

**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','01/Jan/2013');  
INSERT INTO salestransaction VALUES ('T222','2-3-444','S2','01/Jan/2013');  
INSERT INTO salestransaction VALUES ('T333','1-2-333','S3','02/Jan/2013');  
INSERT INTO salestransaction VALUES ('T444','3-4-555','S3','02/Jan/2013');  
INSERT INTO salestransaction VALUES ('T555','2-3-444','S3','02/Jan/2013');  
  
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);
```

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

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

<b>Query 24:</b>	<pre> SELECT      productid, SUM(noofitems) FROM        soldvia GROUP BY   productid HAVING      SUM(noofitems) &gt; 3; </pre>
<b>Query 25:</b>	<pre> SELECT      productid, COUNT(tid) FROM        soldvia GROUP BY   productid HAVING      COUNT(tid) &gt; 1; </pre>
<b>Query 26:</b>	<pre> SELECT      productid FROM        soldvia GROUP BY   productid HAVING      SUM(noofitems) &gt; 3; </pre>
<b>Query 27:</b>	<pre> SELECT      productid FROM        soldvia GROUP BY   productid HAVING      COUNT(tid) &gt; 1; </pre>
<b>Query 28:</b>	<pre> SELECT      productid, productname, productprice FROM        product WHERE       productprice &lt; (SELECT      AVG(productprice)                              FROM        product); </pre>
<b>Query 29:</b>	<pre> SELECT      productid, productname, productprice FROM        product WHERE       productid IN (SELECT      productid                           FROM        soldvia                           GROUP BY   productid                           HAVING      SUM(noofitems) &gt; 3); </pre>
<b>Query 30:</b>	<pre> SELECT      productid, productname, productprice FROM        product WHERE       productid IN (SELECT      productid                           FROM        soldvia                           GROUP BY   productid                           HAVING      COUNT(tid) &gt; 1); </pre>
<b>Query 31:</b>	<pre> SELECT      productid, productname, vendorname, productprice FROM        product, vendor WHERE       product.vendorid = vendor.vendorid; </pre>
<b>Query 32:</b>	<pre> SELECT      productid, productname, vendorname, productprice FROM        product, vendor; </pre>
<b>Query 33:</b>	<pre> SELECT      * FROM        product, vendor; </pre>
<b>Query 34:</b>	<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
vendorphonenummer CHAR(11);

```

**Alter Statement 2:**

```

ALTER TABLE vendor DROP
vendorphonenummer;

```

**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
INTERSECT
SELECT *
FROM products_in_multiple_trnsc;
```

**Query 38:**

```
SELECT *
FROM products_more_than_3_sold
EXCEPT
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',
    '20/Jun/1980', 60000, null, null);
INSERT INTO manager VALUES ('M23', 'Austin', 'Lee',
    '30/Oct/1975', 50000, 5000, null);
INSERT INTO manager VALUES ('M34', 'George', 'Sherman',
    '11/Jan/1976', 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', '15/May/2012', '14/May/2013');
INSERT INTO inspecting VALUES
    ('I11', 'B2', '17/Feb/2013', '17/May/2013');
INSERT INTO inspecting VALUES
    ('I22', 'B2', '17/Feb/2013', '17/May/2013');
INSERT INTO inspecting VALUES
    ('I22', 'B3', '11/Jan/2013', '11/Jan/2014');
INSERT INTO inspecting VALUES
    ('I33', 'B3', '12/Jan/2013', '12/Jan/2014');
INSERT INTO inspecting VALUES
    ('I33', 'B4', '11/Jan/2013', '11/Jan/2014');

```

```

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;
```

**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;
```