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Educational Non-profit Training Teachers in Computer Science

This database is based upon the work CodeVA does. This organization is an educational non-profit that trains Virginia public school teachers in computer science. America's education system is fair behind other countries such as China, Russia, and others. Virginia is taking steps to modernize their education system to reflect the changing landscape of technology by training their public school teachers to teach computer science.

Each district has multiple schools and those schools can send math, science, CTE, and computer skills teachers to the trainings. Each grade level has their own training attached to them. So for example, a teacher who teaches middle school mathematics can register for the middle school training. There's only one session for a training and when a teacher registers for a training, they must attend the session that training is scheduled for.

The organization will use this database to locate teacher, school, and district information to help their cause of expanding computer science education throughout the state of Virginia.

The director of education uses the database to locate district superintendents have yet to send teachers to their trainings. The assistant director of education will use the database to search for specific teacher, school, of district information for statistics, engaging with teachers, and more.

The entity sets for the database are:
- Teacher
- School
- District
- Address
- Training
- Session

The main operations performed on the database are:

- Inserting a teacher who's registered for a training
- Updating the number of teachers trained from a district
- Updating location for the session every year

Some possible queries used on the database:

1. Get the teachers name that work in the district Henrico.
2. Name of teacher who teaches at Carytown High School.
3. Number of teachers sent from Hydroflask High School in district Charlottesville.
4. Name of teacher in grade level elementary school.
5. Emails of teachers that teach in the grade level elementary school in Fairfax.
6. Get all the teachers information with the ID = 4.
7. Get the max capacity for training named Computer Scientist.
8. Get the address of the training Logic Project where grade level is elementary school.
9. Get the time and date of the training Logic Project in Petersburg.
10. Get teacher's name and school that worked at a specific district.
11. Information of teachers with district work email extension
12. Name of teachers at a school who've attended a training

Teacher(workEmail, fullName, phoneNum, personalEmail, birthday, foodAllergies, school, subject, emerContact, emerPhoneNum)

- Candidate Keys: fullName, workEmail, school, personalEmail
- Primary Key: workEmail
- Functional Dependencies: workEmail -> phoneNum birthday, subject, emerContact, emerPhoneNum
- Normal Form: 4NF

Address(streetName, city, state, zipCode)

- Candidate Keys: streetName, zipCode
- Primary Key: streetName
- Functional Dependencies: streetName -> city, state, zipCode
- Normal Form: 4NF

School(schoolID, name, phoneNum, principal, districtName, numTeacherSent)

- Candidate Keys: schoolID, name
- Primary Key: schoolID
- Functional Dependencies: schoolID -> phoneNum, principal, districtName, numTeacherSent
- Normal Form: 4NF

Training(trainingName, facilitator, maxAttendee, stipend, collegeCredit)

- Candidate Keys: trainingName, maxAttendee
- Primary Key: trainingName
- Functional Dependencies: trainingName -> maxAttendee, stipend, collegeCredit
- Normal Form: 4NF

District(districtName, superintendents, numOfTeachers, namesOfSchools)

- Candidate Keys: districtName
- Primary Key: districtName
- Functional Dependencies: districtName -> superintendents, numOfTeachers, namesOfSchools
- Normal Form: 4NF

Session(date, location, time, numAttendees)

- Candidate Keys: location ,date, location
- Primary Key: date
- Functional Dependencies: date -> numAttendees location, time, numAttendees
- Normal Form: 4NF

Work(TeacherID, DistrictName)

- Candidate Keys: TeacherID, DistrictName
- Primary Key: TeacherID
- Functional Dependencies: TeacherID -> DistrictName
- Normal Form: 4NF

Located(StreetName, SchoolID)

- Candidate Keys: SchoolID, StreetName
- Primary Key: StreetName
- Functional Dependencies: StreetName -> SchoolID
- Normal Form: 4NF

Lives(WorkEmail, streetName)

- Candidate Keys: workEmail, StreetName
- Primary Key: workEmail
- Functional Dependencies: workEmail -> streetName
- Normal Form: 4NF

In(SchoolID, districtName)

- Candidate Keys: schoolID, districtName
- Primary Key: schoolID
- Functional Dependencies: schoolID -> districtName
- Normal Form: 4NF

Registers(trainingName, workEmail)

- Candidate Keys: workEmail, trainingName
- Primary Key: trainingName
- Functional Dependencies: trainingName -> workEmail
- Normal Form: 4NF

Held(trainingName, sessionDate)

- Candidate Keys: trainingName, sessionDate
- Primary Key: trainingName
- Functional Dependencies: trainingName -> sessionDate
- Normal Form: 4NF