Schema Description
A university has a uid, and its full name.

A student studies in a university. Every student must study in some university. When a student registers an account, the tuple will have a client id (cid), the student's name, gender, and a credit. A student earns credit when he/she provides his/her residence to some other students. The account is also associated with an is_active attribute. When the student deletes his/her account, the is_active attribute will be set to 0.

Traveler and host are two roles of the student. The host has to be uniquely associated with his/her unique residence (assume a student can only live in one place on campus), and the host has an attribute called is_checked. The is_checked attribute describes the status of the host's safety verification, which indicates if the host is a client that has gone through a property verification by our staff and the information provided by this host is reliable.

The traveler has no additional attribute, the only attribute in the table is cid which references the student.

The residence has its postal_code, address, a link to the website that contains its images and gender of residence. For example, if it is a shared 4 bedroom for female students, then the room can only be rented to female students. The daily rate is the number of credits that host earns (or traveler pays) for renting his/her residence per day.

The traveler and host can sign a contract. The contract has a unique contract id. It also has from_date, to_date, which cannot be null. The residence can be uniquely identified by querying the host student in the Student table. If either the traveler or the host cancels the contract, the attribute is_cancelled will be set to 1 (true).

If the traveler has rented the host's place, then the traveler can give the host's residence a rating, scale from 1 to 10, takes only integer values.

If the traveler rents the host's place, then the host can leave a review for that traveller after the staying. The review/rating has scale from 1 to 10, takes only integer values.

If the host wants to rent out his/her residence, then he/she can post a posting contains the information of the renting period (from date and to date), and provide a brief description(maximum 140 characters) of his/her place. The posting would be deleted if a contract involving this posting was signed.

Tables and Instances

University (uid, name)

uid	name
3514	Massachusetts Institute of Technology
4833	University of California, Berkeley

Student (cid, name, gender, is_active, credit, **postal_code**, **address**, **uid**)
uid references University
(postal_code, address) references Residence

cid	name	gender	is_active	credit	postal_code	address	uid
11102890	Harry Potter	M	1	70	02139	77 Massachusetts Ave	3514
10678543	Cersei Lannister	F	1	5	94720	10 Sproul Hall #5800	4833

Host (cid, is_checked)

cid	is_checked
11102890	0
10678543	1

Traveler (cid)

cid
11102890
10678543

Residence (postal_code, address, link, gender, daily_rate)

postal_code	address	link	gender	daily_rate
02139	77 Massachusetts Ave	https://studentlife.mit.edu/housing	M	75

94720	10 Sproul Hall #5800	http://www.housing.berkeley.edu/overview	N	100

Host_Reviews (**traveler_id**, **host_id**, rating)
traveler_id references Traveler (cid)
host_id references Host (cid)

traveler_id	host_id	rating
11102890	10678543	4
10678543	11102890	7

Traveler_Reviews (**traveler_id**, **postal_code**, **address**, rating)
traveler_id references Traveler (cid)
postal_code references Residence
address references Residence

traveler_id	postal_code	address	rating
11102890	02139	77 Massachusetts Ave	5
10678543	94720	10 Sproul Hall #5800	7

Posting(pid, from_date, to_date, description, **host_id**)
host_id references Host (cid)

pid	from_date	to_date	description	host_id
1	2017-06-01	2017-07-01	This is a very good residence with reasonable price and wonderful location.	10678543
2	2018-04-01	2018-04-21	Welcome to my university!	11102890

Contract_Signs(contract_id,from_date,to_date,is_cancelled,**host_id**,**traveler_id**)
traveler_id references Traveler (cid)
host_id references Host (cid)

contract_id	from_date	to_date	is_cancelled	host_id	traveler_id

172983	2017-06-02	2017-06-05	0	10678543	11102890
273681	2018-04-04	2018-04-06	0	11102890	10678543

SQL DDLs

```
CREATE TABLE University (
        uid     INTEGER,
        name  CHAR(50),
        PRIMARY KEY (uid)
)

CREATE TABLE Student (
        cid       INTEGER,
        name   CHAR(20),
        gender CHAR(1),
        credit   INTEGER,
        uid      INTEGER NOT NULL,
        is_active INTEGER NOT NULL,
        PRIMARY KEY (cid),
        FOREIGN KEY (uid) REFERENCES University
                ON UPDATE CASCADE
)

CREATE TABLE Host (
        cid INTEGER,
        is_checked INTEGER NOT NULL,
        postal_code CHAR(6) NOT NULL,
        address CHAR(30) NOT NULL,
        PRIMARY KEY (cid),
        FOREIGN KEY (cid) REFERENCES Student,
        FOREIGN KEY (postal_code, address) REFERENCES Residence
)
```

```
CREATE TABLE Traveler (
        cid INTEGER,
        PRIMARY KEY (cid),
        FOREIGN KEY (cid) REFERENCES Student
)

CREATE TABLE Residence (
        postal_code CHAR(6),
        address      CHAR(30),
        link         CHAR(50),
        gender       CHAR(1),
        daily_rate   INTEGER NOT NULL,
        PRIMARY KEY (postal_code, address)
)

CREATE TABLE Host_Reviews (
        traveler_id  INTEGER,
        host_id      INTEGER,
        rating       INTEGER,
        PRIMARY KEY (traveler_id, host_id),
        FOREIGN KEY (traveler_id) REFERENCES Traveler (cid),
        FOREIGN KEY (host_id) REFERENCES Host (cid)
                ON DELETE CASCADE
)

CREATE TABLE Traveler_Reviews (
        traveler_id   INTEGER,
        postal_code   CHAR(6),
        address       CHAR(30),
        rating        INTEGER NOT NULL,
        PRIMARY KEY (traveler_id, postal_code, address),
        FOREIGN KEY (postal_code, address) REFERENCES Residence
                ON DELETE CASCADE,
        FOREIGN KEY (traveler_id) REFERENCES Traveler (cid)
)

CREATE TABLE Posting (
        pid             INTEGER,
        from_date       DATE NOT NULL,
        to_date         DATE NOT NULL,
        description     CHAR(140),
        host_id         INTEGER NOT NULL,
        PRIMARY KEY (pid),
        FOREIGN KEY (host_id) REFERENCES Host (cid)
                ON DELETE CASCADE
)
```

```
CREATE TABLE Contract_Signs (
        contract_id     INTEGER,
        from_date       DATE NOT NULL,
        to_date         DATE NOT NULL,
        is_cancelled    INTEGER NOT NULL,
        host_id         INTEGER NOT NULL,
        traveler_id     INTEGER NOT NULL,
        PRIMARY KEY (contract_id),
        FOREIGN KEY (postal_code, address) REFERENCES Residence,
        FOREIGN KEY (host_id) REFERENCES Host (cid),
        FOREIGN KEY (traveler_id) REFERENCES Traveler (cid)
)
```