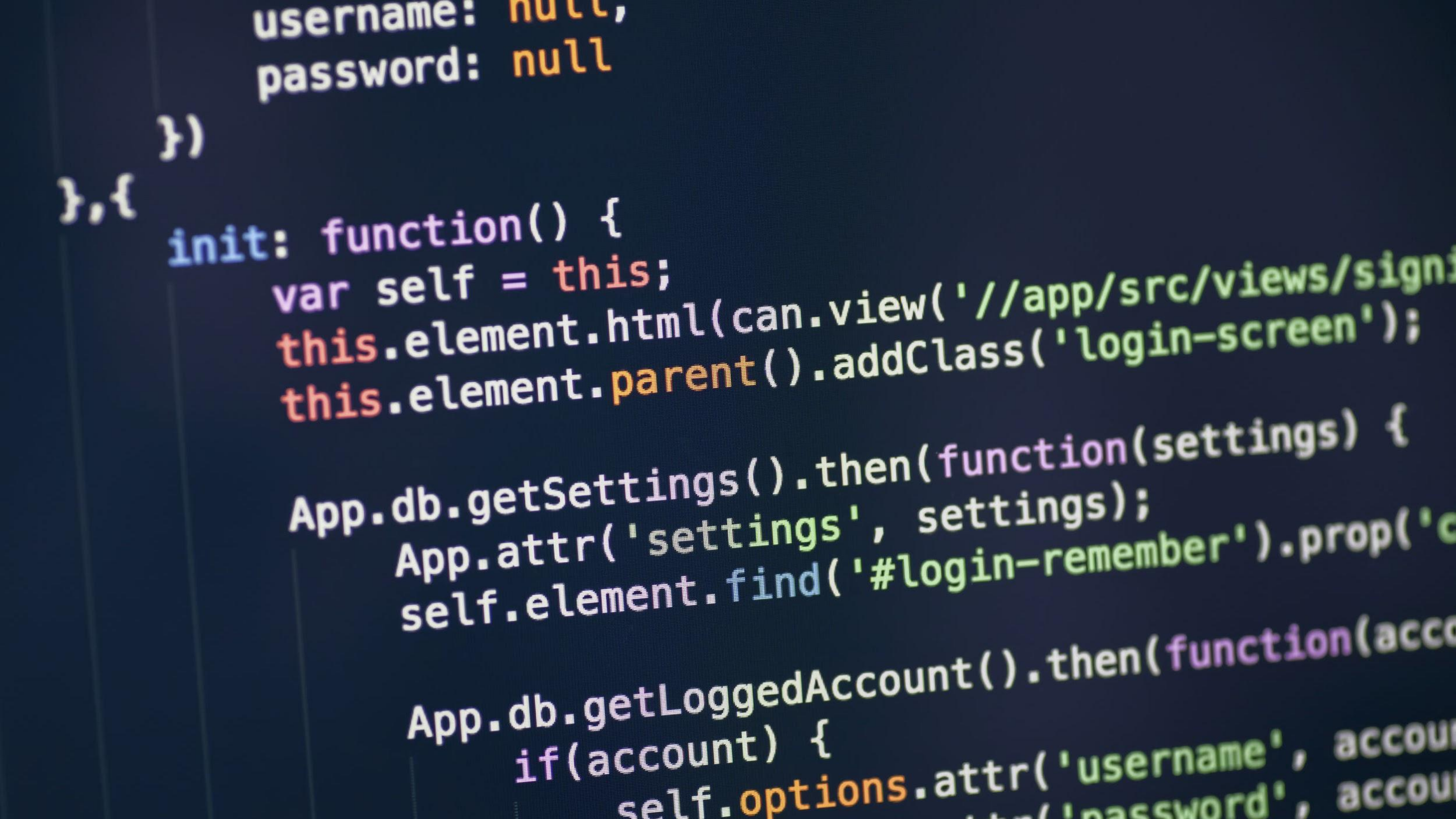
Janos Pasztor

# Clean Code in Small Companies

www.pasztor.at

Stock photo, not actual developer

Stock photo, not actual developer



```
            username: null,
            password: null
        })
    },{
    init: function() {
        var self = this;
        this.element.html(can.view('//app/src/views/signi
        this.element.parent().addClass('login-screen');

        App.db.getSettings().then(function(settings) {
            App.attr('settings', settings);
            self.element.find('#login-remember').prop('c

            App.db.getLoggedAccount().then(function(acco
                if(account) {
                    self.options.attr('username', accou
```

Stock photo, not actual developer

## Robert C. Martin

“Uncle Bob”

ENTRECLOUD

1. Reading code is hard

1. Reading code is hard

2. We all have to read code

1. Reading code is hard
2. We all have to read code
3. Surprises are bad

## Code in these Slides

```
$iAmAVariable
```

```
class UserController extends Controller {
}
```

Class name

Parent class name

```php
class UserController extends Controller {
    private $memberVariable;
}
```

Access modifier

```
class UserController extends Controller {
    public function someMethod(
        Request $request
    ) {
    }
}
```

Method name

Parameter type hint

https://pasztor.at

## A few words on testing...

*More on this later*

```php
class UserController {
    public function __construct(
        UserBusinessLogic $userBusinessLogic
    ) {

    }
}
```

```
function testRegistration() {





}
```

```
function testRegistration() {
    $userBusinessLogic =
        new UserBusinessLogicFake();




}
```

```
function testRegistration() {
    $userBusinessLogic =
        new UserBusinessLogicFake();
    $userController =
        new UserController(
            $userBusinessLogic
        );

}
```

```
function testRegistration() {
    $userBusinessLogic =
        new UserBusinessLogicFake();
    $userController =
        new UserController(
            $userBusinessLogic
        );
    //Test the user controller
}
```

## Dependency Injection

*Don’t look for things!*

```php
class UserController extends Controller {
    /**
     * @Route("/user/account", name="user_account")
     */
    public function accountAction(Request $request) {
        if (
            $this->container
                ->get('security.authorization_checker')
                ->isGranted('ROLE_SUPER_ADMIN')
        ) {
            return $this->redirectToRoute('admin_dashboard');
        }
        // Other stuff here
    }
}
```

```
class UserController extends Controller {
   /**
    * @Route("/user/account", name="user_account")
    */
   public function accountAction(Request $request) {
       if (
           $this->container
               ->get('security.authorization_checker')
               ->isGranted('ROLE_SUPER_ADMIN')
       ) {
           return $this->redirectToRoute('admin_dashboard');
       }
       // Other stuff here
   }
}
```

```
$this->container
     ->get('security.authorization_checker')
     ->isGranted('ROLE_SUPER_ADMIN')
```

```php
$this->container
      ->get('security.authorization_checker')
      ->isGranted('ROLE_SUPER_ADMIN')
```

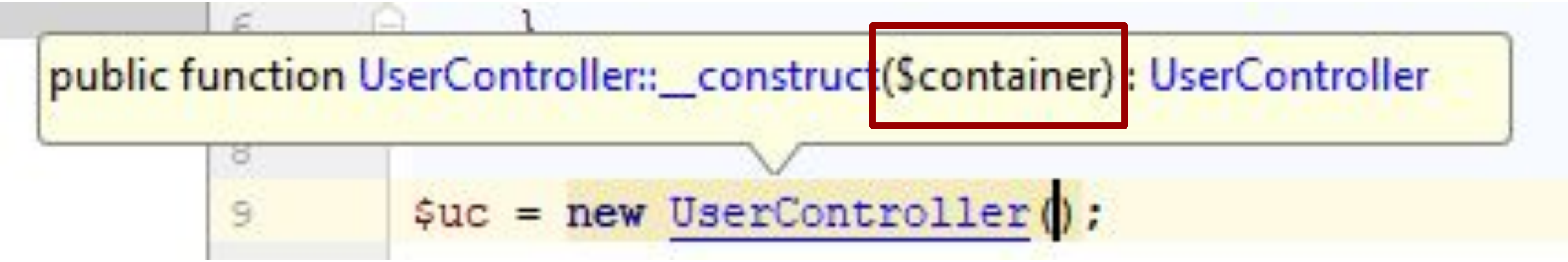
```php
$this->container
    ->get('security.authorization_checker')
    ->isGranted('ROLE_SUPER_ADMIN')
```

```php
$this->container
      ->get('security.authorization_checker')
      ->isGranted('ROLE_SUPER_ADMIN')
```

## UserController

$$\begin{tikzcd}\text{UserController} \arrow[d] \\ \text{Magic?}\end{tikzcd}$$

$$\begin{tikzcd}
\text{UserController} \arrow[d] \\
\text{Magic?} \arrow[d] \\
\text{security.authorization\_checker}
\end{tikzcd}$$



```
public function UserController::__construct($container) : UserController
```

```
$uc = new UserController();
```

```
class UserController extends Controller {















}
```

```
class UserController ~~extends Controller~~ {








}
```

```php
class UserController {

    public function __construct(
    ) {
    }

}
```

```
class UserController {

    public function __construct(
        SecurityAuthorizationChecker  $securityAuthorizationChecker
    ) {

    }









}
```

```php
class UserController {
    private $securityAuthorizationChecker;

    public function __construct(
        SecurityAuthorizationChecker $securityAuthorizationChecker
    ) {
        $this->securityAuthorizationChecker = $securityAuthorizationChecker ;
    }









}
```

```
class UserController {
    private $securityAuthorizationChecker;

    public function __construct(
        SecurityAuthorizationChecker $securityAuthorizationChecker
    ) {
        $this->securityAuthorizationChecker = $securityAuthorizationChecker;
    }

    /**
     * @Route("/user/account", name="user_account")
     */
    public function accountAction(Request $request) {
        if ($this->securityAuthorizationChecker->isGranted('ROLE_SUPER_ADMIN')) {
            return $this->redirectToRoute('admin_dashboard');
        }
    }
}
```

```
class UserController {
    private $securityAuthorizationChecker;

    public function __construct(
        SecurityAuthorizationChecker $securityAuthorizationChecker
    ) {
        $this->securityAuthorizationChecker = $securityAuthorizationChecker;
    }

    /**
     * @Route("/user/account", name="user_account")
     */
    public function accountAction(Request $request) {
        if ($this->securityAuthorizationChecker->isGranted('ROLE_SUPER_ADMIN')) {
            return $this->redirectToRoute('admin_dashboard');
        }
    }
}
```

## Dependency Injectors

*Moving the Magic out of your Program*

$$\begin{tikzcd}
\text{UserController} \arrow[d] \\
\text{UserBusinessLogic} \arrow[d] \\
\text{UserStorage}
\end{tikzcd}$$

```
class UserController {
    public function __construct(
        UserBusinessLogic $userBusinessLogic
    ) {
    }
}
```

```php
class UserController {
    public function __construct(
        UserBusinessLogic $userBusinessLogic
    ) {
    }
}
class UserBusinessLogic {
    public function __construct(
        UserStorage $userStorage
    ) {
    }
}
```

```
class UserController {
    public function __construct(
        UserBusinessLogic $userBusinessLogic
    ) {
    }
}
class UserBusinessLogic {
    public function __construct(
       UserStorage $userStorage
    ) {
    }
}
class UserStorage {
}
```

```php
$uc = new UserController(
    new UserBusinessLogic(
        new UserStorage()
    )
);
```

```
$injector = new Injector();
```

```
$injector = new Injector();

$uc = $injector->make(UserController::class);
```

```
class MySQLConnection {
    public function __construct(
        string $server,
        string $username,
        string $password,
        string $db
    ) {
    }
}
```

```php
$injector->define(MySQLConnection::class, [
    'server'   => 'localhost',
    'user'     => 'root',
    'password' => 'changeme',
    'db'       => 'app'
]);
```

- **PHP:** Auryn, Laravel Service Container, Symfony Service Container
- **Java:** Gource, Dagger, Dagger2, Opsbears Web Components DIC
- **Python:** dependency_injector
- **Javascript:** InversifyJS

```php
class UserController extends Controller {
   /**
    * @Route("/user/account", name="user_account")
    */
   public function accountAction(Request $request) {
       if (
           $this->container
               ->get('security.authorization_checker')
               ->isGranted('ROLE_SUPER_ADMIN')
       ) {
           return $this->redirectToRoute('admin_dashboard');
       }
       // Other stuff here
   }
}
```

```php
class UserController extends Controller {
    /**
     * @Route("/user/account", name="user_account")
     */
    public function accountAction(Request $request) {
        if (
            $this->container
                ->get('security.authorization_checker')
                ->isGranted('ROLE_SUPER_ADMIN')
        ) {
            return $this->redirectToRoute('admin_dashboard');
        }
        // Other stuff here
    }
}
```

```
class UserController extends Controller {
   /**
    * @Route("/user/account", name="user_account")
    */
   public function accountAction(Request $request) {
       if (
           $this->injector
                ->make(SecurityAuthorizationChecker::class)
                ->isGranted('ROLE_SUPER_ADMIN')
       ) {
           return $this->redirectToRoute('admin_dashboard');
       }
       // Other stuff here
   }
}
```

```
class UserController extends Controller {
   /**
    * @Route("/user/account", name="user_account")
    */
   public function accountAction(Request $request) {
       if (
           $this->injector
               ->make(SecurityAuthorizationChecker::class)
               ->isGranted('ROLE_SUPER_ADMIN')
       ) {
           return $this->redirectToRoute('admin_dashboard')
       }
       // Other stuff here
   }
}
```

## Static Function Calls

*Might Be Bad For Your Code Quality*

```php
class UserController extends Controller {
   /**
    * @Route("/user/account", name="user_account")
    */
   public function accountAction(Request $request) {
       if (
           $this->injector
               ->make(SecurityAuthorizationChecker::class)
               ->isGranted('ROLE_SUPER_ADMIN')
       ) {
           return $this->redirectToRoute('admin_dashboard');
       }
       // Other stuff here
   }
}
```

```
class UserController extends Controller {
   /**
    * @Route("/user/account", name="user_account")
    */
   public function accountAction(Request $request) {
       if (
           SecurityAuthorizationChecker
               ::isGranted('ROLE_SUPER_ADMIN')
       ) {
           return $this->redirectToRoute('admin_dashboard');
       }
       // Other stuff here
   }
}
```

```php
$uc = new UserController();
```

## Immutable Objects

*Avoiding Surprises*

```php
class User {
    private $id;

    public function setId($id) {
        $this->id = $id;
    }

    public function getId() {
        return $this->id;
    }
}
```

```
new User()
```

```php
class User {
    private $id;

    public function setId($id) {
        $this->id = $id;
    }

    public function getId() {
        return $this->id;
    }
}
```

```php
class User {
    private $id;

    public function ~~setId~~($id) {
        $this->id = $id;
    }

    public function getId() {
        return $this->id;
    }
}
```

```php
class User {
    private $id;

    public function __construct($id) {
        $this->id = $id;
    }

    public function getId() {
        return $this->id;
    }
}
```

```php
class UserStorage {
    private $users = [];

    public function store(User $user) {
        $this->users[$user->getId()] = $user;
    }









}
```

```php
class UserStorage {
    private $users = [];

    public function store(User $user) {
        $this->users[$user->getId()] = $user;
    }

    public function retrieve($id) {
        if (isset($this->users[$id])) {
            return $this->users[$id];
        } else {
            throw new UserNotFoundException($id);
        }
    }
}
```

## Less Code in One Class

*Your All-In-One Weightloss Program*

```
class UserController {
    public function register() {}

    public function search() {}

    public function get() {}

    public function update() {}

    public function delete() {}
}
```

```
Route::get(
    '/users',
    function (

    ) {
        return 'User list';
    }
);
```

```
Route::get(
    '/users',
    function (
        UserBusinessLogic $userBusinessLogic
    ) {
        return 'User list';
    }
);
```

```php
class UserRegisterController {
    public function __construct(
        UserBusinessLogic $userBusinessLogic
    ) {
    }

    public function register() {
    }
}
```

## Static Typing

*Saves you from a **** ton of issues*

```
function search(
    $needle,
    $haystack
) {

}
```

```php
function search(
    string $needle,
    array $haystack
) {

}
```

| | |
|---|---|
| JavaScript | Typescript |
| PHP | phpstan |
| Python | mypy |
| Java | *builtin* |

## Strict Typing

*Because your String is not an Integer*

## PHP

```php
<?php

declare(strict_types=1);
```

PHP

```
<?php

declare(strict_types=1);
```

JavaScript

Typescript

## Structuring your Code

*Because your Code is not a Clown Car*

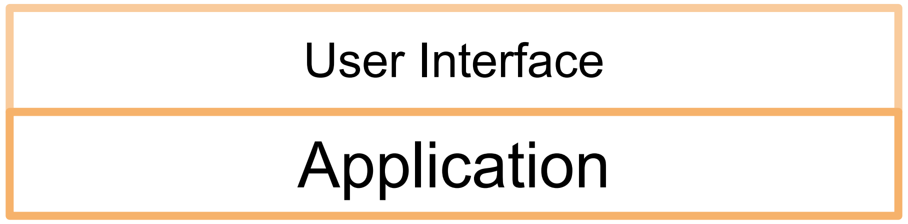
- /controller
  - UserRegisterController.php
  - UserListController.php
  - …
- /model
- /view

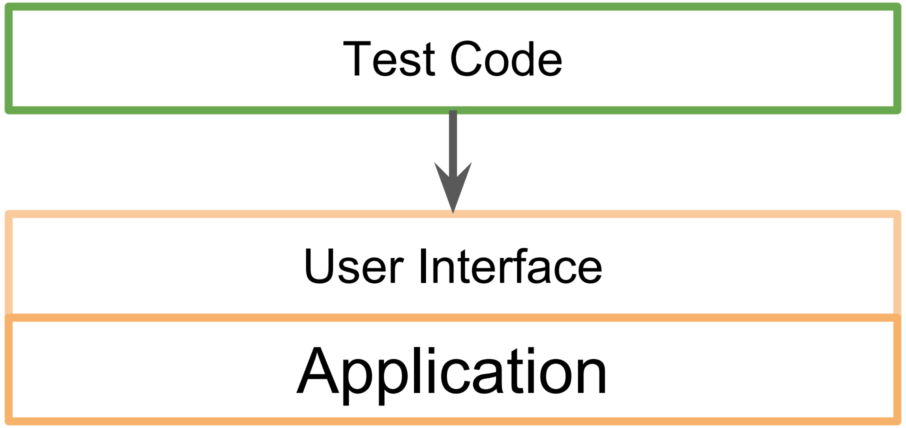
```
/user
    /controller
        UserRegisterController.php
        UserListController.php
        ...
    /business
    /storage
/blog
    /controller
    /business
    /storage
```

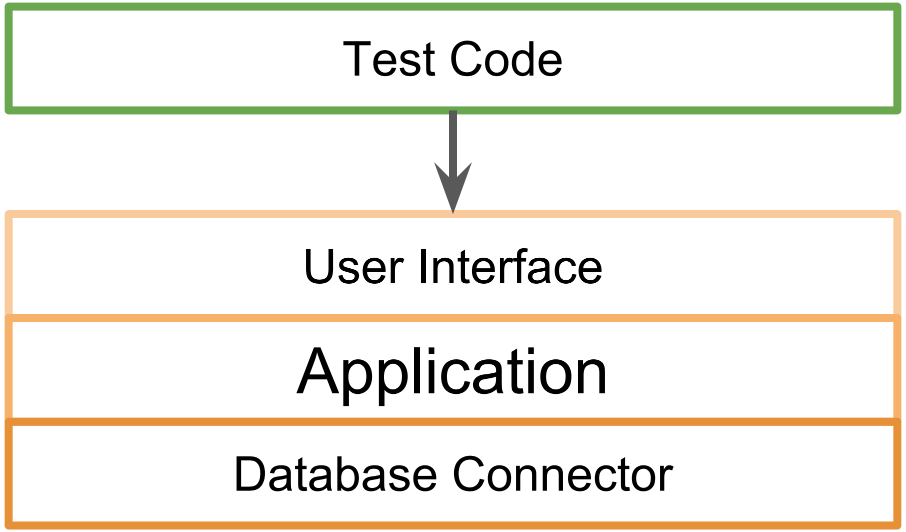
## Testing

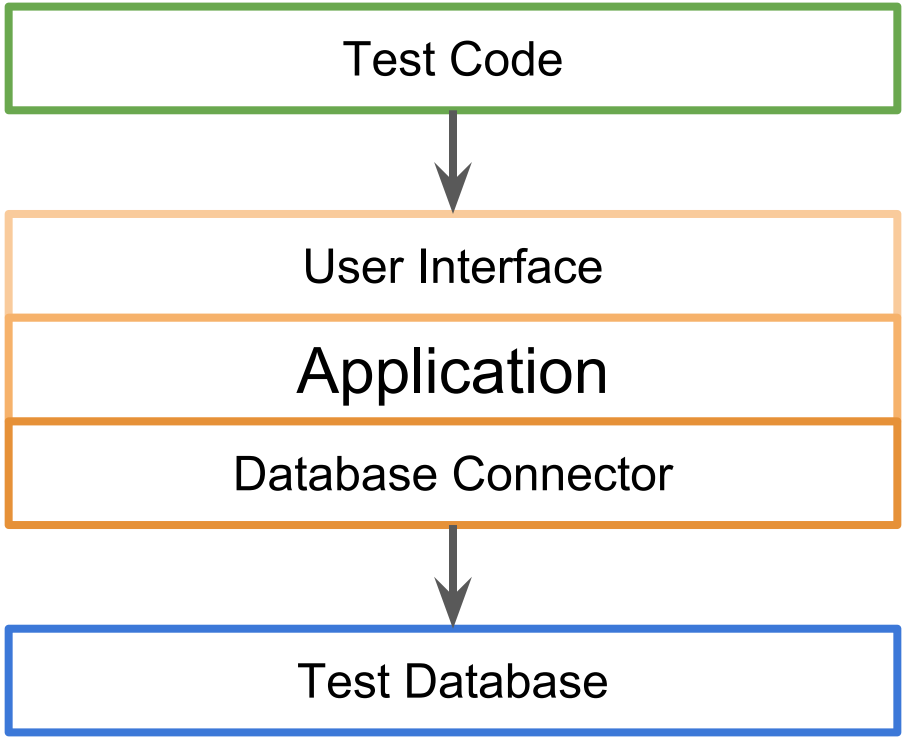
*You test your code, right?*

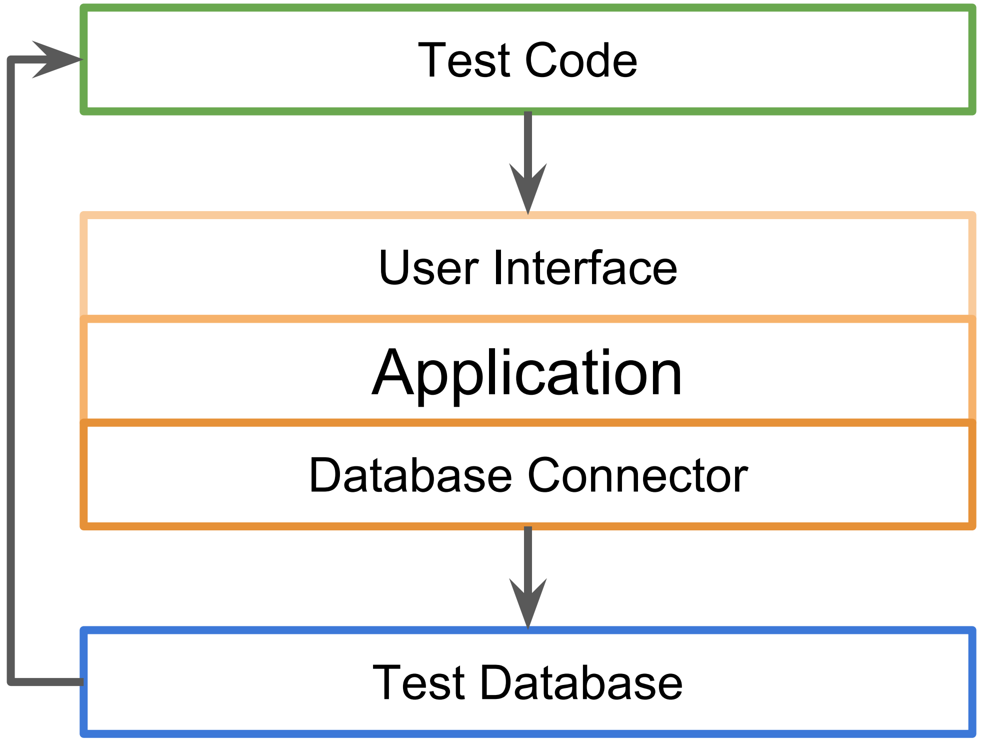
## Application


User Interface
Application

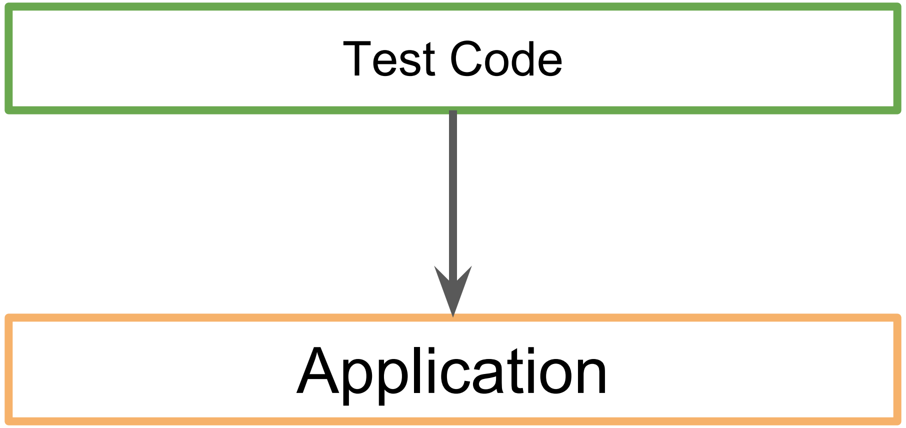

Test Code
User Interface
Application

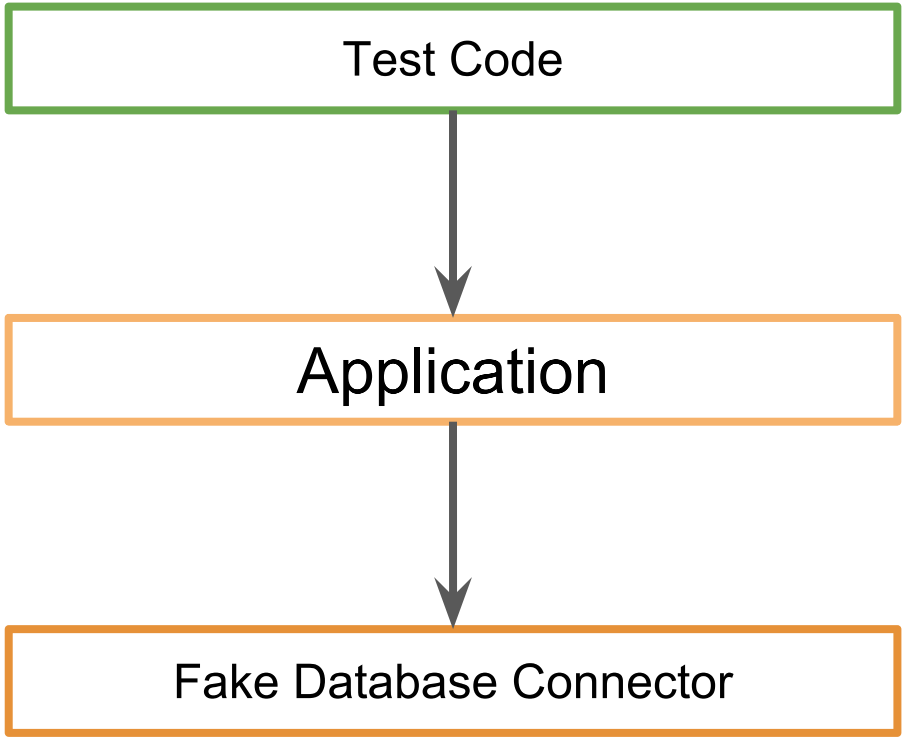

Test Code
User Interface
Application
Database Connector

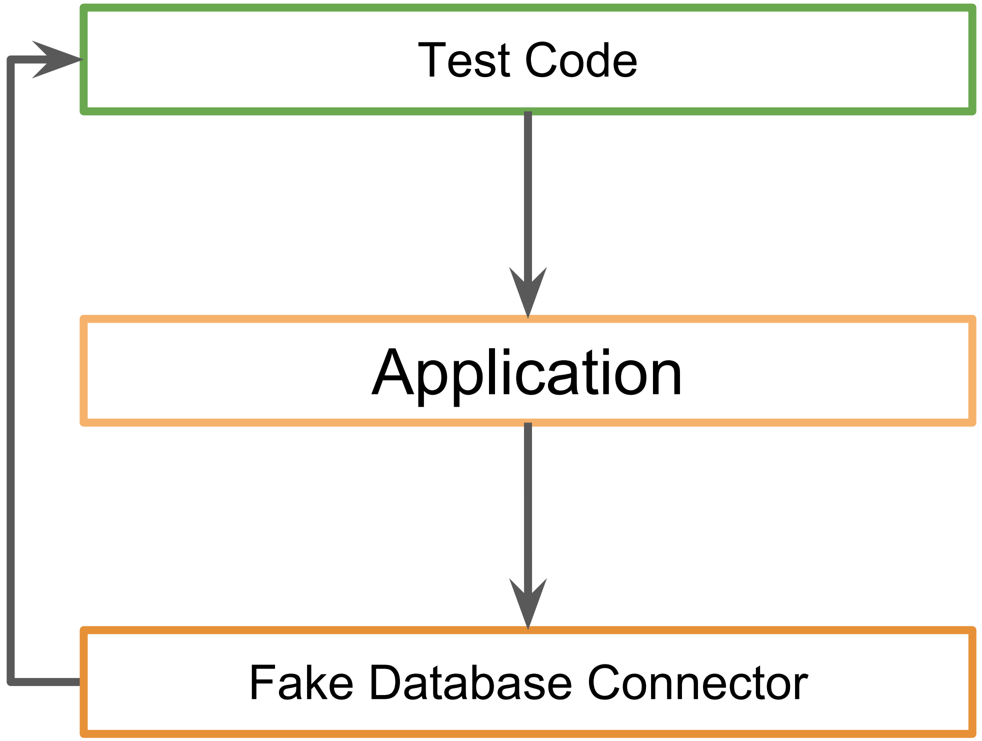

Test Code
User Interface
Application
Database Connector
Test Database

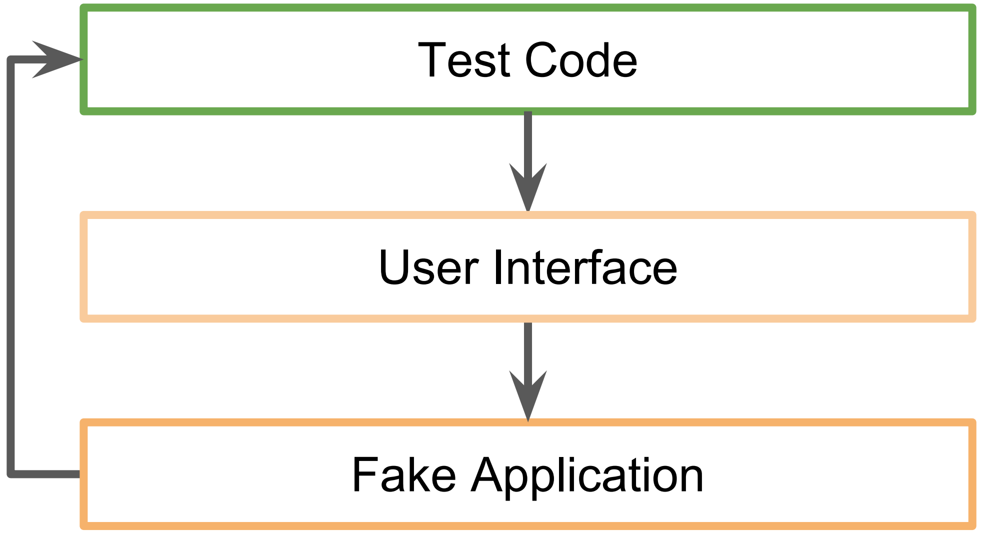

Test Code
User Interface
Application
Database Connector
Test Database

## Application


Test Code
Application


Test Code
Application
Fake Database Connector


Test Code
Application
Fake Database Connector


Test Code
User Interface
Fake Application

```php
function testGetShouldReturnUser(){
    //region Setup
    $userStorage = new UserStorageFake();
    $userStorage->backingStorage['test-user'] =
        UserFactory::create(
            "test-user",
            "Test User",
            "test@example.com",
            "*"
        );
    $business = new UserGetBusinessLogicImpl($userStorage);
    //endregion

    //region Execute...

    //region Asset...
}
```

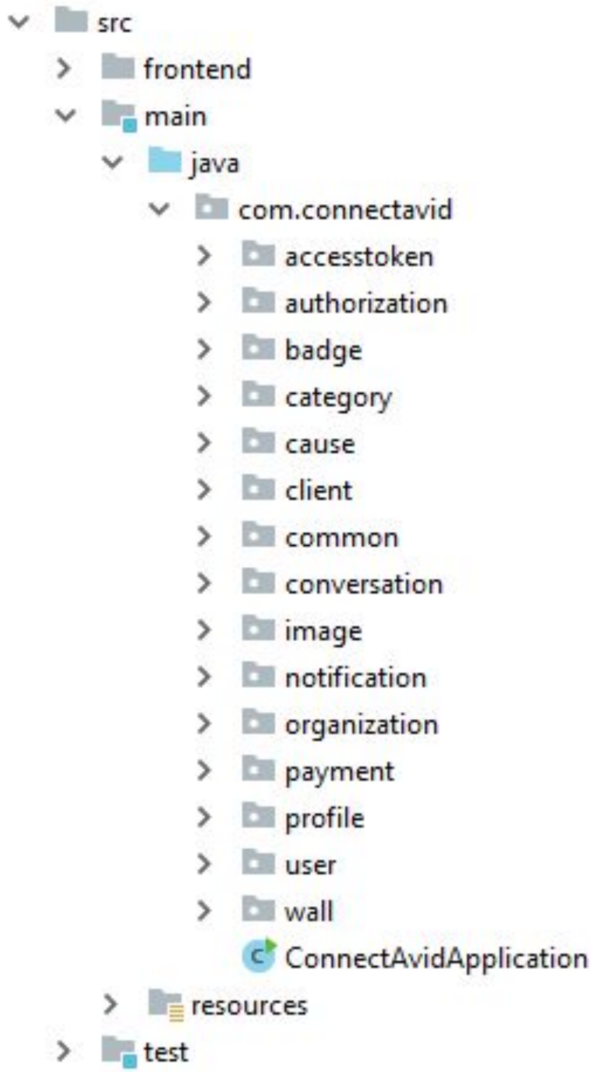
```php
function testGetShouldReturnUser(){
   //region Setup...

   //region Execute
   $user = $business->getById("test-user");
   //endregion

   //region Assert
   assertEquals("test-user", $user->getId());
   //endregion
}
```

## Putting it together

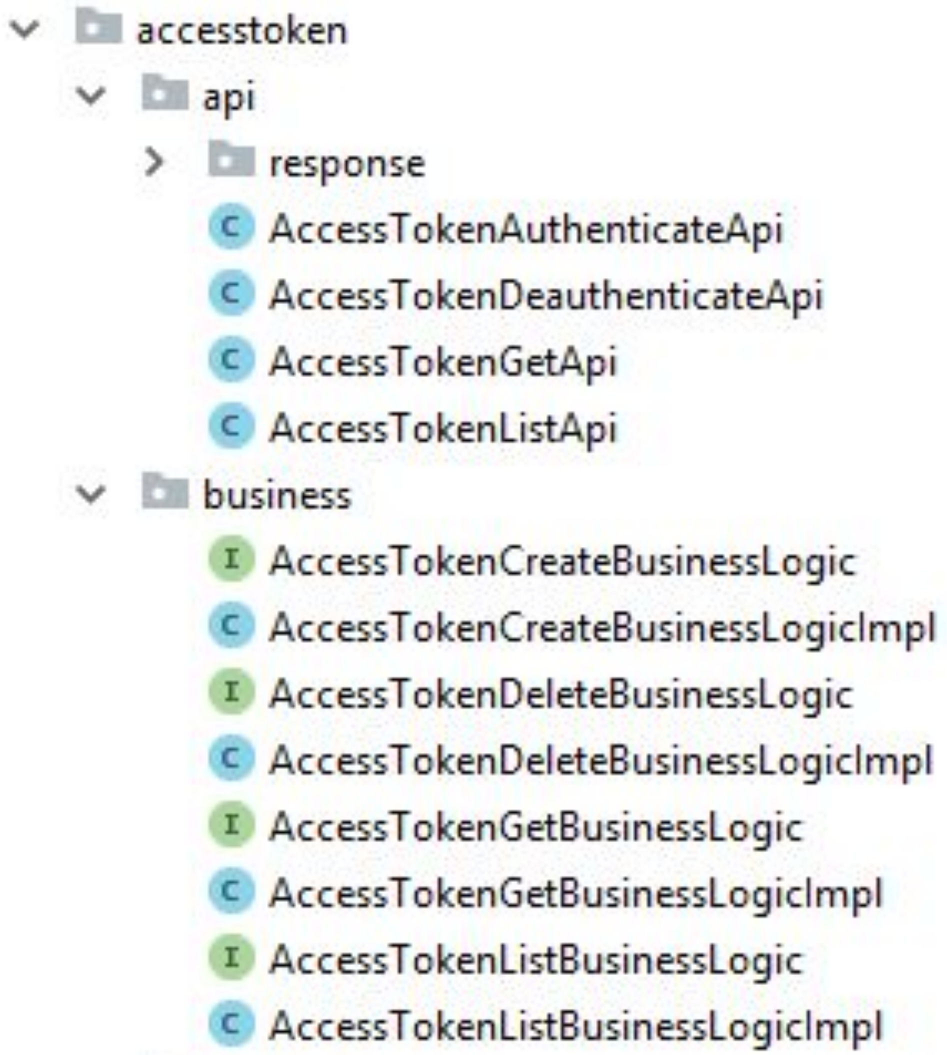
*Building an actual system*

CONNECTAVID

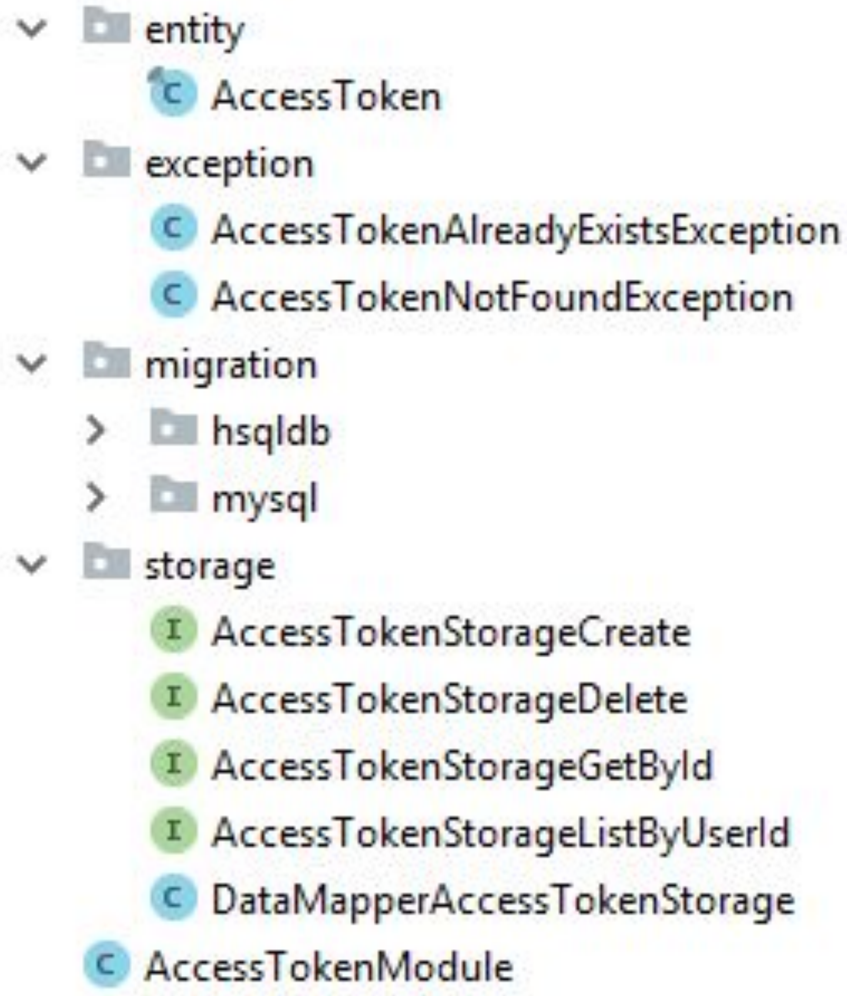
Many thanks to:
Cristina Laskar



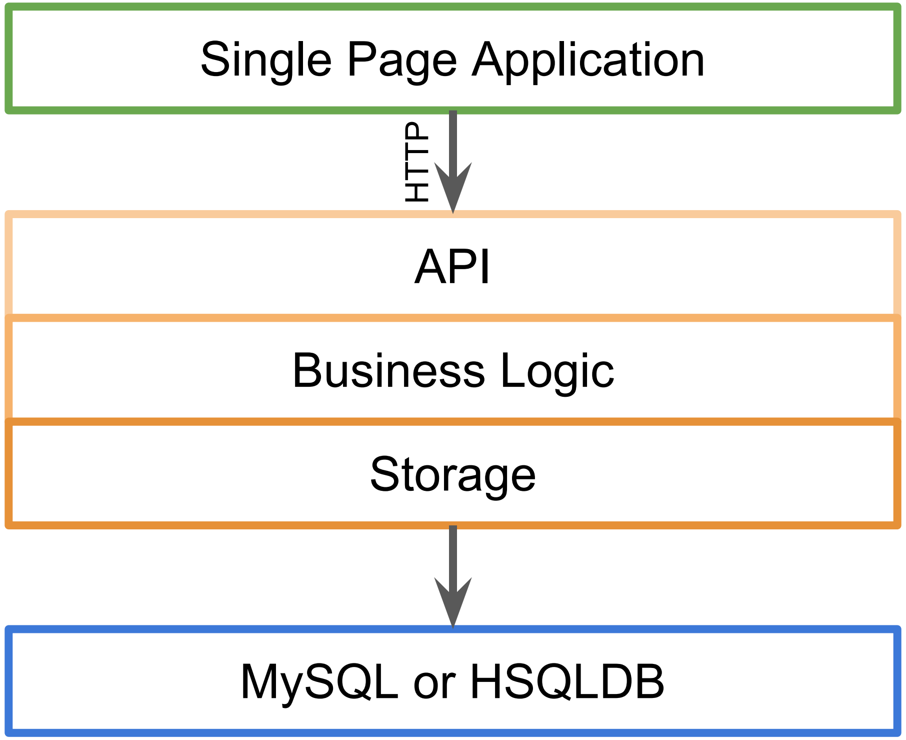
```
src
  frontend
  main
    java
      com.connectavid
        accesstoken
        authorization
        badge
        category
        cause
        client
        common
        conversation
        image
        notification
        organization
        payment
        profile
        user
        wall
        ConnectAvidApplication
    resources
  test
```

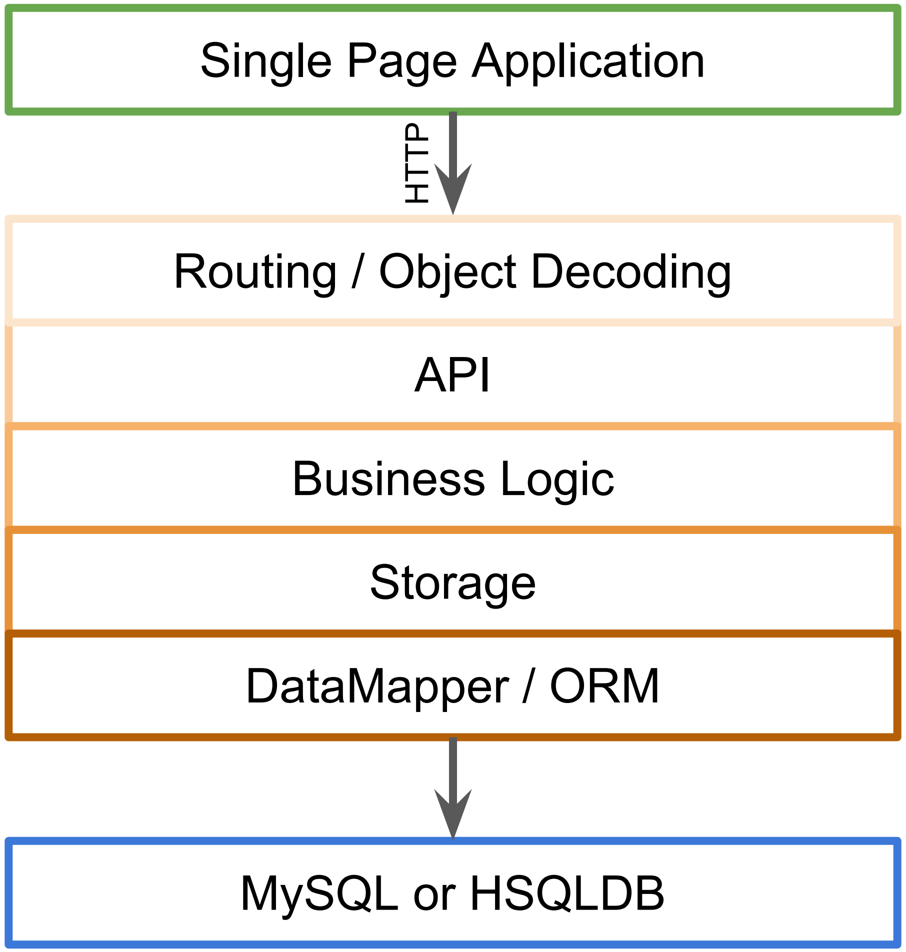


```
accesstoken
  api
    response
    AccessTokenAuthenticateApi
    AccessTokenDeauthenticateApi
    AccessTokenGetApi
    AccessTokenListApi
  business
    AccessTokenCreateBusinessLogic
    AccessTokenCreateBusinessLogicImpl
    AccessTokenDeleteBusinessLogic
    AccessTokenDeleteBusinessLogicImpl
    AccessTokenGetBusinessLogic
    AccessTokenGetBusinessLogicImpl
    AccessTokenListBusinessLogic
    AccessTokenListBusinessLogicImpl
```



```
entity
    AccessToken
exception
    AccessTokenAlreadyExistsException
    AccessTokenNotFoundException
migration
    hsqldb
    mysql
storage
    AccessTokenStorageCreate
    AccessTokenStorageDelete
    AccessTokenStorageGetById
    AccessTokenStorageListByUserId
    DataMapperAccessTokenStorage
AccessTokenModule
```

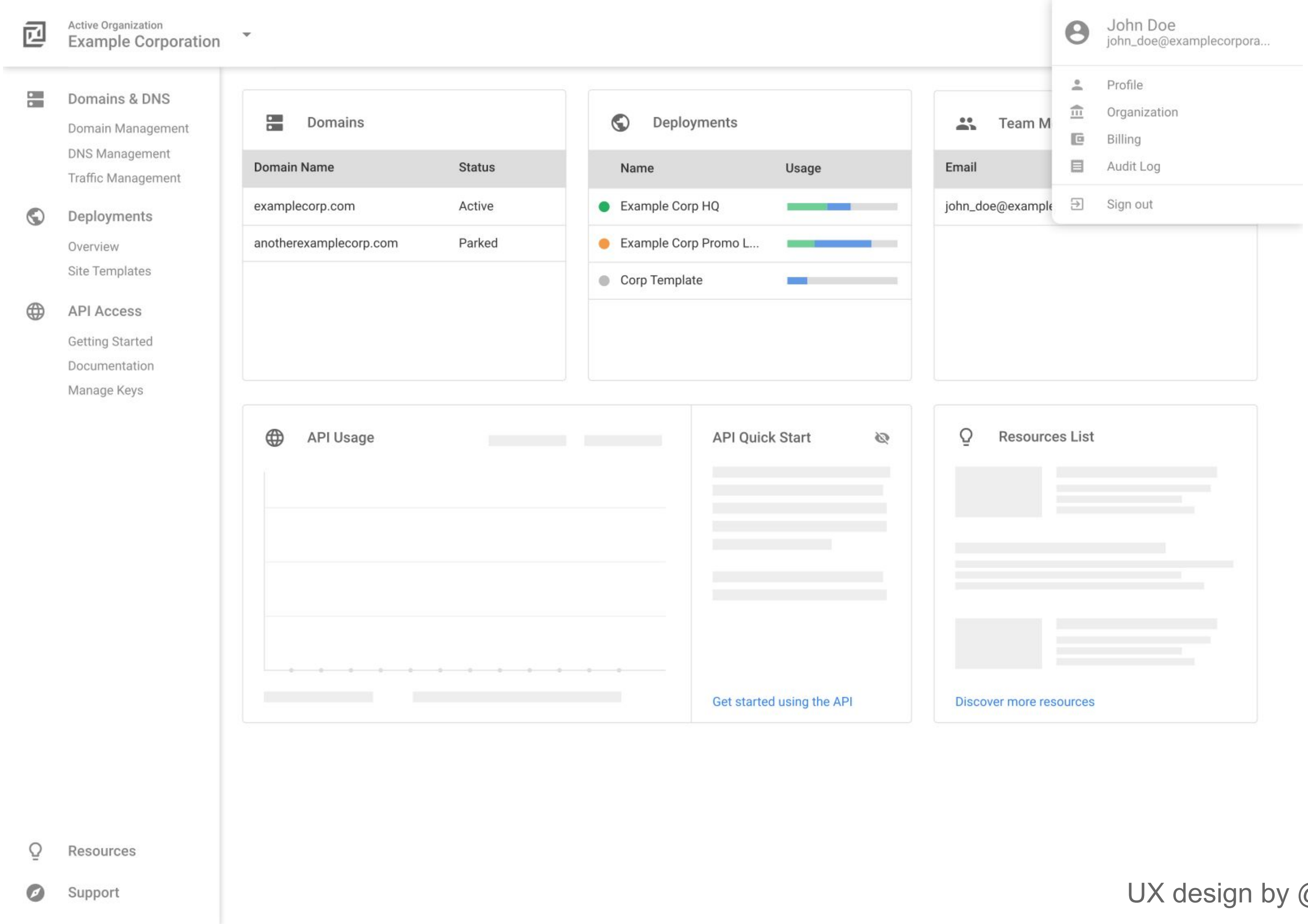

Single Page Application
HTTP
API
Business Logic
Storage
MySQL or HSQLDB


Single Page Application
HTTP
Routing / Object Decoding
API
Business Logic
Storage
DataMapper / ORM
MySQL or HSQLDB

SWAGGER

## Non-technical Ways

*Customer Communication is Important*



Active Organization
Example Corporation

Domains & DNS
Domain Management
DNS Management
Traffic Management

Deployments
Overview
Site Templates

API Access
Getting Started
Documentation
Manage Keys

Resources
Support

Domains

| Domain Name | Status |
|---|---|
| examplecorp.com | Active |
| anotherexamplecorp.com | Parked |

Deployments

| Name | Usage |
|---|---|
| ● Example Corp HQ | |
| ● Example Corp Promo L... | |
| ● Corp Template | |

Team M

| Email |
|---|
| john_doe@example |

John Doe
john_doe@examplecorpora...
Profile
Organization
Billing
Audit Log
Sign out

API Usage

API Quick Start
Get started using the API

Resources List
Discover more resources

UX design by @gogospaso

## More information

*Because one talk is not enough*

Questions?

www.pasztor.at