Университет ИТМО

Факультет ПИиКТ.

Кафедра ВТ.

Лабораторная работа №2

по Базам данных

Вариант 1312

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Санкт-Петербург

2018 год.

1. Текст задания.

Сколько бы ни приходилось покидать Землю, подумал доктор Хейвуд Флойд, - все равно всякий раз волнуешься не меньше. Он побывал на Марсе, трижды - на Луне, а на различные космические станции летал так часто, что давно уже сбился со счету. И все же теперь, когда близился момент старта, он ощутил, как нарастает в нем напряжение, какое-то изумленно-благоговейное чувство, ну и, конечно, самое обыкновенное волнение, как у новичка перед первым космическим "крещением".

1. Описание предметной области.

There is a space traveling service with the purpose of serving people traveling in the universe by spaceship.

Each spaceship has a unique ID, name, model, location, maximum speed and its current status( is broken or not). Every spaceship has its own spacecrew and storage.

The spacecrew members are distinguished by id, their working spaceship ID, their first name, middle name, last name, job and time traveled on spaceship( as experience time). For the storage there is information about the storage ID, kind of good, type of good, quantity and unit.

Each trip should include information of departuring time, arriving time, distance between two locations, traveling time, departure location, destination, total seats and available seats.

The departure locations and destinations of the trips are planets and spaceship stations. Each planet has its own id, name, location, and condition on that planet( whether people can survive on that planet or not). Space stations are distinguished by their ID and have information about their name, model, location and status (is broken or not).

Each location in the space has three indices: xx, yy, zz and its ID.

Human have their ID, first name, middle name, last name, gender, age and contact information( telephone number).

1. Список сущностей и их классификацию (стержневая, ассоциация, характеристика).
2. Spaceship:

* Sship\_ID
* Name
* Model
* Location\_ID
* Max\_Speed
* Is\_Broken

1. Spacecrew:

* SShip\_ID
* Human\_ID
* Fname
* Mname
* Lname
* Work\_As
* Time\_Traveled\_Hours

1. Storage:

* SShip\_ID
* Storage\_ID
* Kind\_of\_Good
* Quantity
* Unit

1. Trip:

* Trip\_ID
* Departing\_From
* Arrive\_To
* Arriving\_Time
* Departing\_Time
* Distance
* Sship\_ID
* Trip\_Time\_Hours  
  Total\_Seat
* Remain\_Seat

1. Planet:

* Planet\_ID
* Name
* Location\_ID
* Can\_live

1. Spaceship Station:

* Sstation\_ID
* Name
* Model
* Is\_Broken

1. Location:

* Location\_ID
* XX
* YY
* ZZ

1. Human:

* Human\_ID
* F\_Name
* M\_Name
* L\_Name
* Gender
* Age
* Contact

1. Реализация даталогической модели на SQL.

studs=> CREAT TABLE SPACESHIP(SSHIP\_ID SERIAL PRIMARY KEY, NAME TEXT NOT NULL, MODEL TEXT NOT NULL, LOCATION\_ID SERIAL FOREIGN KEY, MAX\_SPEED INT NOT NULL, IS\_BROKEN VARCHAR(1) NOT NULL CHECK (IS\_BROKEN = “Y” OR IS\_BROKEN = “Y”))

studs-> CREAT TABLE SPACECREW(SSHIP\_ID SERIAL FOREIGN KEY, HUMAN\_ID SERIAL FOREIGN KEY, F\_NAME TEXT NOT NULL, M\_NAME TEXT NOT NULL, L\_NAME TEXT NOT NULL, WORK\_AS TEXT NOT NULL, TIME\_TRAVEL\_HOURS INT NOT NULL CHECK (TIME\_TRAVEL\_HOURS>0))

studs-> CREAT TABLE STORAGE(SSHIP\_ID SERIAL FOREIGN KEY, STORAGE\_ID PRIMARY KEY, KIND\_OF\_GOOD TEXT NOT NULL, QUANTITY INT NOT NULL CHECK (QUANTITY >=0), UNIT TINYTEXT NOT NULL)

studs-> CREAT TABLE TRIP(TRIP\_ID SERIAL PRIMARY KEY, DEPARTING\_FROM TEXT NOT NULL, ARRIVE\_TO TEXT NOT NULL, DEPARTING\_TIME DATATIME NOT NULL, ARRIVING\_TIME DATATIME NOT NULL, DISTANCE REAL NOT NULL, SSHIP\_ID SERIAL FOREIGN KEY, TRIP\_TIME\_HOURS REAL NOT NULL, TOTAL\_SEAT INT NOT NULL, REMAIN\_SEAT INT NOT NULL)

studs-> CREAT TABLE PLANET(PLANET\_ID SERIAL PRIMARY KEY, NAME TEXT NOT NULL, LOCATION\_ID SERIAL FOREIGN KEY, CAN\_LIVE VARCHAR(1) NOT NULL CHECK (CAN\_LIVE = “Y” OR CAN\_LIVE = “Y”))

studs-> CREAT TABLE SPACESHIP\_STATION(SSTATION\_ID SERIAL PRIMARY KEY, NAME TEXT NOT NULL, MODEL TEXT NOT NULL, LOCATION\_ID SERIAL FOREIGN KEY, IS\_BROKEN VARCHAR(1) NOT NULL CHECK (IS\_BROKEN = “Y” OR IS\_BROKEN = “Y”))

studs-> CREAT TABLE LOCATION(LOCATION\_ID SERIAL PRIMARY KEY, XX REAL NOT NULL, YY REAL NOT NULL, ZZ REAL NOT NULL)

studs-> CREAT TABLE HUMAN(HUMAN\_ID SERIAL PRIMARY KEY, F\_NAME TEXT NOT NULL, M\_NAME TEXT NOT NULL, L\_NAME TEXT NOT NULL, GENDER VARCHAR(1) NOT NULL CHECK (GENDER = “M” OR GENDER = “W”), AGE INT NOT NULL CHECK (AGE>=18), CONTACT TEXT NOT NULL)

studs-> CREAT TABLE LIST\_TRIP\_PASSENGER(TRIP\_ID SERIAL FOREIGN KEY, BUYER\_FNAME TEXT NOT NULL, BUYER\_MNAME TEXT NOT NULL, BUYER\_LAME TEXT NOT NULL, PASSPORT TEXT NOT NULL, SEAT\_NUMBER INT NOT NULL, PRICE INT NOT NULL, BEEN\_THERE VARCHAR(1) CHECK (BEEN\_THERE = “Y” OR BEEN\_THERE = “Y”))

1. Выводы по работе.