

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

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
vendorphonenummer          CHAR(11);

```

Alter Statement 2:

```

ALTER TABLE vendor DROP
vendorphonenummer;
REORG TABLE vendor;

```

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;
REORG TABLE product;

```

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
INTERSECT
SELECT *
FROM products_in_multiple_trnsc;
```

Query 38:

```
SELECT *
FROM products_more_than_3_sold
MINUS
SELECT *
FROM products_in_multiple_trnsc;
```

**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
ALTER            mresbuildingid SET 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 CONSTRAINT fkresidesin; REORG TABLE manager; |
| 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 FULL OUTER 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;
```