电子科技大学计算机科学与工程学院（网络空间安全学院）

**标 准 实 验 报 告**

（实验）课程名称 数据库原理及应用

**电子科技大学教务处制表**

**电 子 科 技 大 学**

**实 验 报 告**

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**指导教师： 胡旺**

**实验地点： 主楼A2-412 实验时间：2022.4.16**

**一、实验室名称：主楼A2-412**

**二、实验项目名称：思政资源数据库概念模型设计**

**三、实验学时：4学时**

**四、实验原理：**

1. **实验目的：**

课程思政指以构建全员、全程、全课程育人格局的形式将各类课程与思想政治理论课同向同行，形成协同效应，把“立德树人”作为教育的根本任务的一种综合教育理念。课程思政建设需要学科资源素材支撑，旨在为不同学科课程思政建设提供资源采编、管理和共享服务技术平台。

本实验结合数据库基础理论和设计方法，以课程思政资源数据库的建设任务为应用场景，综合锻炼学生的数据库分析设计能力，融合课程思政素材收集、管理和分享过程提升学生的综合素养。

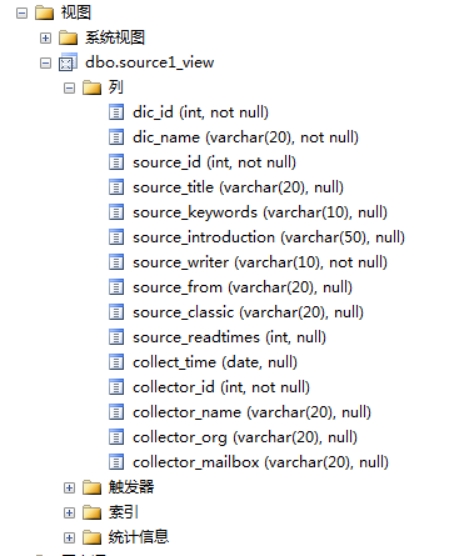
本实现要求学生熟练掌握数据库概念设计原理和E-R图设计方法，熟练掌握一种E-R辅助设计软件工具。提高学生数据库模式结构的分析设计能力和动手操作实践能力。

1. **实验内容：**

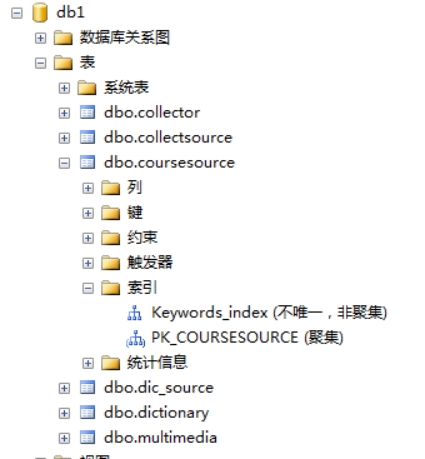
**七、实验器材（设备、元器件）：**实验室PC机一台，E-R图设计软件Power Designer 16.0版以上

1. **实验步骤：**
2. **实验数据及结果分析：**

**视图：**



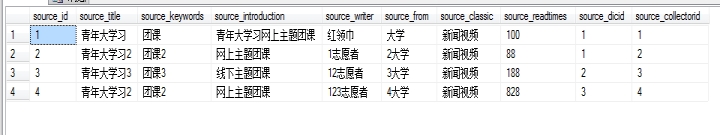
实体索引：



视图索引：



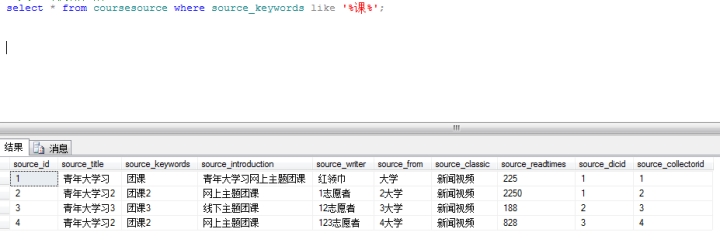
**Insert:**

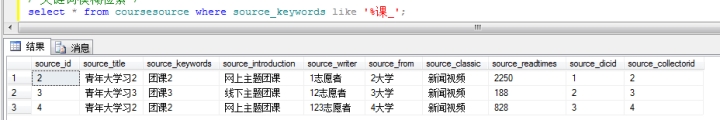


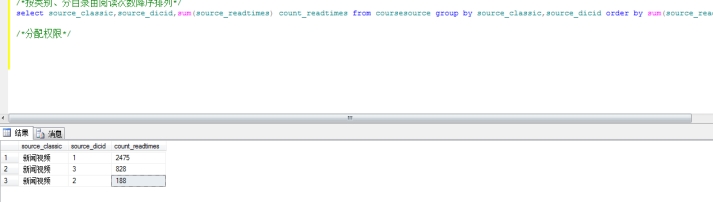
Update:



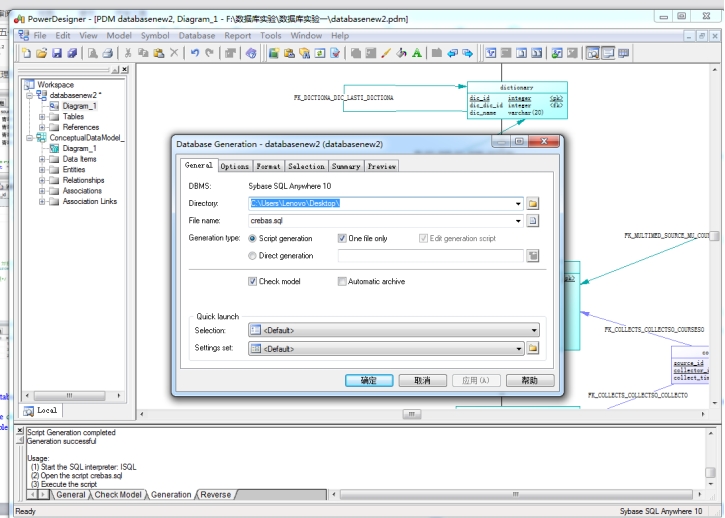
Select:







自动生成数据库脚本：



代码：

create database db1;

use db1;

drop table dictionary;

create table dictionary

(

dic\_id integer not null

constraint CKC\_DIC\_ID\_DICTIONA check (dic\_id >= 1),

dic\_dic\_id integer

constraint CKC\_DIC\_DIC\_ID\_DICTIONA check (dic\_dic\_id is null or (dic\_dic\_id >= 1)),

dic\_name varchar(20) not null,

constraint PK\_DICTIONARY primary key (dic\_id)

);

create table coursesource

(

source\_id integer not null,

source\_title varchar(20),

source\_keywords varchar(10),

source\_introduction varchar(50),

source\_writer varchar(10) not null,

source\_from varchar(20),

source\_classic varchar(20),

source\_readtimes integer,

source\_dicid integer,

source\_collectorid integer,

constraint PK\_COURSESOURCE primary key (source\_id)

);

alter table multimedia add media\_path varchar(50);

create table multimedia

(

source\_id integer not null,

multimedia\_id integer,

multimedia\_classic varchar(10),

constraint PK\_MULTIMEDIA primary key clustered (source\_id)

);

create table collector

(

collector\_id integer not null,

collector\_name varchar(20),

collector\_org varchar(20),

collector\_mailbox varchar(20),

constraint PK\_COLLECTOR primary key (collector\_id)

);

/\*关系建表\*/

create table dic\_source

(

dic\_id integer not null

constraint CKC\_DIC\_ID\_DIC\_SOUR check (dic\_id >= 1),

source\_id integer not null,

constraint PK\_DIC\_SOURCE primary key clustered (dic\_id, source\_id)

);

create table collectsource

(

source\_id integer not null,

collector\_id integer not null,

collect\_time date,

constraint PK\_COLLECTSOURCE primary key clustered (source\_id, collector\_id)

);

/\*定义外键\*/

alter table collectsource

add constraint FK\_COLLECTS\_COLLECTSO\_COURSESO foreign key (source\_id)

references coursesource (source\_id)

on update cascade

on delete cascade;

alter table collectsource

add constraint FK\_COLLECTS\_COLLECTSO\_COLLECTO foreign key (collector\_id)

references collector (collector\_id)

on update cascade

on delete cascade;

alter table dic\_source

add constraint FK\_DIC\_SOUR\_DIC\_SOURC\_DICTIONA foreign key (dic\_id)

references dictionary (dic\_id)

on update cascade

on delete cascade;

alter table dic\_source

add constraint FK\_DIC\_SOUR\_DIC\_SOURC\_COURSESO foreign key (source\_id)

references coursesource (source\_id)

on update cascade

on delete cascade;

alter table dictionary

add constraint FK\_DICTIONA\_DIC\_LASTI\_DICTIONA foreign key (dic\_dic\_id)

references dictionary (dic\_id)

on update cascade

on delete cascade;

alter table multimedia

add constraint FK\_MULTIMED\_SOURCE\_MU\_COURSESO foreign key (source\_id)

references coursesource (source\_id)

on update cascade

on delete cascade;

/\*创建视图\*/

create view source1\_view

with SCHEMABINDING

as select d.dic\_id,d.dic\_name,s.source\_id,source\_title,source\_keywords,source\_introduction,source\_writer,source\_from,source\_classic,

source\_readtimes,cs.collect\_time,c.collector\_id,c.collector\_name,c.collector\_org,c.collector\_mailbox

from dbo.coursesource s ,dbo.collector c ,dbo.dictionary d,dbo.collectsource cs

where d.dic\_id=s.source\_dicid and s.source\_collectorid=c.collector\_id and cs.source\_id=s.source\_id and

cs.collector\_id=c.collector\_id

/\*创建索引\*/

/\*单索引\*/

create nonclustered index Keywords\_index on coursesource(source\_keywords);

/\*复合索引\*/

create unique clustered index Source\_View\_Index on source1\_view(source\_title,source\_keywords,source\_introduction,source\_classic,source\_writer);

/\*向courcesource添加数据\*/

insert into dictionary(dic\_id,dic\_name) values(1,'思想道德修养');

insert into dictionary(dic\_id,dic\_name) values(2,'思想道德修养');

insert into dictionary(dic\_id,dic\_name) values(3,'思想道德修养');

insert into collector(collector\_id,collector\_name,collector\_org,collector\_mailbox) values(1,'张三','宣传部门','123@163.com');

insert into collector(collector\_id,collector\_name,collector\_org,collector\_mailbox) values(2,'李四','组织部门','456@163.com');

insert into collector(collector\_id,collector\_name,collector\_org,collector\_mailbox) values(3,'王五','宣传部门','789@163.com');

insert into collector(collector\_id,collector\_name,collector\_org,collector\_mailbox) values(4,'赵柳','宣传部门','145@163.com');

insert into coursesource values(1,'青年大学习','团课','网上主题团课','红领巾','1大学','新闻视频',100,1,1) ;

insert into multimedia values(1,1,'视频','https://h5.cyol.com/m.html');

insert into coursesource values(2,'青年大学习','团课','网上主题团课','1志愿者','2大学','新闻视频',88,1,2) ;

insert into multimedia values(2,2,'视频','https://h5.cyol.com/m.html');

insert into coursesource values(3,'青年大学习','团课','线下主题团课','12志愿者','3大学','新闻视频',188,2,3) ;

insert into multimedia values(3,3,'视频','https://h5.cyol.com/m.html');

insert into coursesource values(4,'青年大学习','团课','网上主题团课','123志愿者','4大学','新闻视频',828,3,4) ;

insert into multimedia values(4,4,'视频','https://h5.cyol.com/m.html');

/\*更新阅读次数\*/

update coursesource set source\_readtimes=225 where source\_id=1;

update coursesource set source\_readtimes=2250 where source\_id=2;

/\*关键词模糊检索\*/

select \* from coursesource where source\_keywords like '%课%';

select \* from coursesource where source\_keywords like '%课\_';

/\*按类别、分目录由阅读次数降序排列\*/

select source\_classic,source\_dicid,sum(source\_readtimes) count\_readtimes from coursesource group by source\_classic,source\_dicid order by sum(source\_readtimes) DESC;

/\*分配权限\*/

create role Teacher

grant select on coursesource to Teacher;

create user Wang@localhost identified by '111111';

create user Li@localhost identified by '111111';

create user Zhang@localhost identified by '111111';

grant Teacher to Wang@localhost;

/\*显示角色分配\*/

show grants for Teacher;

/\*撤销权限\*/

revoke select on coursesource from Teacher;

**十、实验结论：**

**十一、总结及心得体会：**

**十二、对本实验过程及方法、手段的改进建议：**

**报告评分：**

**指导教师签字：**