

```

    erDiagram
        SCHOOL ||--o{ CLASSROOM : "has"
        SCHOOL ||--o{ CLASS : "has"
        CLASSROOM ||--o{ CLASS : "has"
        CLASS ||--o{ SCHEDULE : "has"
        CLASS ||--o{ TEACHERSUBJECT : "has"
        CLASS ||--o{ SUBJECT : "has"
        TEACHER ||--o{ TEACHERSUBJECT : "has"
        SUBJECT ||--o{ TEACHERSUBJECT : "has"

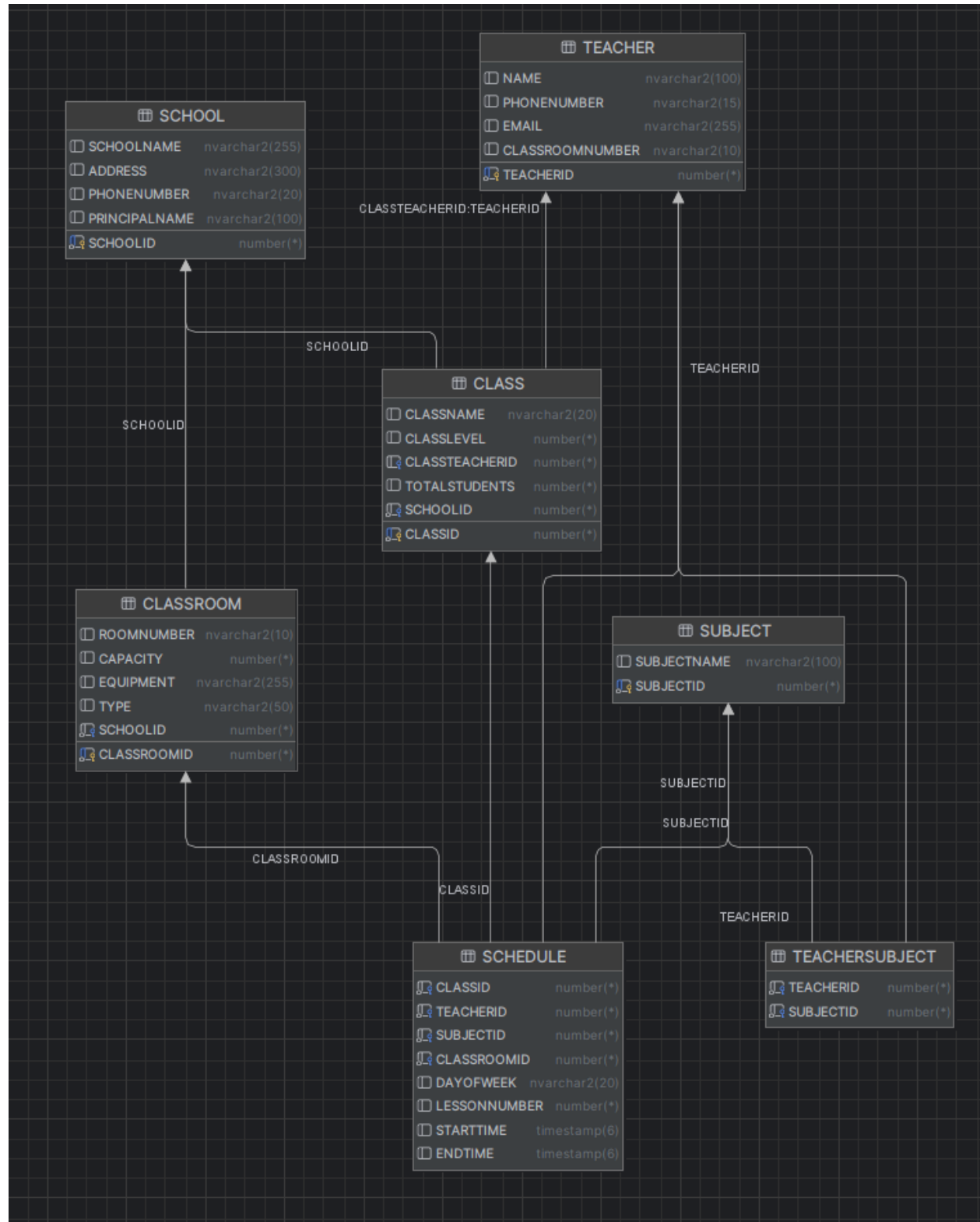
        SCHOOL {
            string SCHOOLNAME
            string ADDRESS
            string PHONENUMBER
            string PRINCIPALNAME
            int SCHOOLID PK
        }
        CLASSROOM {
            string ROOMNUMBER
            int CAPACITY
            string EQUIPMENT
            string TYPE
            int SCHOOLID FK
            int CLASSROOMID PK
        }
        CLASS {
            string CLASSNAME
            int CLASSLEVEL
            int CLASSTEACHERID FK
            int TOTALSTUDENTS
            int SCHOOLID FK
            int CLASSID PK
        }
        TEACHER {
            string NAME
            string PHONENUMBER
            string EMAIL
            string CLASSROOMNUMBER
            int TEACHERID PK
        }
        SUBJECT {
            string SUBJECTNAME
            int SUBJECTID PK
        }
        SCHEDULE {
            int CLASSID FK
            int TEACHERID FK
            int SUBJECTID FK
            int CLASSROOMID FK
            string DAYOFWEEK
            int LESSONNUMBER
            timestamp STARTTIME
            timestamp ENDTIME
        }
        TEACHERSUBJECT {
            int TEACHERID FK
            int SUBJECTID FK
        }
    
```

The ER diagram illustrates the following tables and their attributes:

- SCHOOL**: SCHOOLNAME (nvarchar(255)), ADDRESS (nvarchar(300)), PHONENUMBER (nvarchar(20)), PRINCIPALNAME (nvarchar(100)), SCHOOLID (number(*), PK).
- CLASSROOM**: ROOMNUMBER (nvarchar(10)), CAPACITY (number(*)), EQUIPMENT (nvarchar(255)), TYPE (nvarchar(50)), SCHOOLID (number(*), FK), CLASSROOMID (number(*), PK).
- CLASS**: CLASSNAME (nvarchar(20)), CLASSLEVEL (number(*)), CLASSTEACHERID (number(*), FK), TOTALSTUDENTS (number(*)), SCHOOLID (number(*), FK), CLASSID (number(*), PK).
- TEACHER**: NAME (nvarchar(100)), PHONENUMBER (nvarchar(15)), EMAIL (nvarchar(255)), CLASSROOMNUMBER (nvarchar(10)), TEACHERID (number(*), PK).
- SUBJECT**: SUBJECTNAME (nvarchar(100)), SUBJECTID (number(*), PK).
- SCHEDULE**: CLASSID (number(*), FK), TEACHERID (number(*), FK), SUBJECTID (number(*), FK), CLASSROOMID (number(*), FK), DAYOFWEEK (nvarchar(20)), LESSONNUMBER (number(*)), STARTTIME (timestamp(6)), ENDTIME (timestamp(6)).
- TEACHERSUBJECT**: TEACHERID (number(*), FK), SUBJECTID (number(*), FK).

Relationships are indicated by arrows:

- SCHOOL** to **CLASSROOM**: One-to-many relationship via SCHOOLID.
- SCHOOL** to **CLASS**: One-to-many relationship via SCHOOLID.
- CLASSROOM** to **CLASS**: One-to-many relationship via CLASSROOMID.
- CLASS** to **SCHEDULE**: One-to-many relationship via CLASSID.
- CLASS** to **TEACHERSUBJECT**: One-to-many relationship via CLASSID.
- CLASS** to **SUBJECT**: One-to-many relationship via CLASSID.
- TEACHER** to **TEACHERSUBJECT**: One-to-many relationship via TEACHERID.
- SUBJECT** to **TEACHERSUBJECT**: One-to-many relationship via SUBJECTID.



Побудувати зв'язки між таблицями. Зверніть увагу – половину конструкцій зробити з описом клічів при створенні таблиць (CREATE TABLE), другу половину прописуємо ключі через ALTER TABLE.

Створення за допомогою CREATE TABLE

```
CREATE TABLE SCHOOL (  
    SCHOOLID NUMBER PRIMARY KEY,  
    NAME NVARCHAR2(255),  
    ADDRESS NVARCHAR2(300),  
    PHONENUMBER NVARCHAR2(20),  
    PRINCIPALNAME NVARCHAR2(100)  
);
```

```
CREATE TABLE TEACHER (  
    TEACHERID NUMBER PRIMARY KEY,  
    NAME NVARCHAR2(100),  
    PHONENUMBER NVARCHAR2(15),  
    EMAIL NVARCHAR2(255),  
    CLASSROOMNUMBER NVARCHAR2(10)  
);
```

```
CREATE TABLE CLASS (  
    CLASSID NUMBER PRIMARY KEY,  
    CLASSNAME NVARCHAR2(20),  
    CLASSLEVEL NUMBER,  
    CLASSTEACHERID NUMBER,
```

```
TOTALSTUDENTS NUMBER,  
SCHOOLID NUMBER,  
FOREIGN KEY (SCHOOLID) REFERENCES SCHOOL(SCHOOLID),  
FOREIGN KEY (CLASSTEACHERID) REFERENCES  
TEACHER(TEACHERID)  
);
```

```
CREATE TABLE CLASSROOM (  
    CLASSROOMID NUMBER PRIMARY KEY,  
    ROOMNUMBER NVARCHAR2(10),  
    CAPACITY NUMBER,  
    EQUIPMENT NVARCHAR2(255),  
    TYPE NVARCHAR2(50),  
    SCHOOLID NUMBER,  
    FOREIGN KEY (SCHOOLID) REFERENCES SCHOOL(SCHOOLID)  
);
```

```
CREATE TABLE SUBJECT (  
    SUBJECTID NUMBER PRIMARY KEY,  
    SUBJECTNAME NVARCHAR2(100)  
);
```

Створення за допомогою ALTER TABLE

```
CREATE TABLE SCHEDULE (  
    CLASSID NUMBER,  
    TEACHERID NUMBER,  
    SUBJECTID NUMBER,  
    CLASSROOMID NUMBER,  
    DAYOFWEEK NVARCHAR2(20),  
    LESSONNUMBER NUMBER,  
    STARTTIME TIMESTAMP,  
    ENDTIME TIMESTAMP  
);
```

```
ALTER TABLE SCHEDULE  
ADD CONSTRAINT fk_schedule_class FOREIGN KEY (CLASSID)  
REFERENCES CLASS(CLASSID);
```

```
ALTER TABLE SCHEDULE  
ADD CONSTRAINT fk_schedule_teacher FOREIGN KEY (TEACHERID)  
REFERENCES TEACHER(TEACHERID);
```

```
ALTER TABLE SCHEDULE  
ADD CONSTRAINT fk_schedule_subject FOREIGN KEY (SUBJECTID)  
REFERENCES SUBJECT(SUBJECTID);
```

```
ALTER TABLE SCHEDULE  
ADD CONSTRAINT fk_schedule_classroom FOREIGN KEY (CLASSROOMID)  
REFERENCES CLASSROOM(CLASSROOMID);
```

```
CREATE TABLE TEACHERSUBJECT (  
    TEACHERID NUMBER,  
    SUBJECTID NUMBER  
);
```

```
ALTER TABLE TEACHERSUBJECT  
ADD CONSTRAINT fk_teachersubject_teacher FOREIGN KEY (TEACHERID)  
REFERENCES TEACHER(TEACHERID);
```

```
ALTER TABLE TEACHERSUBJECT  
ADD CONSTRAINT fk_teachersubject_subject FOREIGN KEY (SUBJECTID)  
REFERENCES SUBJECT(SUBJECTID);
```

5 Прикладів ADD:

```
ALTER TABLE TEACHER  
    ADD HIRE_DATE DATE;
```

```
ALTER TABLE SCHOOL  
    ADD EMERGENCY_CONTACT nvarchar2(20);
```

```
ALTER TABLE CLASSROOM  
    ADD HAS_INTERNET NUMBER(1);
```

ALTER TABLE SUBJECT

ADD CREDIT_HOURS number(2);

ALTER TABLE CLASS

ADD IS_ACTIVE NUMBER(1) DEFAULT 1;

5 Прикладів MODIFY:

ALTER TABLE TEACHER

MODIFY PHONENUMBER nvarchar2(20);

ALTER TABLE CLASSROOM

MODIFY CAPACITY number(4);

ALTER TABLE SCHOOL

MODIFY PRINCIPALNAME nvarchar2(150);

ALTER TABLE CLASS

MODIFY CLASSNAME nvarchar2(50);

ALTER TABLE CLASSROOM

MODIFY EQUIPMENT nvarchar2(500);