

Выполнил студент группы 2345 Романенко Кирилл Денисович

1. В таблице streams переименуйте столбец даты начала обучения в started_at.
2. В таблице streams добавьте столбец даты завершения обучения finished_at.
3. Приведите базу данных в полное соответствие с данными в таблицах ниже:

Таблица 1. Преподаватели

id	name	surname	email
1	Николай	Савельев	saveliev.n@mai.ru
2	Наталья	Петрова	petrova.n@yandex.ru
3	Елена	Малышева	malisheva.e@google.com

Таблица 2. Курсы

id	name
1	Базы данных
2	Основы Python
3	Linux. Рабочая станция

Таблица 3. Потoki

id	course_id	number	started_at	students_amount	finished_at
1	3	165	18.08.2020	34	
2	2	178	02.10.2020	37	
3	1	203	12.11.2020	35	
4	1	210	03.12.2020	41	

Таблица 4. Успеваемость

teacher_id	stream_id	grade
3	1	4,7
2	2	4,9
1	3	4,8
1	4	4,9

ИСХОДНИК

Teachers

```
teacher_id INTEGER PRIMARY KEY AUTOINCREMENT
name TEXT NOT NULL
surname TEXT NOT NULL
email TEXT NOT NULL UNIQUE
```

Courses

```
course_id INTEGER PRIMARY KEY AUTOINCREMENT
title TEXT NOT NULL UNIQUE
```

Streams

```
stream_id INTEGER NOT NULL UNIQUE
course_id INTEGER NOT NULL
start_date TEXT NOT NULL
stream_number INTEGER NOT NULL UNIQUE
number_of_students INTEGER NOT NULL
PRIMARY KEY(course_id, stream_id)
FOREIGN KEY (course_id) REFERENCES
courses(course_id)
```

Grade

```
teacher_id INTEGER NOT NULL
stream_id INTEGER NOT NULL UNIQUE
grade REAL NOT NULL
PRIMARY KEY(teacher_id, stream_id)
FOREIGN KEY (teacher_id) REFERENCES
teachers(teacher_id)
FOREIGN KEY (stream_id) REFERENCES
streams(stream_id)
```

РЕШЕНИЕ:

Шаг 1.

<i>Teachers</i>
ALTER TABLE teachers RENAME COLUMN teacher_id TO id;
<i>Courses</i>
ALTER TABLE courses RENAME COLUMN course_id TO id;
ALTER TABLE courses RENAME COLUMN title TO name;
<i>Streams</i>
ALTER TABLE streams RENAME COLUMN stream_id TO id;
ALTER TABLE streams RENAME COLUMN stream_number TO number;

ALTER TABLE streams RENAME COLUMN start_date TO started_at;
ALTER TABLE streams RENAME COLUMN number_of_students TO students_amount;
ALTER TABLE streams ADD COLUMN finished_at TEXT NOT NULL;
Grades
ALTER TABLE grade RENAME TO grades;

War 2.

.schema teachers

```
CREATE TABLE teachers (
  id INTEGER PRIMARY KEY AUTOINCREMENT,
  name TEXT NOT NULL,
  surname TEXT NOT NULL,
  email TEXT NOT NULL UNIQUE
);
```

.schema courses

```
id INTEGER PRIMARY KEY AUTOINCREMENT,
name TEXT NOT NULL UNIQUE
);
```

.schema streams

```
CREATE TABLE streams (
  id INTEGER NOT NULL UNIQUE,
  course_id INTEGER NOT NULL,
  started_at TEXT NOT NULL,
  number INTEGER NOT NULL UNIQUE,
  students_amount INTEGER NOT NULL, finished_at TEXT NOT
  NULL,
  PRIMARY KEY(course_id, id),
  FOREIGN KEY (course_id) REFERENCES courses(id)
);
```

.schema grades

```
CREATE TABLE IF NOT EXISTS "grades" (
  teacher_id INTEGER NOT NULL,
  stream_id INTEGER NOT NULL UNIQUE,
  grade REAL NOT NULL,
  PRIMARY KEY(teacher_id, stream_id),
  FOREIGN KEY (teacher_id) REFERENCES teachers(id),
  FOREIGN KEY (stream_id) REFERENCES streams(id)
);
```

Шаг 3.

```
SELECT * FROM teachers;
```

```
INSERT INTO teachers VALUES (1, 'Николай', 'Савельев', 'saveliev.n@mai.ru');
```

```
INSERT INTO teachers (id, name, surname, email) VALUES (2, 'Наталья', 'Петрова', 'petrova.n@yandex.ru');
```

```
INSERT INTO teachers (name, surname, email) VALUES ('Елена', 'Малышева', 'malisheva.e@google.com');
```

```
SELECT * FROM teachers;
```

```
1|Николай|Савельев|saveliev.n@mai.ru
```

```
2|Наталья|Петрова|petrova.n@yandex.ru
```

```
3|Елена|Малышева|malisheva.e@google.com
```

```
SELECT * FROM courses;
```

```
INSERT INTO courses VALUES (1, 'Базы данных');
```

```
INSERT INTO courses (name) VALUES ('Основы Python');
```

```
INSERT INTO courses (id, name) VALUES (3, 'Linux. Рабочая станция');
```

```
SELECT * FROM courses;
```

```
1|Базы данных
```

```
2|Основы Python
```

```
3|Linux. Рабочая станция
```

```
SELECT * FROM streams
```

```
INSERT INTO streams (id, course_id, number, started_at, students_amount, finished_at) VALUES
```

```
(1, 3, 165, '18.08.2020', 34, '-');
```

```
(2, 2, 178, '02.10.2020', 37, '-');
```

```
(3, 1, 203, '12.11.2020', 35, '-');
```

```
(4, 1, 210, '03.12.2020', 41, '-');
```

```
SELECT * FROM streams;
```

```
1|3|18.08.2020|165|34|-
```

```
2|2|02.10.2020|178|37|-
```

```
3|1|12.11.2020|203|35|-
```

```
4|1|03.12.2020|210|41|-
```

```
SELECT * FROM grades
```

```
INSERT INTO grades (teacher_id, stream_id, grade) VALUES
```

```
(3, 1, 4.7),
```

```
(2, 2, 4.9),
```

```
(1, 3, 4.8),
```

```
(1, 4, 4.9);
```

teacher_id	stream_id	grade
3	1	4.7
2	2	4.9
1	3	4.8
1	4	4.9

```
.header on
```

```
.mode column
```

```
SELECT * FROM grades;
```