The Database Layer of Yii Framework 2.0

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- code simplification and readablity

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- reusable code and MVC separation

Why do we need DB abstraction?

- code simplification and readablity
- reusable code and MVC separation
- security enhancements

3 Layers

DAO
Database Access Objects

3 Layers

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Query Builder

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Active Record

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yii\db\Command

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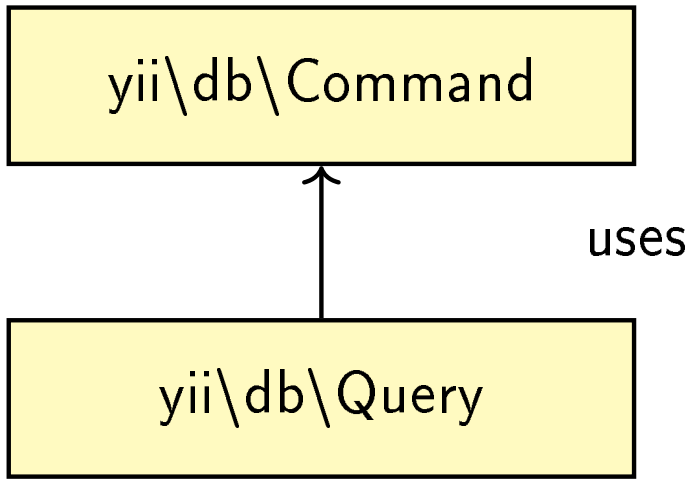

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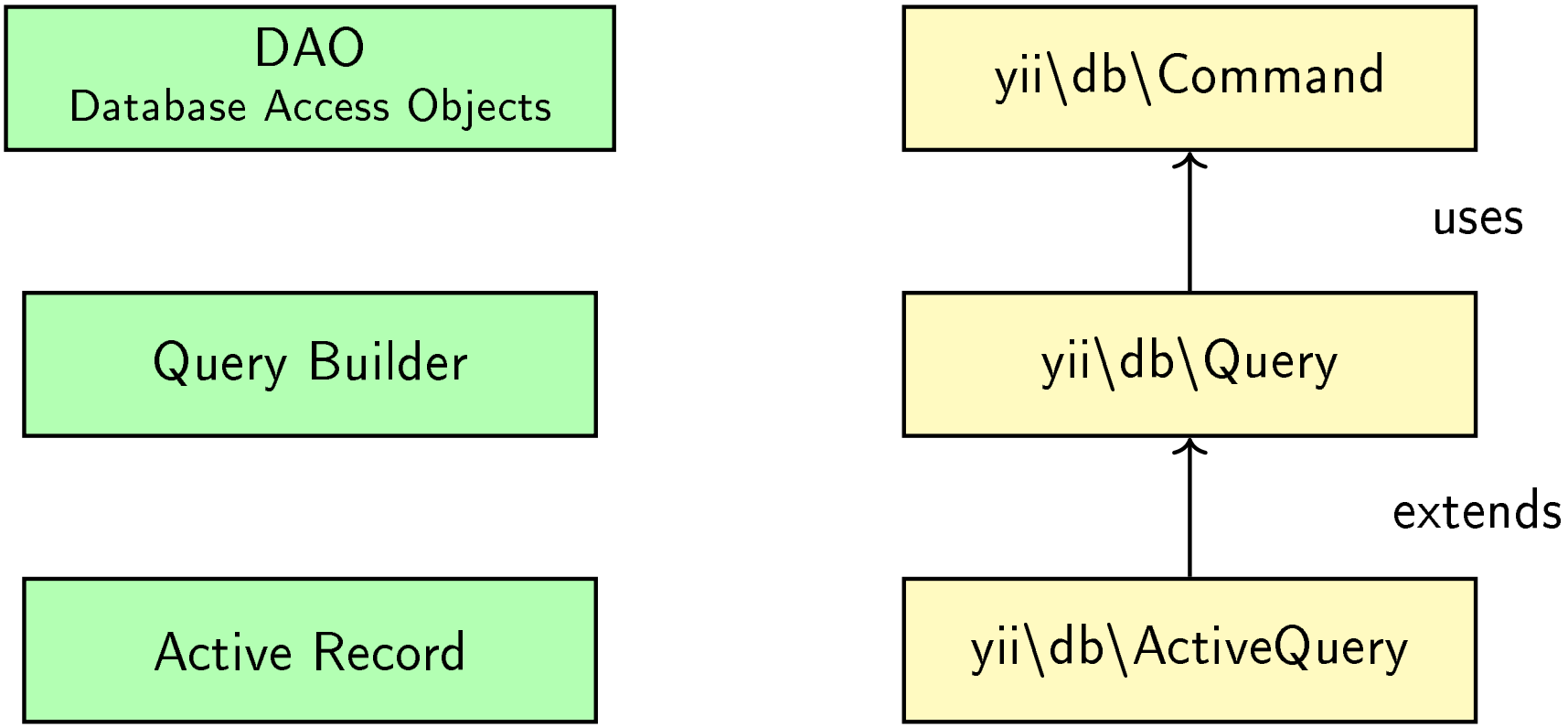
DAO
Database Access Objects
Query Builder
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yii\db\Command
uses
yii\db\Query
extends
yii\db\ActiveQuery

Command Usage

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    'username' => 'cebe',
    'password' => '1337',
]);

$db->open();
$command = $db->createCommand("SELECT * FROM user");
$user = $command->queryOne();
$users = $command->queryAll();
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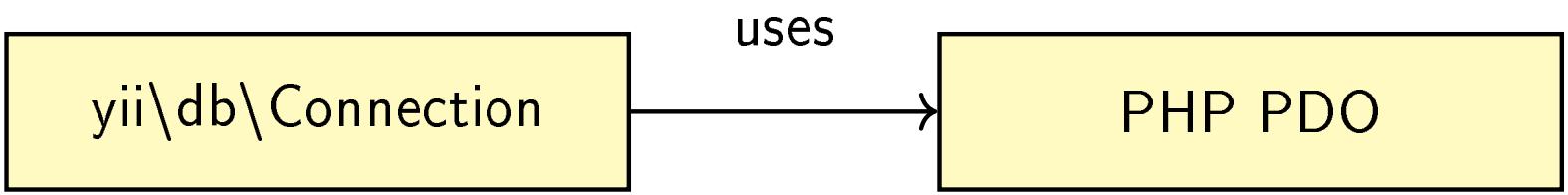

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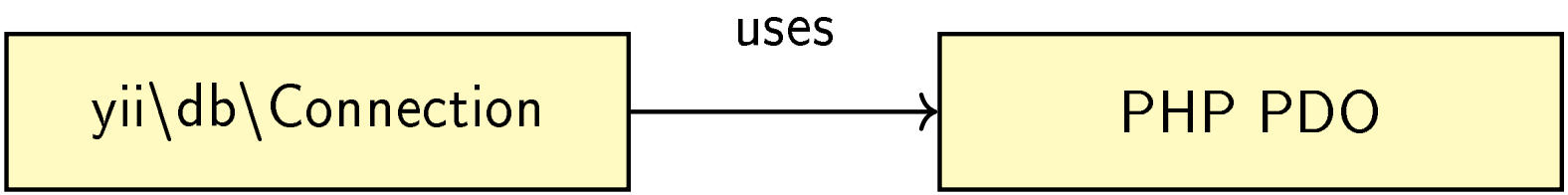

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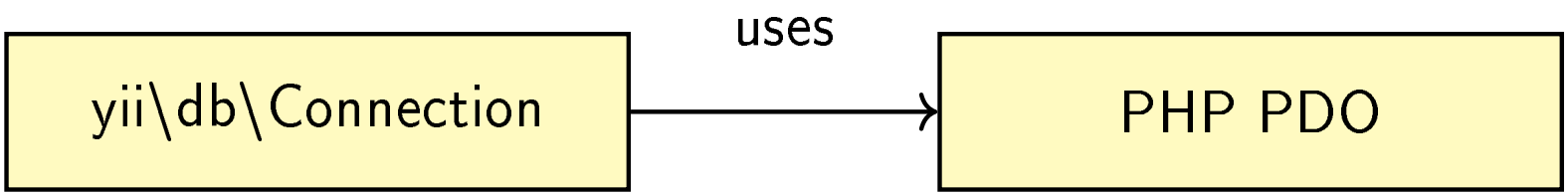

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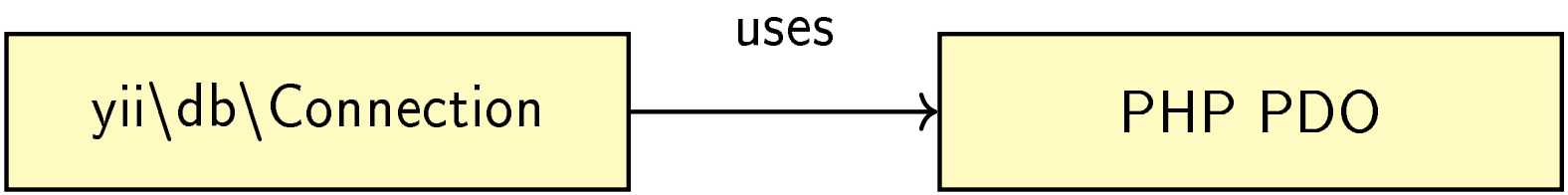

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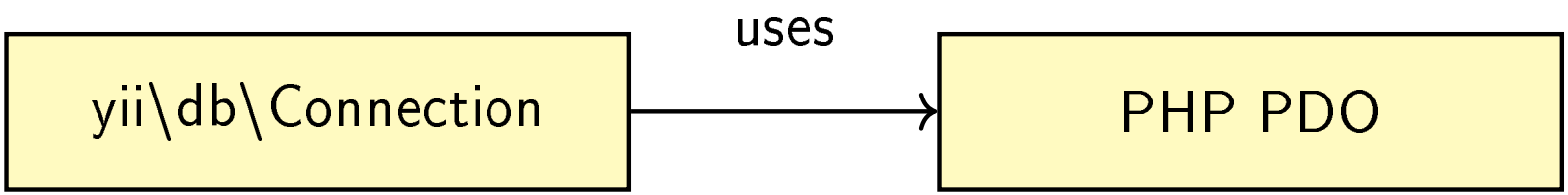

Command Usage

```
$db->createCommand()->insert('users', [
        'name' => 'CeBe',
        'email' => 'mail@cebe.cc',
        'created_at' => time(),
        'updated_at' => time(),
])->execute();
$db->createCommand()->update(
        'users', // table
        ['name' => 'Carsten'], // SET
        "name = 'Carsten'" // WHERE
])->execute();
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Other DAO features

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Query Builder

```
$query = (new yii\db\Query)
        ->select(['name', 'email'])
        ->from('users')
        ->where(['id' => 42]);
$user = $query->one();
```

Query Builder

```
SELECT name, email FROM users WHERE id = 42
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Query Builder

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SELECT name, email FROM users WHERE id = 42
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$query = (new yii\db\Query)
        ->select(['name', 'email'])
        ->from('users')
        ->where(['id' => $_GET['id']]);
$user = $query->one();
```

Query Builder

```
SELECT name, email FROM users WHERE id = 42
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$query = (new yii\db\Query)
        ->select(['name', 'email'])
        ->from('users')
        ->where('id = :id', [':id' => $_GET['id']]);
$user = $query->one();
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$user = $query->one();
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Query Builder - Subqueries

```
$activeQuery = (new Query)
        ->select('id')
        ->from('categories')
        ->where(['active' => 1]);
$query = (new Query)
        ->from('article')
        ->where(['category_id' => $activeQuery]);
$articlesInActiveCategories = $query->all();
```

```
SELECT *
FROM article
WHERE category_id IN (
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- select()

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- select()
- from()
- join()
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- union()

Query Builder

- SQL as string, vs. real code

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- SQL as string, vs. real code
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- Separation of code

Active Record

```
class User extends yii\db\ActiveRecord
{
    public static function tableName()
    {
        return 'users';
    }
}
```

users

id	name
1	alice
2	bob
3	...
⋮	

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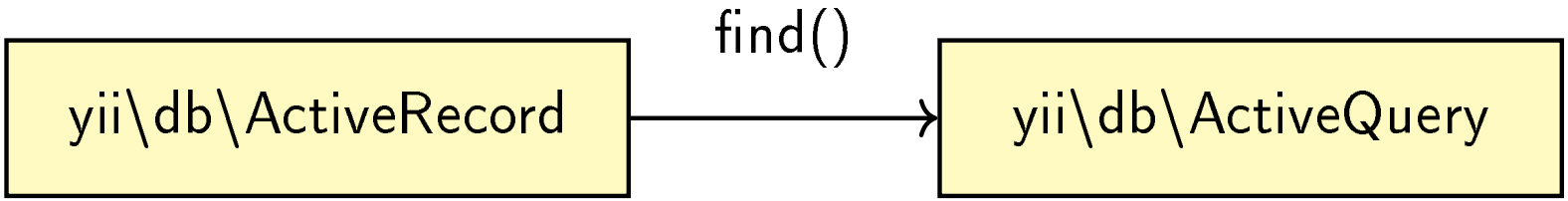

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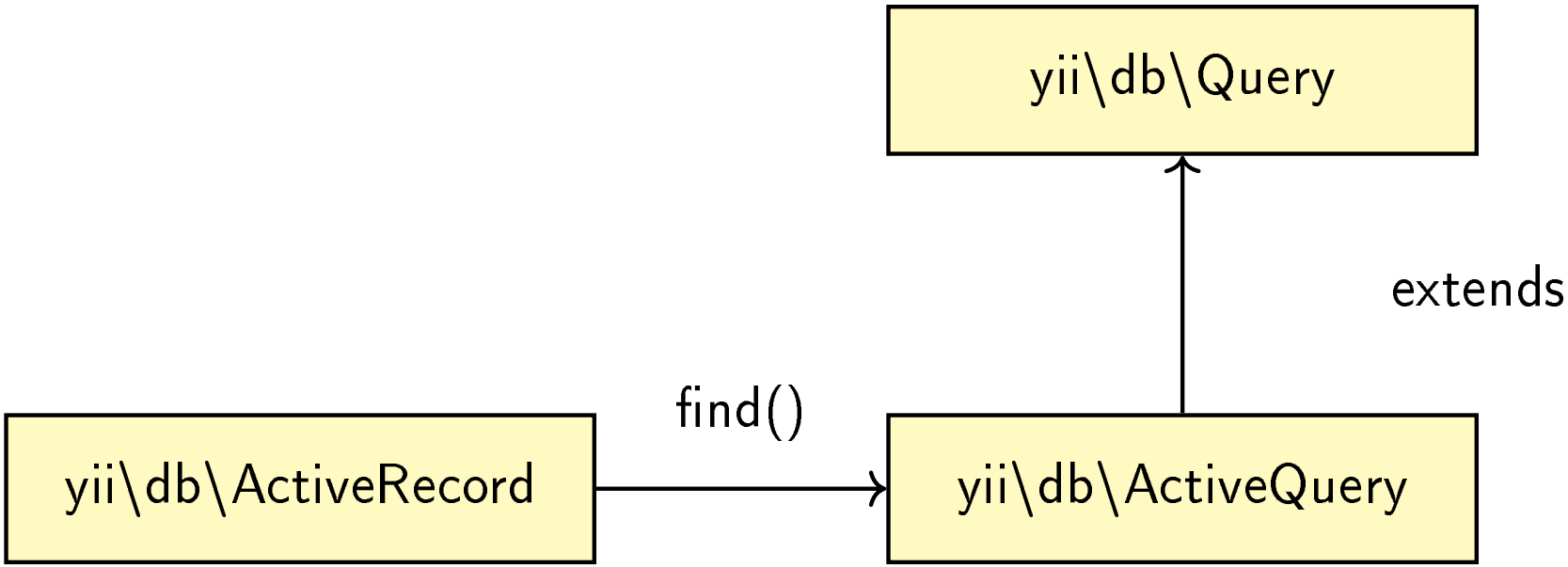

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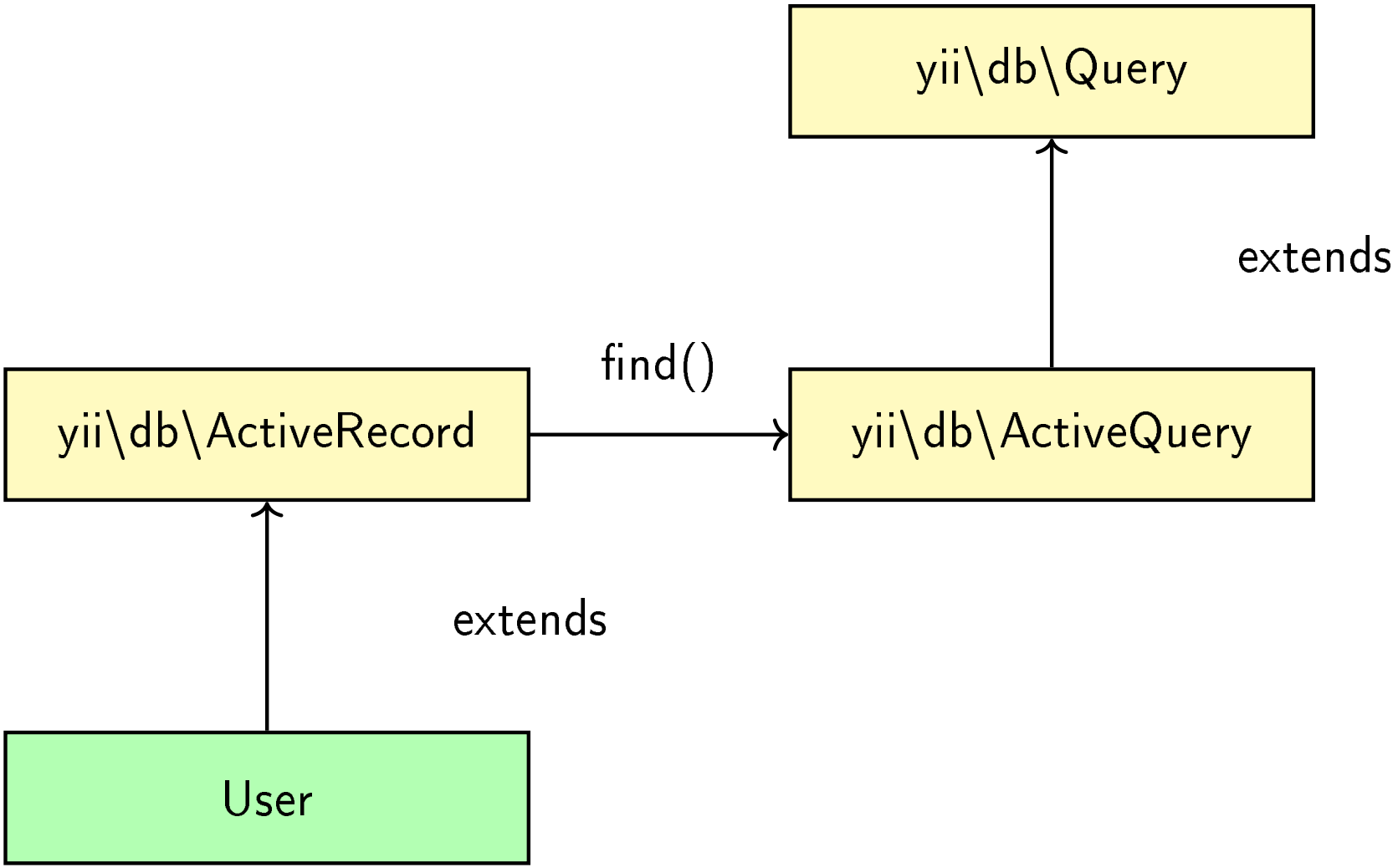

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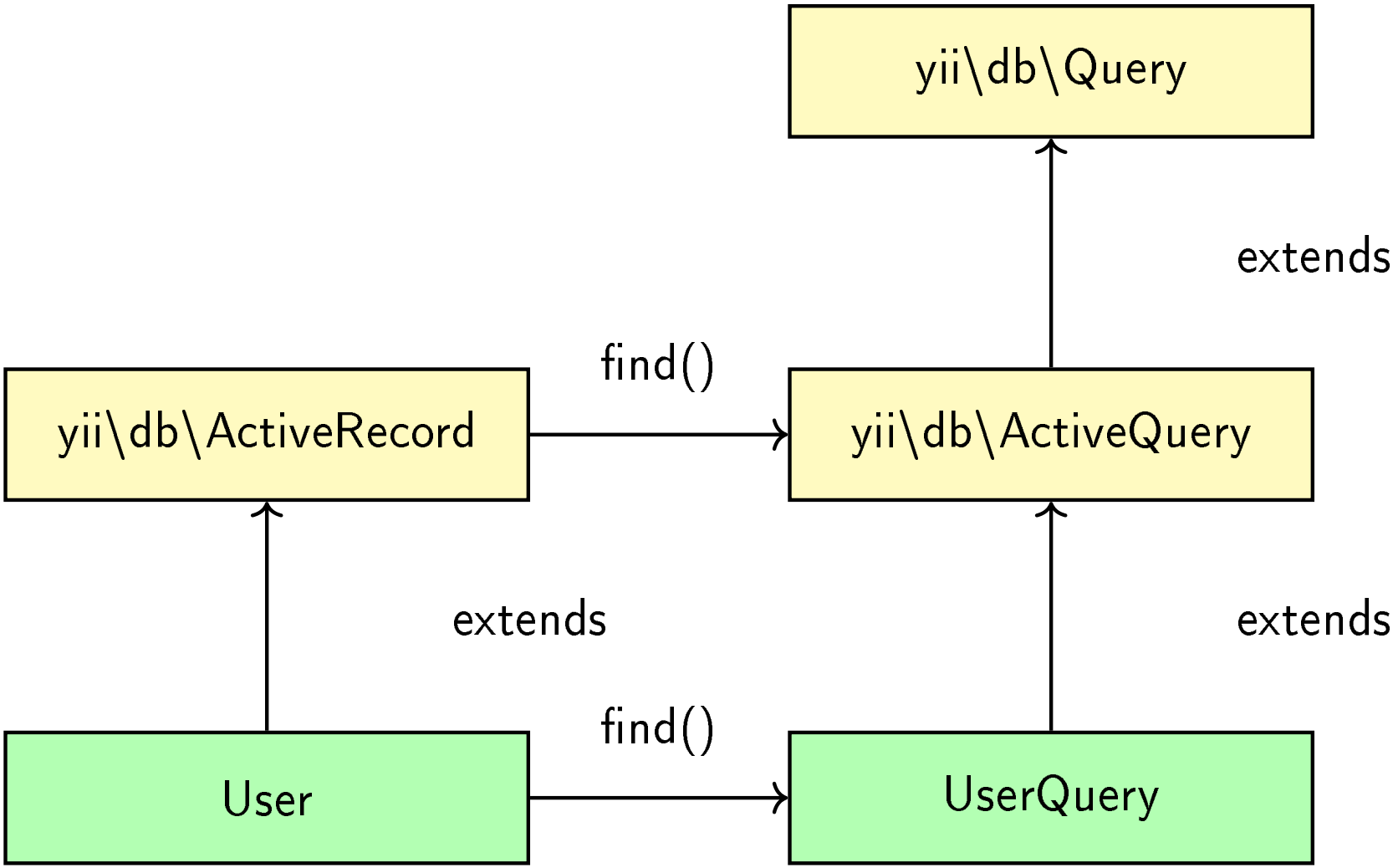

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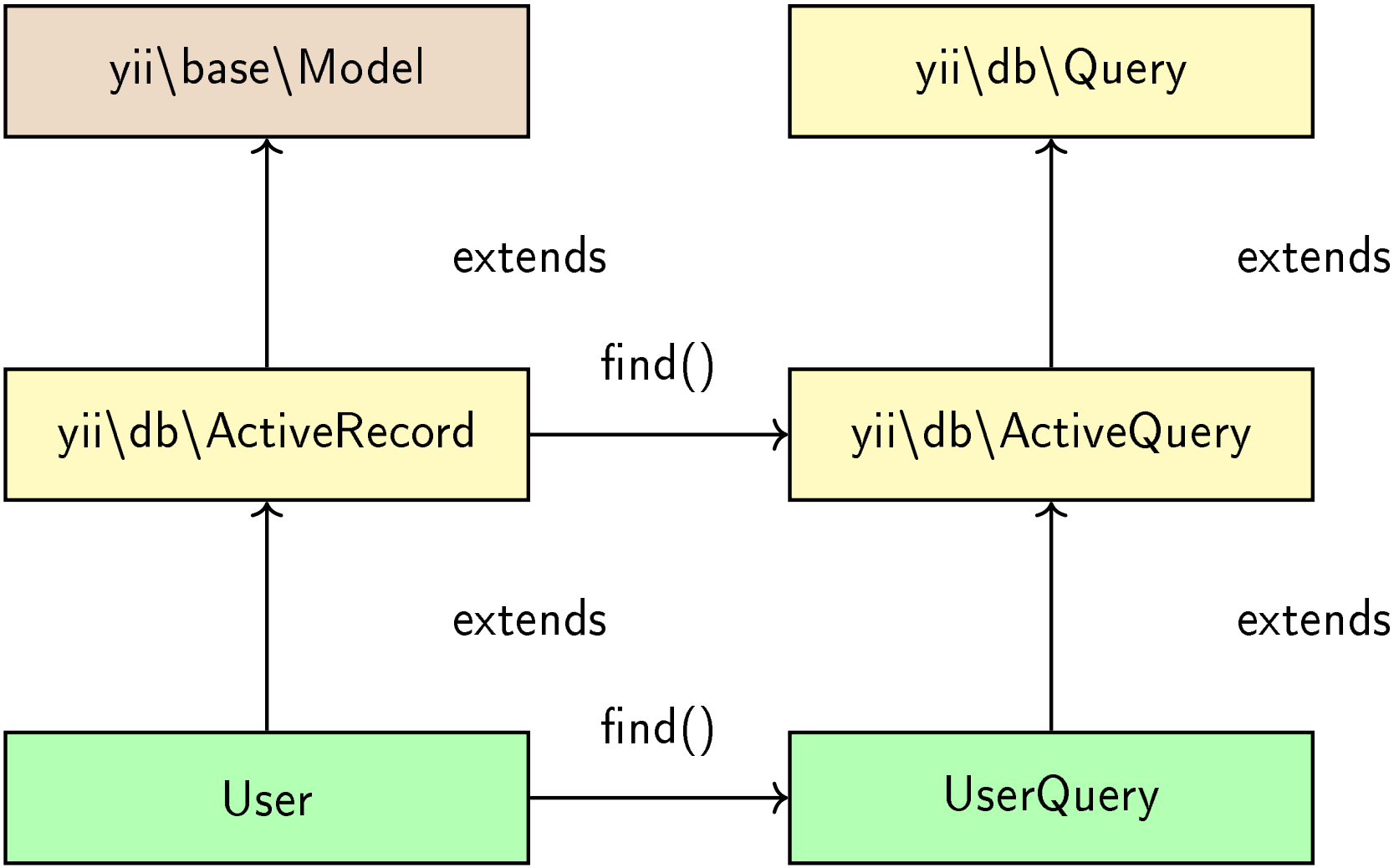

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$user = new User();
$user->attributes = $_POST['User'];
if ($user->save()) {
    echo "success!";
} else {
    echo "invalid data: " . print_r($user->getErrors());
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Active Record

```
$activeUsers = User::find()
        ->where(['active' => 1])
        ->orderBy('name')
        ->all();
$user = User::find()->where(['id' => 1])->one();
$user = User::findOne(1);
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Active Record Relations

```php
class User extends yii\db\ActiveRecord {
    // ...
    public function getProfile() {
        return $this->hasOne(Profile::class, ['user_id' => 'id']);
    }
    public function getPosts() {
        return $this->hasMany(Post::class, ['user_id' => 'id']);
    }
}
// SELECT * FROM users WHERE id = 1;
$user = User::findOne(1);
// SELECT * FROM profile WHERE user_id = 1;
$profile = $user->profile; // Profile
// SELECT * FROM posts WHERE user_id = 1;
$posts = $user->posts; // Post[]
$postQuery = $user->getPosts()->orderBy('created_at');
// SELECT * FROM posts WHERE user_id = 1 ORDER BY created_at;
$posts = $postQuery->all(); // Post[]
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$user = User::findOne(1);
// SELECT * FROM profile WHERE user_id = 1;
$profile = $user->profile; // Profile
// SELECT * FROM posts WHERE user_id = 1;
$posts = $user->posts; // Post[]
$postQuery = $user->getPosts()->orderBy('created_at');
// SELECT * FROM posts WHERE user_id = 1 ORDER BY created_at;
$posts = $postQuery->all(); // Post[]
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Active Record Relations

```
class User extends yii\db\ActiveRecord {
  // ...
  public function getProfile() {
    return $this->hasOne(Profile::class, ['user_id' => 'id']);
  }
  public function getPosts() {
    return $this->hasMany(Post::class, ['user_id' => 'id']);
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Active Record NoSQL

No JOINs?

Active Record NoSQL

No JOINs? → NoSQL!

Active Record NoSQL

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https://github.com/yiisoft/yii2-elasticsearch
https://github.com/yiisoft/yii2-mongodb
https://github.com/yiisoft/yii2-redis
https://github.com/yiisoft/yii2-sphinx

Active Record NoSQL

yii\db\ActiveRecord**Interface**

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Yii philosophy: maximum flexibilty.

Conclusion / Questions?

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Contact:
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@cebe_cc on Twitter
mail@cebe.cc via Email

https://github.com/yiisoft/yii2/issues