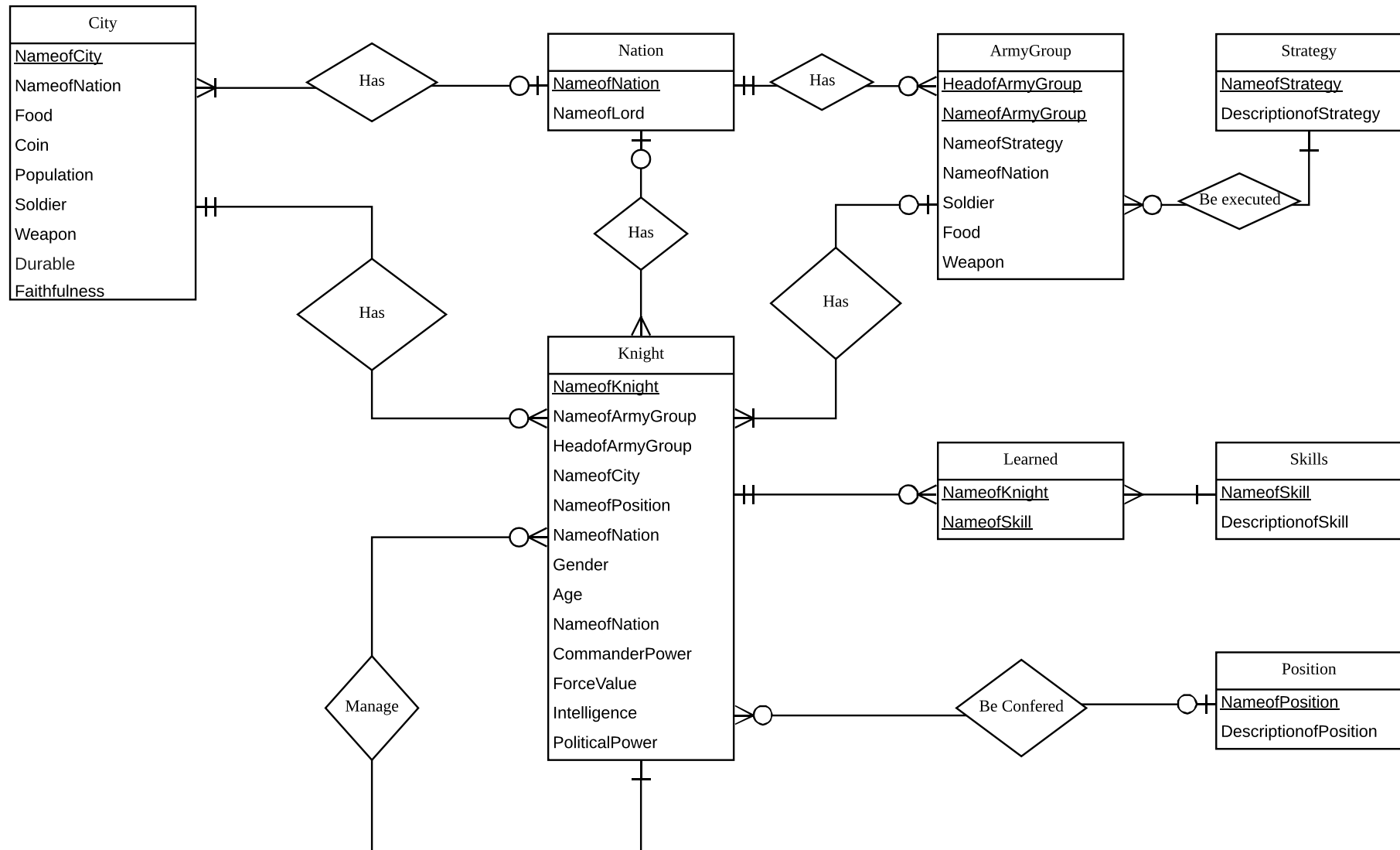


Romance of Three Kingdoms

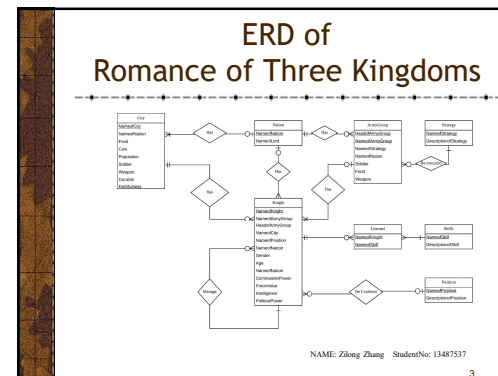




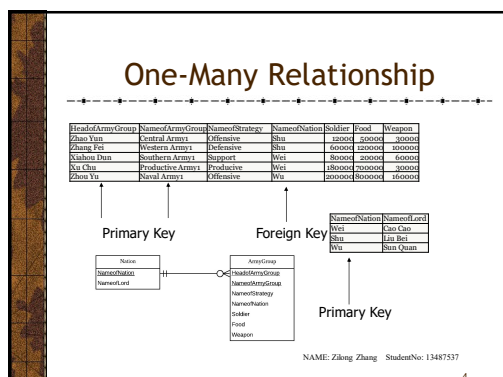
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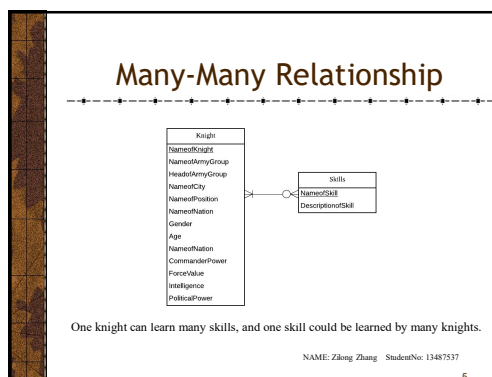
2



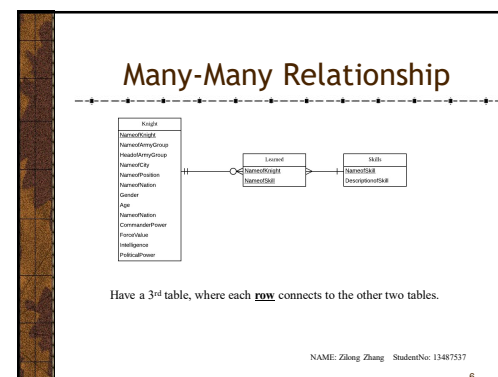
3



4



5



6

Many-Many Relationship

```
SELECT * FROM Learned;
```

nameofknight	nameofskill
Xu Chu	Sneak Attack
Zhao Yun	SpeedUp
Zhang Fei	Alert
Xiahou Dun	Sneak Attack
Zhou Yu	Alert
Cao Cao	SpeedUp
Liu Bei	Alert
Sun Quan	SpeedUp

(8 rows)

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7

A simple query of a single table.

```
SELECT * FROM Nation;
```

nameofnation	nameoflord
Wei	Cao Cao
Shu	Liu Bei
Wu	Sun Quan

(3 rows)

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8

A query which uses the words "natural join"

To display a table connect City and Nation, we should type:

```
SELECT * FROM City NATURAL JOIN Nation;
```

nameofnation	nameoflord	nameofcity	food	coin	population	soldier	weapon	durable	faithfulness
Wu	100	Sun Quan	100	Wu Chang	100000	75000	200000	20000	9000
Wei	88	Cao Cao	100	Xu Chang	250000	80000	100000	100000	13000
Shu	90	Liu Bei	100	Cheng Du	200000	150000	100000	70000	100000
Shu	100	Liu Bei	70	Jin Zhou	10000	7500	21000	25000	19000
Shu	100	Liu Bei	100	Ji Zhou	150000	50000	150000	70000	60000
Wei	100	Cao Cao	100	Bian Zhou	130000	40000	110000	40000	30000

(6 rows)

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9

The cross product equivalent to the "natural join" query.

```
SELECT * FROM City,Nation WHERE  
City.NameofNation=Nation.NameofNation;
```

nameofnation	nameoflord	nameofcity	food	coin	population	soldier	weapon	durable	faithfulness
Wu	100	Sun Quan	100	Wu Chang	100000	75000	200000	20000	9000
Wei	88	Cao Cao	100	Xu Chang	250000	80000	100000	100000	13000
Shu	90	Liu Bei	100	Cheng Du	200000	150000	100000	70000	100000
Shu	100	Liu Bei	70	Jin Zhou	10000	7500	21000	25000	19000
Shu	100	Liu Bei	100	Ji Zhou	150000	50000	150000	70000	60000
Wei	100	Cao Cao	100	Bian Zhou	130000	40000	110000	40000	30000

(6 rows)

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10

A query involving a "Group by"

To find the Knights whose age is above 30 and have the SpeedUp skill.

```
SELECT NameofKnight,NameofNation,Age FROM Knight  
WHERE NameofSkill='SpeedUp' GROUP BY  
NameofNation,NameofKnight,Age HAVING Age>30;
```

nameofknight	nameofnation	age
Cao Cao	Wei	40
Sun Quan	Wu	39

(2 rows)



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11

A query which uses a sub query.

To show the oldest knight, we should type:

```
SELECT NameofKnight,Age FROM Knight WHERE Age IN  
(SELECT MAX(Age)FROM Knight);
```

nameofknight	age
Liu Bei	44

(1 row)

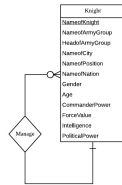


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12

Self join

Knight A could be managed by Knight B, as
Knight B is Head of Army Group.



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13

Self join

```
SELECT kt1.Nameofknight,kt1.HeadofArmyGroup FROM  
Knight kt1,Knight kt2 WHERE  
kt1.NameofKnight=kt2.NameofKnight;
```

nameofknight	headofarmygroup
Xu Chu	Xu Chu
Zhao Yun	Zhao Yun
Zhang Fei	Zhang Fei
Xiahou Dun	Xiahou Dun
Zhou Yu	Zhou Yu
Cao Cao	Xu Chu
Liu Bei	Zhao Yun
Sun Quan	Zhou Yu
(8 rows)	



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14

CHECK

To check the gender of Knight inserted if it is valid in this game. We
should type:

```
CONSTRAINT kt_gender_ck CHECK(Gender IN  
( 'M', 'F' ) ),
```

To check the Age of Knight inserted if it is valid in this game. We
should type:

```
CONSTRAINT kt_age_ck CHECK(Age>=0),
```

To check the amount of Soldiers inserted if it is above 0:
CONSTRAINT ag_soldier_ck CHECK (Soldier>=0),
And there are also lots of CHECK,such as Food>=0, Coin>=0,
Population>=0, Weapon>=0, and so no....

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15

“ON DELETE CASCADE”

If the NameofStrategy in the Strategy table is deleted, the
NameofStrategy in the ArmyGroup will be also deleted.

```
CONSTRAINT rtk_agfk_strategy FOREIGN  
KEY(NameofStrategy) REFERENCES  
Strategy(NameofStrategy)  
ON DELETE CASCADE,
```

If the NameofNation in the Nation table is deleted, the
NameofNation in the ArmyGroup will also be deleted.

```
CONSTRAINT rtk_agfk_na FOREIGN KEY(NameofNation)  
REFERENCES Nation(NameofNation)  
ON DELETE CASCADE,
```

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16

View

To create a View named WeiKnight to list the all knight of Wei, and
also list the City, the Age, and the Nation, we should type:

```
CREATE VIEW WeiKnight AS  
SELECT NameofCity AS City,NameofKnight as  
Knight,NameofNation AS Nation,Age  
FROM City natural join Knight  
WHERE Knight.NameofNation = 'Wei'  
ORDER BY Age;
```

NAME: Zilong Zhang StudentNo: 13487537

17

View

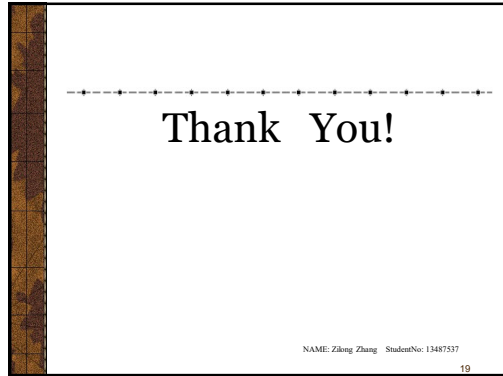
```
SELECT * FROM WeiKnight;
```

city	knight	nation	age
Bian Zhou	Xiahou Dun	Wei	30
Xu Chang	Xu Chu	Wei	32
Xu Chang	Cao Cao	Wei	40
(3 rows)			

NAME: Zilong Zhang StudentNo: 13487537

18

StudentName:Zilong Zhang
StudentNo:13487537



--High Distinction, Spring, 2019
--Zilong Zhang, Zilong.Zhang@student.uts.edu.au, StudentNo 13487537
--Inspired by <https://www.gamecity.ne.jp/sangokushi13/wpk/>

--This database contains the game named Romance of Three Kingdoms.

--

--(220 - 266, history called Cao Wei, Wei Dynasty)

--Wei was the political power of the North and Central Plains in the history of the Eastern Han Dynasty.

--

--(221 - 263, history called Jihan, Shu)

--Shu was a political power in the southwestern part of the Three Kingdoms period in Chinese history.

--

--(222 - 280, history called Sun Wu or Wu)

--Wu was the political power established by Sun Ce and Sun Quan during the Three Kingdoms period in Chinese history.

--

--

```
DROP TABLE City CASCADE;  
DROP TABLE Strategy CASCADE;  
DROP TABLE Nation CASCADE;  
DROP TABLE Knight CASCADE;  
DROP TABLE ArmyGroup CASCADE;  
DROP TABLE Skills CASCADE;  
DROP TABLE Position CASCADE;  
DROP TABLE Learned CASCADE;
```

```
CREATE TABLE Strategy(  
    NameofStrategy      text NOT NULL,  
    DescriptionofStrategy text NOT NULL,
```

```
CONSTRAINT rtk_str_pk PRIMARY KEY (NameofStrategy)  
);
```

```
CREATE TABLE Skills(  
    NameofSkill          text NOT NULL,  
    EffectofSkill         text NOT NULL,
```

```
CONSTRAINT rtk_sk_pk PRIMARY KEY (NameofSkill)  
);
```

```
CREATE TABLE Position(  
    NameofPosition       text NOT NULL,  
    DescriptionofPosition text,
```

```
CONSTRAINT rtk_pt_pk PRIMARY KEY (NameofPosition)  
);
```

```
CREATE TABLE Nation(  
    NameofNation  text NOT NULL,  
    NameofLord    text NOT NULL,
```

```
CONSTRAINT rtk_nation_pk PRIMARY KEY (NameofNation)
);
```

```
CREATE TABLE ArmyGroup(
    NameofArmyGroup    text,
    HeadofArmyGroup    text,
    NameofStrategy      text,
    NameofNation        text,
    Soldier              integer,
    Food                integer NOT NULL,
    Weapon              integer,

    CONSTRAINT rtk_ag_pk PRIMARY KEY (NameofArmyGroup,HeadofArmyGroup),
    CONSTRAINT rtk_agfk_strategy FOREIGN KEY (NameofStrategy) REFERENCES Strategy(NameofStrategy)
        ON DELETE CASCADE,
    CONSTRAINT rtk_agfk_na FOREIGN KEY(NameofNation) REFERENCES Nation(NameofNation)
        ON DELETE CASCADE,
    CONSTRAINT ag_soldier_ck CHECK (Soldier>=0),
    CONSTRAINT ag_food_ck CHECK (Food>=0),
    CONSTRAINT ag_weapon_ck CHECK(Weapon>=0)
);
```

```
CREATE TABLE City(
    NameofCity    text NOT NULL,
    NameofNation  text,
    NameofLord    text,
    Food          integer,
    Coin          integer,
    Population    integer,
    Soldier       integer,
    Weapon        integer,
    Durable       integer,
    Faithfulness  integer,

    CONSTRAINT rtk_city_pk PRIMARY KEY(NameofCity),
    CONSTRAINT rtk_cityfk_nation FOREIGN KEY(NameofNation) REFERENCES Nation(NameofNation),
    CONSTRAINT ct_food_ck CHECK(Food>=0),
    CONSTRAINT ct_coin_ck CHECK(Coin>=0),
    CONSTRAINT ct_population_ck CHECK(Population>=0),
    CONSTRAINT ct_soldier_ck CHECK(Soldier>=0),
    CONSTRAINT ct_weapon_ck CHECK(Weapon>=0),
    CONSTRAINT ct_faithfulness_ck CHECK(Faithfulness>=0)
);
```

```
CREATE TABLE Knight(
    NameofKnight    text NOT NULL,
    NameofArmyGroup text,
    HeadofArmyGroup text,
    NameofCity       text,
    NameofPosition   text,
    Gender           text NOT NULL,
    Age              integer,
    NameofNation     text,
```

CommanderPower integer NOT NULL,
ForceValue integer NOT NULL,
Intelligence integer NOT NULL,
PoliticalPower integer NOT NULL,

CONSTRAINT rtk_kt_pk PRIMARY KEY(NameofKnight),
CONSTRAINT rtk_ktfk_ag FOREIGN KEY(NameofArmyGroup,HeadofArmyGroup)REFERENCES
ArmyGroup(NameofArmyGroup,HeadofArmyGroup),
CONSTRAINT rtk_ktfk_na FOREIGN KEY(NameofNation) REFERENCES Nation(NameofNation),
CONSTRAINT rtk_ktfk_ct FOREIGN KEY(NameofCity) REFERENCES City(NameofCity),

CONSTRAINT rtk_ktfk_position FOREIGN KEY (NameofPosition) REFERENCES Position(NameofPosition),
CONSTRAINT kt_age_ck CHECK(Age>=0),
CONSTRAINT kt_gender_ck CHECK(Gender IN ('M','F'))
);

CREATE TABLE Learned(
NameofKnight text NOT NULL,
NameofSkill text NOT NULL,

CONSTRAINT rtk_ks_pk PRIMARY KEY(NameofKnight,NameofSkill),
CONSTRAINT rtk_ksfk_kt FOREIGN KEY (NameofKnight) REFERENCES Knight,
CONSTRAINT rtk_ksfk_skill FOREIGN KEY (NameofSkill) REFERENCES Skills
);

CREATE VIEW WeiKnight AS
SELECT NameofCity AS City,NameofKnight as Knight,NameofNation AS Nation,Age
FROM City natural join Knight
WHERE Knight.NameofNation = 'Wei'
ORDER BY Age;

INSERT INTO Strategy VALUES('Offensive','Attack other countries');
INSERT INTO Strategy VALUES('Defensive','Defend the territory from the aggression of other national Army
Group');
INSERT INTO Strategy VALUES('Support','Support the national army that is fighting nearby');
INSERT INTO Strategy VALUES('Productive','Production of weapon and food');

INSERT INTO Skills VALUES('Alert','Increase the defense of the ArmyGroup for one month');
INSERT INTO Skills VALUES('SpeedUp','Increase the marching speed of the ArmyGroup for three month');
INSERT INTO Skills VALUES('Sneak Attack','Collaborate with local armed forces to attack enemy forces with a
50% chance to capture enemy knights');

INSERT INTO Position VALUES('Lord','King of the Nation');
INSERT INTO Position VALUES('Prime Minister','Prime Minister of the Nation');
INSERT INTO Position VALUES('Dudu','Leader of the Heads of Army Group');
INSERT INTO Position VALUES('Knight','Warrior or Head of Army Group');

INSERT INTO Nation VALUES('Wei','Cao Cao');
INSERT INTO Nation VALUES('Shu','Liu Bei');
INSERT INTO Nation VALUES('Wu','Sun Quan');


```
INSERT INTO ArmyGroup VALUES('Central Army1','Zhao Yun','Offensive','Shu',12000,50000,30000);
INSERT INTO ArmyGroup VALUES('Western Army1','Zhang Fei','Defensive','Shu',60000,120000,100000);
INSERT INTO ArmyGroup VALUES('Southern Army1','Xiahou Dun','Support','Wei',80000,20000,60000);
INSERT INTO ArmyGroup VALUES('Productive Army1','Xu Chu','Productive','Wei',180000,700000,30000);
INSERT INTO ArmyGroup VALUES('Naval Army1','Zhou Yu','Offensive','Wu',200000,800000,160000);
```

```
INSERT INTO City VALUES('Wu Chang','Wu','Sun Quan',100000,75000,200000,20000,9000,100,100);
INSERT INTO City VALUES('Xu Chang','Wei','Cao Cao',250000,80000,100000,100000,13000,88,100);
INSERT INTO City VALUES('Cheng Du','Shu','Liu Bei',200000,150000,100000,70000,100000,90,100);
INSERT INTO City VALUES('Jin Zhou','Shu','Liu Bei',10000,7500,21000,25000,19000,100,70);
INSERT INTO City VALUES('Ji Zhou','Shu','Liu Bei',150000,50000,150000,70000,60000,100,100);
INSERT INTO City VALUES('Bian Zhou','Wei','Cao Cao',130000,40000,110000,40000,30000,100,100);
```

```
INSERT INTO Knight VALUES('Xu Chu','Productive Army1','Xu Chu','Xu
Chang','Knight','M',32,'Wei',87,100,57,72);
INSERT INTO Knight VALUES('Zhao Yun','Central Army1','Zhao Yun','Cheng
Du','Knight','M',28,'Shu',97,110,76,82);
INSERT INTO Knight VALUES('Zhang Fei','Western Army1','Zhang Fei','Jin
Zhou','Knight','M',36,'Shu',80,102,82,69);
INSERT INTO Knight VALUES('Xiahou Dun','Southern Army1','Xiahou Dun','Bian
Zhou','Knight','M',30,'Wei',83,92,53,70);
INSERT INTO Knight VALUES('Zhou Yu','Naval Army1','Zhou Yu','Wu Chang','Dudu','M',34,'Shu',98,103,78,82);
INSERT INTO Knight VALUES('Cao Cao','Productive Army1','Xu Chu','Xu
Chang','Lord','M',40,'Wei',99,109,88,92);
INSERT INTO Knight VALUES('Liu Bei','Central Army1','Zhao Yun','Ji Zhou','Lord','M',44,'Shu',92,99,101,90);
INSERT INTO Knight VALUES('Sun Quan','Naval Army1','Zhou Yu','Wu Chang','Lord','M',39,'Wu',87,96,82,87);
```

```
INSERT INTO Learned VALUES('Xu Chu','Sneak Attack');
INSERT INTO Learned VALUES('Zhao Yun','SpeedUp');
INSERT INTO Learned VALUES('Zhang Fei','Alert');
INSERT INTO Learned VALUES('Xiahou Dun','Sneak Attack');
INSERT INTO Learned VALUES('Zhou Yu','Alert');
INSERT INTO Learned VALUES('Cao Cao','SpeedUp');
INSERT INTO Learned VALUES('Liu Bei','Alert');
INSERT INTO Learned VALUES('Sun Quan','SpeedUp');
```