

**CREATE TABLE
statements for the
ZAGI database**

```
CREATE TABLE vendor
(   vendorid          CHAR(2)          NOT NULL,
    vendorname        VARCHAR(25)      NOT NULL,
    PRIMARY KEY (vendorid) );

CREATE TABLE category
(   categoryid        CHAR(2)          NOT NULL,
    categoryname      VARCHAR(25)      NOT NULL,
    PRIMARY KEY (categoryid) );

CREATE TABLE product
(   productid         CHAR(3)          NOT NULL,
    productname       VARCHAR(25)      NOT NULL,
    productprice      NUMERIC (7,2)    NOT NULL,
    vendorid          CHAR(2)          NOT NULL,
    categoryid        CHAR(2)          NOT NULL,
    PRIMARY KEY (productid),
    FOREIGN KEY (vendorid) REFERENCES vendor(vendorid),
    FOREIGN KEY (categoryid) REFERENCES category(categoryid) );

CREATE TABLE region
(   regionid          CHAR              NOT NULL,
    regionname        VARCHAR(25)       NOT NULL,
    PRIMARY KEY (regionid) );

CREATE TABLE store
(   storeid           VARCHAR(3)        NOT NULL,
    storezip          CHAR(5)           NOT NULL,
    regionid          CHAR              NOT NULL,
    PRIMARY KEY (storeid),
    FOREIGN KEY (regionid) REFERENCES region(regionid) );

CREATE TABLE customer
(   customerid        CHAR(7)          NOT NULL,
    customername      VARCHAR(15)       NOT NULL,
    customerzip       CHAR(5)           NOT NULL,
    PRIMARY KEY (customerid) );

CREATE TABLE salestransaction
(   tid               VARCHAR(8)        NOT NULL,
    customerid        CHAR(7)          NOT NULL,
    storeid           VARCHAR(3)        NOT NULL,
    tdate             DATE              NOT NULL,
    PRIMARY KEY (tid),
    FOREIGN KEY (customerid) REFERENCES customer(customerid),
    FOREIGN KEY (storeid) REFERENCES store(storeid));

CREATE TABLE soldvia
(   productid         CHAR(3)          NOT NULL,
    tid               VARCHAR(8)        NOT NULL,
    noofitems        INT               NOT NULL,
    PRIMARY KEY (productid, tid),
    FOREIGN KEY (productid) REFERENCES product(productid),
    FOREIGN KEY (tid) REFERENCES salestransaction(tid) );
```

**DROP TABLE sequence
ZAGI database – VALID:**

```
DROP TABLE soldvia;  
DROP TABLE salestransaction;  
DROP TABLE store;  
DROP TABLE product;  
DROP TABLE vendor;  
DROP TABLE region;  
DROP TABLE category;  
DROP TABLE customer;
```

**INSERT INTO
statements for the
ZAGI database**

```
INSERT INTO vendor VALUES ('PG','Pacifica Gear');  
INSERT INTO vendor VALUES ('MK','Mountain King');  
  
INSERT INTO category VALUES ('CP','Camping');  
INSERT INTO category VALUES ('FW','Footwear');  
  
INSERT INTO product VALUES ('1X1','Zzz Bag',100,'PG','CP');  
INSERT INTO product VALUES ('2X2','Easy Boot',70,'MK','FW');  
INSERT INTO product VALUES ('3X3','Cosy Sock',15,'MK','FW');  
INSERT INTO product VALUES ('4X4','Dura Boot',90,'PG','FW');  
INSERT INTO product VALUES ('5X5','Tiny Tent',150,'MK','CP');  
INSERT INTO product VALUES ('6X6','Biggy Tent',250,'MK','CP');  
  
INSERT INTO region VALUES ('C','Chicagoland');  
INSERT INTO region VALUES ('T','Tristate');  
  
INSERT INTO store VALUES ('S1','60600','C');  
INSERT INTO store VALUES ('S2','60605','C');  
INSERT INTO store VALUES ('S3','35400','T');  
  
INSERT INTO customer VALUES ('1-2-333','Tina','60137');  
INSERT INTO customer VALUES ('2-3-444','Tony','60611');  
INSERT INTO customer VALUES ('3-4-555','Pam','35401');  
  
INSERT INTO salestransaction VALUES ('T111','1-2-333','S1','2013-01-01');  
INSERT INTO salestransaction VALUES ('T222','2-3-444','S2','2013-01-01');  
INSERT INTO salestransaction VALUES ('T333','1-2-333','S3','2013-01-02');  
INSERT INTO salestransaction VALUES ('T444','3-4-555','S3','2013-01-02');  
INSERT INTO salestransaction VALUES ('T555','2-3-444','S3','2013-01-02');  
  
INSERT INTO soldvia VALUES ('1X1','T111',1);  
INSERT INTO soldvia VALUES ('2X2','T222',1);  
INSERT INTO soldvia VALUES ('3X3','T333',5);  
INSERT INTO soldvia VALUES ('1X1','T333',1);  
INSERT INTO soldvia VALUES ('4X4','T444',1);  
INSERT INTO soldvia VALUES ('2X2','T444',2);  
INSERT INTO soldvia VALUES ('4X4','T555',4);  
INSERT INTO soldvia VALUES ('5X5','T555',2);  
INSERT INTO soldvia VALUES ('6X6','T555',1);
```

Query 1:	SELECT	productid, productname, productprice, vendorid, categoryid
	FROM	product;
Query 1a:	SELECT	*
	FROM	product;
Query 2:	SELECT	productname, productid, vendorid, categoryid, productprice
	FROM	product;
Query 3:	SELECT	productid, productprice
	FROM	product;
Query 3a:	SELECT	productid, productprice, productprice * 1.1
	FROM	product;
Query 4:	SELECT	productid, productname, vendorid, productprice
	FROM	product
	WHERE	productprice > 100;
Query 5:	SELECT	productid, productname, vendorid, productprice
	FROM	product
	WHERE	productprice <= 110 AND categoryid = 'FW';
Query 6:	SELECT	vendorid
	FROM	product;
Query 7:	SELECT DISTINCT	vendorid
	FROM	product;
Query 8:	SELECT	productid, productname, categoryid, productprice
	FROM	product
	WHERE	categoryid = 'FW'
	ORDER BY	productprice;
Query 9:	SELECT	productid, productname, categoryid, productprice
	FROM	product
	WHERE	categoryid = 'FW'
	ORDER BY	productprice DESC;
Query 10:	SELECT	productid, productname, categoryid, productprice
	FROM	product
	ORDER BY	categoryid, productprice;
Query 11:	SELECT	*
	FROM	product
	WHERE	productname LIKE '%Boot%';

Query 12:	SELECT FROM	AVG(productprice) product;
Query 13:	SELECT FROM	COUNT(*) product;
Query 14:	SELECT FROM	COUNT(DISTINCT vendorid) product;
Query 15:	SELECT FROM WHERE	COUNT(*), AVG(productprice), MIN(productprice), MAX(productprice) product categoryid = 'CP';
Query 16:	SELECT FROM GROUP BY	vendorid, COUNT(*), AVG(productprice) product vendorid;
Query 17:	SELECT FROM GROUP BY	COUNT(*), AVG(productprice) product vendorid;
Query 18:	SELECT FROM WHERE GROUP BY	vendorid, COUNT(*) product productprice >= 100 vendorid;
Query 19:	SELECT FROM GROUP BY	vendorid, categoryid, COUNT(*), AVG(productprice) product vendorid, categoryid;
Query 20:	SELECT FROM GROUP BY	productid, SUM(noofitems) soldvia productid;
Query 21:	SELECT FROM GROUP BY	productid, COUNT(tid) soldvia productid;
Query 22:	SELECT FROM GROUP BY HAVING	vendorid, categoryid, COUNT(*), AVG(productprice) product vendorid, categoryid COUNT(*) > 1;
Query 23:	SELECT FROM WHERE GROUP BY HAVING	vendorid, categoryid, COUNT(*), AVG(productprice) product productprice >= 50 vendorid, categoryid COUNT(*) > 1;

Query 24:	<pre> SELECT productid, SUM(noofitems) FROM soldvia GROUP BY productid HAVING SUM(noofitems) > 3; </pre>
Query 25:	<pre> SELECT productid, COUNT(tid) FROM soldvia GROUP BY productid HAVING COUNT(tid) > 1; </pre>
Query 26:	<pre> SELECT productid FROM soldvia GROUP BY productid HAVING SUM(noofitems) > 3; </pre>
Query 27:	<pre> SELECT productid FROM soldvia GROUP BY productid HAVING COUNT(tid) > 1; </pre>
Query 28:	<pre> SELECT productid, productname, productprice FROM product WHERE productprice < (SELECT AVG(productprice) FROM product); </pre>
Query 29:	<pre> SELECT productid, productname, productprice FROM product WHERE productid IN (SELECT productid FROM soldvia GROUP BY productid HAVING SUM(noofitems) > 3); </pre>
Query 30:	<pre> SELECT productid, productname, productprice FROM product WHERE productid IN (SELECT productid FROM soldvia GROUP BY productid HAVING COUNT(tid) > 1); </pre>
Query 31:	<pre> SELECT productid, productname, vendorname, productprice FROM product, vendor WHERE product.vendorid = vendor.vendorid; </pre>
Query 32:	<pre> SELECT productid, productname, vendorname, productprice FROM product, vendor; </pre>
Query 33:	<pre> SELECT * FROM product, vendor; </pre>
Query 34:	<pre> SELECT * FROM product, vendor WHERE product.vendorid = vendor.vendorid; </pre>

Query 31a:

```

SELECT      p.productid, p.productname, v.vendorname,
            p.productprice
FROM        product p, vendor v
WHERE       p.vendorid = v.vendorid;

```

Query 31b:

```

SELECT      p.productid pid, p.productname pname,
            v.vendorname vname, p.productprice pprice
FROM        product p, vendor v
WHERE       p.vendorid = v.vendorid;

```

Query 31c:

```

SELECT      p.productid AS pid, p.productname AS pname,
            v.vendorname AS vname, p.productprice AS pprice
FROM        product p, vendor v
WHERE       p.vendorid = v.vendorid;

```

Query 35:

```

SELECT      t.tid, t.tdate, p.productname, sv.noofitems AS
            quantity, (sv.noofitems * p.productprice) AS
            amount
FROM        product p, salestransaction t, soldvia sv
WHERE       sv.productid = p.productid AND sv.tid = t.tid
ORDER BY   t.tid;

```

Alter Statement 1:

```

ALTER TABLE vendor ADD
(      vendorphonenumber          CHAR(11) );

```

Alter Statement 2:

```

ALTER TABLE vendor DROP
vendorphonenumber;

```

Insert Statement 1:

```

INSERT INTO product VALUES ('7X7', 'Airy Sock', 1000, 'MK', 'CP');

```

Update Statement 1:

```

UPDATE      product
SET         productprice = 10
WHERE       productid = '7X7';

```

Alter Statement 3:

```

ALTER TABLE product ADD
(      discount          CHAR(11) );

```

Update Statement 2:

```

UPDATE      product
SET         discount = 0.2;

```

Update Statement 3:

```

UPDATE      product
SET         discount = 0.3
WHERE       vendorid = 'MK';

```

Alter Statement 4:

```

ALTER TABLE product DROP
discount;

```

Delete Statement 1:

```

DELETE FROM product
WHERE      productid = '7X7';

```

**Create View
Statement 1:**

```
CREATE VIEW products_more_than_3_sold AS
SELECT productid, productname, productprice
FROM product
WHERE productid IN (SELECT productid
                    FROM soldvia
                    GROUP BY productid
                    HAVING SUM(noofitems) > 3);
```

Query 29a:

```
SELECT *
FROM products_more_than_3_sold;
```

**Create View
Statement 2:**

```
CREATE VIEW products_in_multiple_trnsc AS
SELECT productid, productname, productprice
FROM product
WHERE productid IN (SELECT productid
                    FROM soldvia
                    GROUP BY productid
                    HAVING COUNT(tid) > 1);
```

Query 30a:

```
SELECT *
FROM products_in_multiple_trnsc;
```

**Drop View
Statement 1:**

```
DROP VIEW products_more_than_3_sold;
```

**Drop View
Statement 2:**

```
DROP VIEW products_in_multiple_trnsc;
```

Query 36:

```
SELECT *
FROM products_more_than_3_sold
UNION
SELECT *
FROM products_in_multiple_trnsc;
```

Query 37:

```
SELECT *
FROM products_more_than_3_sold INNER JOIN
products_in_multiple_trnsc
USING (productid, productname, productprice);
```

Query 38:

```
SELECT DISTINCT *
FROM products_more_than_3_sold
WHERE (productid, productname, productprice) NOT IN
(SELECT * FROM products_in_multiple_trnsc);
```

OR

```
SELECT DISTINCT *
FROM products_more_than_3_sold LEFT JOIN
products_in_multiple_trnsc USING
(productid, productname, productprice)
WHERE products_in_multiple_trnsc.productid IS NULL;
```

**CREATE TABLE
statements for the
HAFH database**

```
CREATE TABLE manager
(
    managerid          CHAR(4)          NOT NULL,
    mfname             VARCHAR(15)       NOT NULL,
    mlname             VARCHAR(15)       NOT NULL,
    mbdate             DATE              NOT NULL,
    msalary            NUMERIC (9,2)     NOT NULL,
    mbonus             NUMERIC (9,2),
    mresbuildingid    CHAR(3),
    PRIMARY KEY (managerid) );

CREATE TABLE managerphone
(
    managerid          CHAR(4)          NOT NULL,
    mphone             CHAR(11)         NOT NULL,
    PRIMARY KEY (managerid, mphone),
    FOREIGN KEY (managerid) REFERENCES manager(managerid) );

CREATE TABLE building
(
    buildingid         CHAR(3)          NOT NULL,
    bnooffloors        INT              NOT NULL,
    bmanagerid         CHAR(4)          NOT NULL,
    PRIMARY KEY (buildingid),
    FOREIGN KEY (bmanagerid) REFERENCES
    manager(managerid) );

CREATE TABLE inspector
(
    insid              CHAR(3)          NOT NULL,
    insname            VARCHAR(15)       NOT NULL,
    PRIMARY KEY (insid) );

CREATE TABLE inspecting
(
    insid              CHAR(3)          NOT NULL,
    buildingid         CHAR(3)          NOT NULL,
    datelast           DATE              NOT NULL,
    datenext           DATE              NOT NULL,
    PRIMARY KEY (insid, buildingid),
    FOREIGN KEY (insid) REFERENCES inspector(insid),
    FOREIGN KEY (buildingid) REFERENCES
    building(buildingid) );

CREATE TABLE corpclient
(
    ccid               CHAR(4)          NOT NULL,
    ccname             VARCHAR(25)       NOT NULL,
    ccindustry         VARCHAR(25)       NOT NULL,
    cclocation         VARCHAR(25)       NOT NULL,
    ccidreferredby    CHAR(4),
    PRIMARY KEY (ccid),
    UNIQUE (ccname),
    FOREIGN KEY (ccidreferredby) REFERENCES
    corpclient(ccid) );
```



```

CREATE TABLE apartment
(
    buildingid          CHAR(3)          NOT NULL,
    aptno              CHAR(5)          NOT NULL,
    anoofbedrooms      INT              NOT NULL,
    ccid               CHAR(4),
    PRIMARY KEY (buildingid, aptno),
    FOREIGN KEY (buildingid) REFERENCES
    building(buildingid),
    FOREIGN KEY (ccid) REFERENCES corpclient(ccid) );

CREATE TABLE staffmember
(
    smemberid         CHAR(4)          NOT NULL,
    smembername       VARCHAR(15)     NOT NULL,
    PRIMARY KEY (smemberid) );

CREATE TABLE cleaning
(
    buildingid        CHAR(3)          NOT NULL,
    aptno            CHAR(5)          NOT NULL,
    smemberid        CHAR(4)          NOT NULL,
    CONSTRAINT cleaningpk PRIMARY KEY (buildingid, aptno,
    smemberid ),
    CONSTRAINT cleaningfk FOREIGN KEY (buildingid, aptno)
    REFERENCES apartment(buildingid, aptno) );

```

**INSERT INTO
statements for the
HAFH database**

```

INSERT INTO manager VALUES ('M12', 'Boris', 'Grant',
    '1980-06-20', 60000, null, null);
INSERT INTO manager VALUES ('M23', 'Austin', 'Lee',
    '1975-10-30', 50000, 5000, null);
INSERT INTO manager VALUES ('M34', 'George', 'Sherman',
    '1976-01-11', 52000, 2000, null);

INSERT INTO managerphone VALUES ('M12', '555-2222');
INSERT INTO managerphone VALUES ('M12', '555-3232');
INSERT INTO managerphone VALUES ('M23', '555-9988');
INSERT INTO managerphone VALUES ('M34', '555-9999');

INSERT INTO building VALUES ('B1', '5', 'M12');
INSERT INTO building VALUES ('B2', '6', 'M23');
INSERT INTO building VALUES ('B3', '4', 'M23');
INSERT INTO building VALUES ('B4', '4', 'M34');

INSERT INTO inspector VALUES ('I11', 'Jane');
INSERT INTO inspector VALUES ('I22', 'Niko');
INSERT INTO inspector VALUES ('I33', 'Mick');

INSERT INTO inspecting VALUES
    ('I11', 'B1', '2012-05-15', '2013-05-14');
INSERT INTO inspecting VALUES
    ('I11', 'B2', '2013-02-17', '2013-05-17');
INSERT INTO inspecting VALUES
    ('I22', 'B2', '2013-02-17', '2013-05-17');
INSERT INTO inspecting VALUES
    ('I22', 'B3', '2013-01-11', '2014-01-11');
INSERT INTO inspecting VALUES
    ('I33', 'B3', '2013-01-12', '2014-01-12');
INSERT INTO inspecting VALUES
    ('I33', 'B4', '2013-01-11', '2014-01-11');

```

```

INSERT INTO corpclient VALUES ('C111', 'BlingNotes', 'Music',
                                'Chicago', null);
INSERT INTO corpclient VALUES ('C222', 'SkyJet', 'Airline',
                                'Oak Park', 'C111');
INSERT INTO corpclient VALUES ('C777', 'WindyCT', 'Music',
                                'Chicago', 'C222');
INSERT INTO corpclient VALUES ('C888', 'SouthAlps', 'Sports',
                                'Rosemont', 'C777');

INSERT INTO apartment VALUES ('B1', '21', 1, 'C111');
INSERT INTO apartment VALUES ('B1', '41', 1, null);
INSERT INTO apartment VALUES ('B2', '11', 2, 'C222');
INSERT INTO apartment VALUES ('B2', '31', 2, null);
INSERT INTO apartment VALUES ('B3', '11', 2, 'C777');
INSERT INTO apartment VALUES ('B4', '11', 2, 'C777');

INSERT INTO staffmember VALUES ('5432', 'Brian');
INSERT INTO staffmember VALUES ('9876', 'Boris');
INSERT INTO staffmember VALUES ('7652', 'Caroline');

INSERT INTO cleaning VALUES ('B1', '21', '5432');
INSERT INTO cleaning VALUES ('B1', '41', '9876');
INSERT INTO cleaning VALUES ('B2', '31', '5432');
INSERT INTO cleaning VALUES ('B2', '11', '9876');
INSERT INTO cleaning VALUES ('B3', '11', '5432');
INSERT INTO cleaning VALUES ('B4', '11', '7652');

```

Alter Statement 5:

```

ALTER TABLE      manager
ADD CONSTRAINT    fkresidesin
FOREIGN KEY (mresbuildingid) REFERENCES building(buildingid);

```

Update Statement 3:

```

UPDATE      manager
SET         mresbuildingid = 'B1'
WHERE      managerid = 'M12';

```

Update Statement 4:

```

UPDATE      manager
SET         mresbuildingid = 'B2'
WHERE      managerid = 'M23';

```

Update Statement 5:

```

UPDATE      manager
SET         mresbuildingid = 'B4'
WHERE      managerid = 'M34';

```

Alter Statement 6:

```

ALTER TABLE      manager
MODIFY            mresbuildingid      CHAR(3)      NOT NULL;

```

**Drop Table Sequence
HAFH Database –
First seven tables:**

```

DROP TABLE      cleaning;
DROP TABLE      staffmember;
DROP TABLE      apartment;
DROP TABLE      corpclient;
DROP TABLE      inspecting;
DROP TABLE      inspector;
DROP TABLE      managerphone;

```

Alter Statement 7:

```
ALTER TABLE manager
DROP FOREIGN KEY fkresidesin;
```

**Drop Table Sequence
HAFH Database –
Last Two Tables
(a) & (b):**

```
DROP TABLE building;
DROP TABLE manager;
```

```
DROP TABLE manager;
DROP TABLE building;
```

Query 39:

```
SELECT c.ccname AS client, r.ccname AS recommender
FROM corpclient c, corpclient r
WHERE r.ccid = c.ccidreferredby;
```

Query 40:

```
SELECT a.buildingid, a.aptno, c.ccname
FROM apartment a, corpclient c
WHERE a.ccid = c.ccid;
```

Query 41:

```
SELECT a.buildingid, a.aptno, c.ccname
FROM apartment a LEFT OUTER JOIN corpclient c
ON a.ccid = c.ccid;
```

Query 42:

```
SELECT a.buildingid, a.aptno, c.ccname
FROM apartment a RIGHT OUTER JOIN corpclient c
ON a.ccid = c.ccid;
```

Query 43:

```
SELECT a.buildingid, a.aptno, c.ccname
FROM apartment a LEFT JOIN corpclient c
ON a.ccid = c.ccid
UNION
SELECT a.buildingid, a.aptno, c.ccname
FROM apartment a RIGHT JOIN corpclient c
ON a.ccid = c.ccid;
```

Query 44:

```
SELECT m.managerid, m.mfname, m.mlname, s.smemberid
FROM manager m, staffmember s
WHERE m.mfname = s.smembername;
```

Query 45:

```
SELECT *
FROM manager
WHERE mbonus IS NULL;
```

Query 46:

```
SELECT *
FROM building
WHERE EXISTS
(SELECT *
FROM manager
WHERE buildingid = mresbuildingid);
```

Query 47:

```
SELECT      *
FROM        building
WHERE       NOT EXISTS
            (SELECT      *
             FROM        manager
             WHERE       buildingid = mresbuildingid);
```

**Create Table
Statement 1:**

```
CREATE TABLE cleaningdenormalized
(   buildingid      CHAR(3)      NOT NULL,
    aptno           CHAR(5)      NOT NULL,
    smemberid       CHAR(4)      NOT NULL,
    smembername     VARCHAR(15)  NOT NULL,
    PRIMARY KEY (buildingid, aptno, smemberid));
```

Insert Statement 2:

```
INSERT INTO cleaningdenormalized
SELECT      c.buildingid, c.aptno, s.smemberid, s.smembername
FROM        cleaning c, staffmember s
WHERE       c.smemberid = s.smemberid;
```

