTO Package VALUES(2, 2, 'A bucket of krill', 2.0, 8, 7);

INSERT INTO Package VALUES(3, 1, 'Undeclared', 15.0, 3, 4);

INSERT INTO Package VALUES(3, 2, 'Undeclared', 3.0, 5, 1);

INSERT INTO Package VALUES(3, 3, 'Undeclared', 7.0, 2, 3);

INSERT INTO Package VALUES(4, 1, 'Undeclared', 5.0, 4, 5);

INSERT INTO Package VALUES(4, 2, 'Undeclared', 27.0, 1, 2);

INSERT INTO Package VALUES(5, 1, 'Undeclared', 100.0, 5, 1);

Exercises

The first several exercises build on each other and illustrate the use of subqueries.

Who received a 1.5kg package?

https://upload.wikimedia.org/wikipedia/commons/1/10/MediaWiki_Vector_skin_action_arrow.pngClick to see solution

**SELECT** Client.Name

**FROM** Client **JOIN** Package

**ON** Client.AccountNumber = Package.Recipient

**WHERE** Package.weight = 1.5;

*--- The result is "Al Gore's Head".*

What is the total weight of all the packages that he sent?

https://upload.wikimedia.org/wikipedia/commons/1/10/MediaWiki_Vector_skin_action_arrow.pngClick to see solution

**SELECT** **SUM**(p.weight)

**FROM** Client **AS** **c**

**JOIN** Package **as** P

**ON** **c**.AccountNumber = p.Sender

**WHERE** **c**.Name = "Al Gore's Head";

*--- Or the entire the result from the first exercise could*

*--- be embedded explicitly as a subquery, like the following,*

*--- which also returns the number of the packages.*

**SELECT** **SUM**(p.weight), **COUNT**(1)

**FROM** Client **AS** **c**

**JOIN** Package **as** P

**ON** **c**.AccountNumber = p.Sender

**WHERE** **c**.AccountNumber = (

**SELECT** Client.AccountNumber

**FROM** Client **JOIN** Package

**ON** Client.AccountNumber = Package.Recipient

**WHERE** Package.weight = 1.5

);

*--- The answer is 17.0kg in two packages.*