OTUS

Per.11: Move computation from run time to compile time

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ОНЛАЙН-ОБРАЗОВАНИЕ

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Щепотка реляционной алгебры

```
course
+——+————+
| id | name   |
+——+————+
|  1 | c++    |
|  2 | python |
+——+————+
```

- ► столбцы - домены
- ► строки - кортежи
- ► набор строк - отношение
- ► id - первичный ключ
- ► вторичный ключ

Щепотка кода

```cpp
struct Course {
  int id;
  std::string name;
};

std::vector<Course> course = {
  {1, "c++"},
  {2, "python"}
};
```

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Щепотка SQL

```sql
CREATE TABLE course
(
  id    INT  PRIMARY KEY,
  name TEXT
)

INSERT INTO course (id, name) VALUES (1, 'c++');
INSERT INTO course (id, name) VALUES (2, 'python');
```

dataset

```
user
+——+————+
| id | name    |
+——+————+
|  1 | andrew  |
|  2 | ivan    |
|  3 | maxim   |
|  4 | oleg    |
+——+————+

course
+——+————+
| id | name    |
+——+————+
|  1 | c++     |
|  2 | python  |
+——+————+
```

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dataset

group

id	name	course_id
1	2017−12	1
2	2018−02	1
3	2016−12	2

member

id	group_id	user_id
1	1	1
2	1	2
3	1	3
4	2	1

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Щепотка SQL

```
DELETE FROM tbl_name
    [WHERE where_condition]
```

Щепотка SQL

```sql
SELECT * FROM user;
SELECT * FROM user WHERE id = 1;
SELECT * FROM user WHERE name = "andrew";
SELECT * FROM user WHERE id = 2 AND name = "andrew";
SELECT * FROM user WHERE id = 2 OR name = "andrew";
```

Щепотка SQL

```sql
SELECT
    *,
    count(*)
FROM 'group'
WHERE course_id = 2
GROUP BY course_id
ORDER BY name;
```

Щепотка SQL

```sql
SELECT
    *,
    count(*)
FROM 'group'
WHERE course_id = 2
GROUP BY course_id
ORDER BY name;
```

Щепотка SQL

```
START  TRANSACTION ;
COMMIT ;
ROLLBACK ;
```

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MySQL Connector/C++

```cpp
sql::mysql::MySQL_Driver *driver;
sql::Connection *con;
sql::Statement *stmt;

driver = sql::mysql::get_mysql_driver_instance();
con = driver->connect(
  "tcp://127.0.0.1:3306", "user", "password");

stmt = con->createStatement();
stmt->execute("USE " EXAMPLE_DB);
stmt->execute("DROP TABLE IF EXISTS test");
stmt->execute("CREATE TABLE test(id INT, label CHAR(1))");
stmt->execute("INSERT INTO test(id, label) VALUES (1, 'a')");

delete stmt;
delete con;
```

MySQL Connector/C++

```cpp
stmt = con->createStatement();

res = stmt->executeQuery(
  "SELECT id, label FROM test ORDER BY id ASC");
while (res->next()) {
  cout << "id = " << res->getInt(1) << endl;
  cout << "label = " << res->getString("label") << endl;
}

delete res;
delete stmt;
```
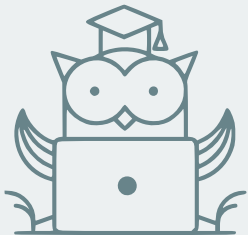
O T U S

Щепотка SQL

```
START  TRANSACTION ;
COMMIT ;
ROLLBACK ;
```

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Щепотка SQL

FULL OUTER JOIN
INNER JOIN

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Спасибо за внимание!

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