



# CSS Frameworks

Dmytro Shakhov,  
Software Engineer

# AGENDA

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- 1 General Overview
- 2 Bootstrap
- 3 Bootstrap Grid System
- 4 Foundation
- 5 Conclusion

# GENERAL OVERVIEW

## WHAT EXACTLY IS A CSS FRAMEWORK?



A standardized package with pre-written files which can be applied to your HTML by using the **attributes names and properties** defined in the framework.

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# WHAT A CSS FRAMEWORK MIGHT SUGGEST



Layout



Icons



Plugins/widgets



Styles



LESS/SASS



Mobile

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# CSS FRAMEWORKS USAGE

## Pros



Speeds up your development



Enables cross-browser functionality



Gives you clean and symmetrical layouts

## Cons



Adds extra code



Forces you to use the framework's semantics



You could potentially lose time



**inuitcss**

**Gumby** FRAMEWORK

THE  
SQUARE  
GRID

**Initializr**

Start an HTML5 project in 15 seconds!

 **BlueTrip** css framework

 **compass**

**elasticss** 



Responsive Grid  
System

Foundation



**Bootstrap**

**baseline**

**BASE**

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**tiny fluid grid**

INSTANTBLUEPRINT

**yaml** 

SKELETON

**960**  
GRID SYSTEM

# BOOTSTRAP



# BOOTSTRAP



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**Bootstrap** is the most popular HTML, CSS, and JS framework for developing responsive, mobile first projects on the web. Bootstrap makes front-end web development faster and easier. It's made for folks of all skill levels, devices of all shapes, and projects of all sizes.

## Import from CDN

<!-- CSS only -->

<link

href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css"

rel="stylesheet"

integrity="sha384-EVSTQN3/azprG1Anm3QDgpJLIm9Nao0Yz1ztcQTwFspd3yD65VohhpuuCOMLASjC"

crossorigin="anonymous"

>

<!-- JavaScript Bundle with Popper -->

<script

src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js"

integrity="sha384-MrcW6ZMFYlzcLA8NI+NtUVF0sA7MsXsP1UyJoMp4YLEuNSfAP+JcXn/tWtIaxVXM"

crossorigin="anonymous">

</script>

### Install with NPM

```
$ npm install bootstrap
```

# BOOTSTRAP GRID SYSTEM

- Extra small (**xs**)
- Small (**sm**)
- Medium (**md**)
- Large (**lg**)
- Extra large (**xl**)
- Extra extra large (**xxl**)

	<b>xs</b> <576px	<b>sm</b> ≥576px	<b>md</b> ≥768px	<b>lg</b> ≥992px	<b>xl</b> ≥1200px	<b>xxl</b> ≥1400px
<b>Container</b> <small>max-width</small>	None (auto)	540px	720px	960px	1140px	1320px
<b>Class prefix</b>	<small>.col-</small>	<small>.col-sm-</small>	<small>.col-md-</small>	<small>.col-lg-</small>	<small>.col-xl-</small>	<small>.col-xxl-</small>
<b># of columns</b>	12					
<b>Gutter width</b>	1.5rem (.75rem on left and right)					
<b>Custom gutters</b>	<a href="#">Yes</a>					
<b>Nestable</b>	<a href="#">Yes</a>					
<b>Column ordering</b>	<a href="#">Yes</a>					

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**Bootstrap's** grid system can adapt across all six default breakpoints, and any breakpoints you customize.

# CONTAINERS

Bootstrap requires a containing element to wrap site contents and house our grid system. You may choose one of two containers to use in your projects.

Use **.container** for a **responsive fixed** width container.

HTML

```
<div class="container">  
  ...  
</div>
```

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Use **.container-fluid** for a **full width container**, spanning the entire width of your viewport.

HTML

```
<div class="container-fluid">  
  ...  
</div>
```

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# BOOTSTRAP GRID SYSTEM EXAMPLE



## HTML

```
<div class="row">
  <div class="col-lg-4 col-md-6 col-sm-12">col</div>
  <div class="col-lg-4 col-md-6 col-sm-12">col</div>
  <div class="col-lg-4 col-md-6 col-sm-12">col</div>
  <div class="col-lg-4 col-md-6 col-sm-12">col</div>
</div>
<div class="row">
  <div class="col-8">col-8</div>
  <div class="col-4">col-4</div>
</div>
```

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# AUTO LAYOUT COLUMNS

```
<div class="container">
  <div class="row">
    <div class="col">
      1 of 2
    </div>
    <div class="col">
      2 of 2
    </div>
  </div>
  <div class="row">
    <div class="col">
      1 of 3
    </div>
    <div class="col">
      2 of 3
    </div>
    <div class="col">
      3 of 3
    </div>
  </div>
</div>
```

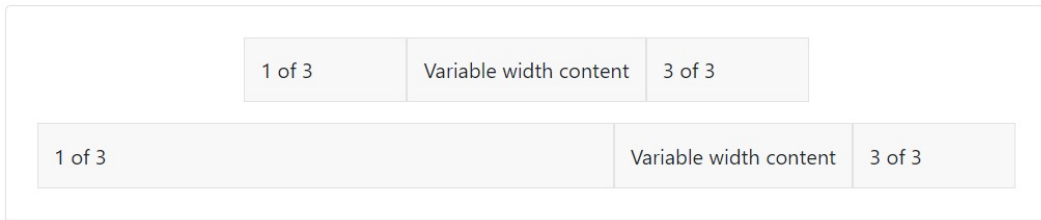


.col

For example, here are two grid layouts that apply to every device and viewport, from **xs** to **xxl**. Add any number of unit-less classes for each breakpoint you need and every column will be the same width.

# VARIABLE WIDTH CONTENT

```
<div class="container">
  <div class="row justify-content-md-center">
    <div class="col col-lg-2">
      1 of 3
    </div>
    <div class="col-md-auto">
      Variable width content
    </div>
    <div class="col col-lg-2">
      3 of 3
    </div>
  </div>
  <div class="row">
    <div class="col">
      1 of 3
    </div>
    <div class="col-md-auto">
      Variable width content
    </div>
    <div class="col col-lg-2">
      3 of 3
    </div>
  </div>
</div>
```



**.col-{breakpoint}-auto**

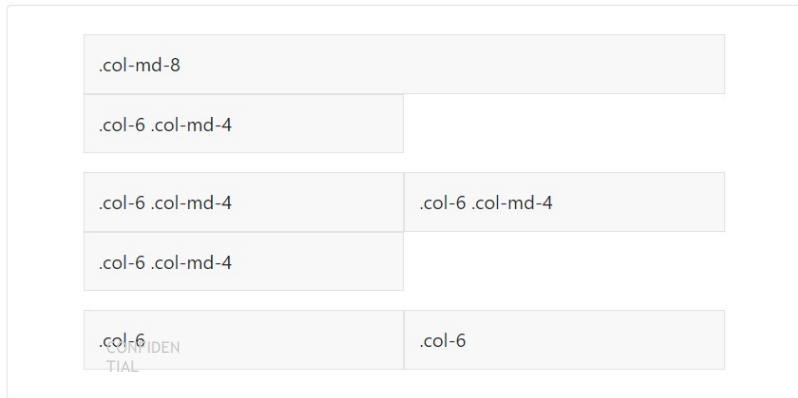
Suffix **-auto** means that the column will take the size according to the content that fills it



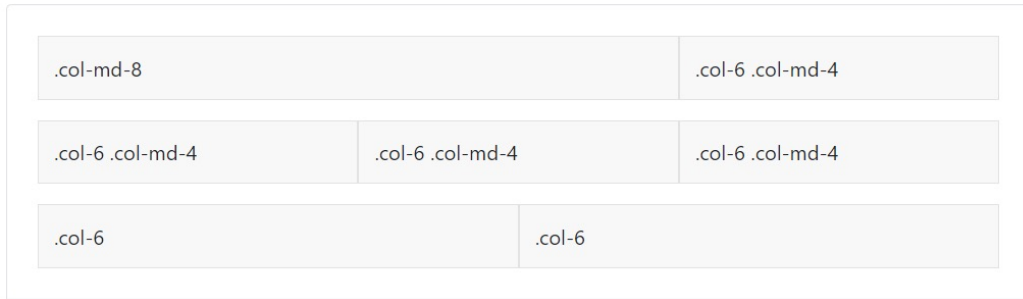
# MIX AND MATCH

The columns can have a different width according to the device screen size. That's how you can mix classes to build responsive layouts

Less then **md size** screen



**md+ size** screen



# ROW COLUMNS

`<div class="row row-cols-3">`

Column	Column	Column
Column		

`<div class="row row-cols-2">`

Column	Column
Column	Column

`<div class="row row-cols-auto">`

Column	Column	Column	Column
--------	--------	--------	--------

Use the responsive `.row-cols-*` classes to quickly set the number of columns that best render your content and layout.

Whereas normal `.col-*` classes apply to the individual columns (e.g., `.col-md-4`),

the row columns classes are set on the parent `.row` as a default for contained columns.

With `.row-cols-auto` you can give the columns their natural width.

## OFFSET COLUMNS

Move columns to the right using `.offset-md-*` classes.  
These classes increase the left margin of a column by `*` columns.  
For example, `.offset-md-4` moves `.col-md-4` over four columns.

`.col-md-4`

`.col-md-4 .offset-md-4`

`.col-md-3 .offset-md-3`

`.col-md-3 .offset-md-3`

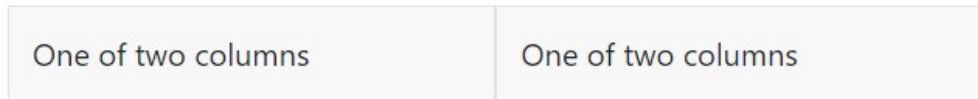
`.col-md-6 .offset-md-3`

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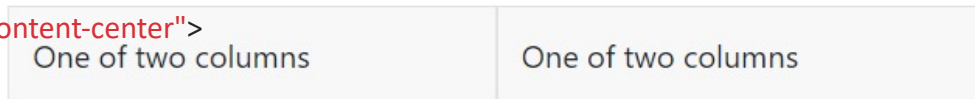
# HORIZONTAL ALIGNMENT

You can use flex rules for `.row` to align columns in the row

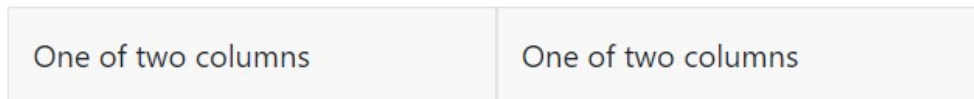
`<div class="row justify-content-start">`



`<div class="row justify-content-center">`



`<div class="row justify-content-end">`



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`<div class="row justify-content-around">`



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# RESPONSIVE UTILITIES

For faster mobile-friendly development, use these utility classes for showing and hiding content by device via media query.

	Extra small devices Phones (<768px)	Small devices Tablets (≥768px)	Medium devices Desktops (≥992px)	Large devices Desktops (≥1200px)
.visible-xs-*	Visible	Hidden	Hidden	Hidden
.visible-sm-*	Hidden	Visible	Hidden	Hidden
.visible-md-*	Hidden	Hidden	Visible	Hidden
.visible-lg-*	Hidden	Hidden	Hidden	Visible
.hidden-xs	Hidden	Visible	Visible	Visible
.hidden-sm	Visible	Hidden	Visible	Visible
.hidden-md	Visible	Visible	Hidden	Visible
.hidden-lg	Visible	Visible	Visible	Hidden

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# CUSTOMIZE



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# BOOTSTRAP COMPONENTS



Icon fonts



Responsive Tables



SVG Social Icons



Tooltips



Accordion



Tabs



Panels



And much more...

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# COMPONENTS USAGE

---

1

Open page with documentation

2

Find the desired item

3

Use corresponding HTML structure

4

PROFIT!

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# GLYPHICONS

## How to install

```
<link  
rel="stylesheet"  
href="https://cdn.jsdelivr.net/npm/bootstrap-icons@1.3.0/font/bootstrap-icons.css"  
>
```

```
$ npm i bootstrap-icons
```

## How to use

```
<i class="bi-alarm"></i>
```



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TIAL

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# DROPDOWN



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## HTML

```
<div class="dropdown">
  <button class="btn btn-secondary dropdown-toggle" type="button"
    id="dropdownMenuButton1" data-bs-toggle="dropdown" aria-expanded="false">
    Dropdown button
  </button>
  <ul class="dropdown-menu" aria-labelledby="dropdownMenuButton1">
    <li>
      <a class="dropdown-item" href="#">
        Action
      </a>
    </li>
    <li>
      <a class="dropdown-item" href="#">
        Another action
      </a>
    </li>
    <li>
      <a class="dropdown-item" href="#">
        Something else here
      </a>
    </li>
  </ul>
</div>
```

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# BUTTONS



```
<button type="button" class="btn btn-primary">Primary</button>
<button type="button" class="btn btn-secondary">Secondary</button>
<button type="button" class="btn btn-success">Success</button>
<button type="button" class="btn btn-danger">Danger</button>
<button type="button" class="btn btn-warning">Warning</button>
<button type="button" class="btn btn-info">Info</button>
<button type="button" class="btn btn-light">Light</button>
<button type="button" class="btn btn-dark">Dark</button>
<button type="button" class="btn btn-link">Link</button>
```



```
<button type="button" class="btn btn-outline-primary">Primary</button>
<button type="button" class="btn btn-outline-secondary">Secondary</button>
<button type="button" class="btn btn-outline-success">Success</button>
<button type="button" class="btn btn-outline-danger">Danger</button>
<button type="button" class="btn btn-outline-warning">Warning</button>
<button type="button" class="btn btn-outline-info">Info</button>
<button type="button" class="btn btn-outline-light">Light</button>
<button type="button" class="btn btn-outline-dark">Dark</button>
```

# OPTIONAL IMPORT

In your `custom.scss`, you'll import Bootstrap's source Sass files.  
You have two options: include all of Bootstrap, or pick the parts you need.  
You also will need to include some JavaScript for Bootstrap plugins.

```
// Custom.scss
// Option A: Include all of Bootstrap
@import "node_modules/bootstrap/scss/bootstrap";
```

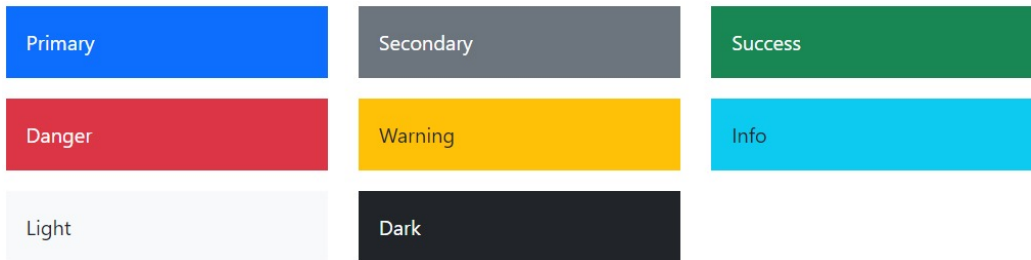
```
// Custom.scss
// Option B: Include parts of Bootstrap

// Required
@import "node_modules/bootstrap/scss/functions";
@import "node_modules/bootstrap/scss/variables";
@import "node_modules/bootstrap/scss/mixins";

// Optional
@import "node_modules/bootstrap/scss/reboot";
@import "node_modules/bootstrap/scss/type";
@import "node_modules/bootstrap/scss/images";
@import "node_modules/bootstrap/scss/code";
@import "node_modules/bootstrap/scss/grid";
```

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## Rewrite the default styles or define new ones for your project purposes



```
$theme-colors: (  
  "primary": $primary,  
  "secondary": $secondary,  
  "success": $success,  
  "info": $info,  
  "warning": $warning,  
  "danger": $danger,  
  "light": $light,  
  "dark": $dark  
);
```

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```
$theme-colors: (  
  "primary": $indigo,  
  "info": $pink,  
  "red": $red,  
  "danger": $orange,  
  "yellow": $yellow,  
  "blue": $blue,  
  "purple": $purple,  
  "epam-color": #1AEBFF,  
);
```

### Sass

Utilize our source Sass files to take advantage of variables, maps, mixins, and functions.

### Options

Customize Bootstrap with built-in variables to easily toggle global CSS preferences.

### Color

Learn about and customize the color systems that support the entire toolkit.

### Components

Learn how we build nearly all our components responsively and with base and modifier classes.

### CSS variables

Use Bootstrap's CSS custom properties for fast and forward-looking design and development.

### Optimize

Keep your projects lean, responsive, and maintainable so you can deliver the best experience.

# FOUNDATION

# ZURB

Foundation



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**Foundation** is the most advanced, responsive front-end framework in the world. The framework is mobile friendly and ready for you to customize it any way you want to use it.



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Almost each documentation article starts with related video.  
This is very friendly and useful feature especially for newcomers



## Import from CDN

```
<!-- CSS only -->
<link
  href="https://cdn.jsdelivr.net/npm/foundation-sites@6.6.3/dist/css/foundation.min.css"
  rel="stylesheet"
  integrity="sha256-ogmFxjqITMnZhxCqVmcqTvjfe1Y/ec4WaRj/aQPvn+I="
  crossorigin="anonymous"
>

<!-- Compressed JavaScript -->
<script
  src="https://cdn.jsdelivr.net/npm/foundation-sites@6.6.3/dist/js/foundation.min.js"
  integrity="sha256-pRF3zifJRA9jXGv++b06qwtSqX1byFQOLjqa2PTEb2o="
  crossorigin="anonymous">
</script>
```

### Install with NPM

```
$ npm install foundation-sites
```

# BASIC TEMPLATE






## HTML

```
<!doctype html>
<html class="no-js" lang="en">
  <head>
    <meta charset="utf-8" />
    <meta http-equiv="x-ua-compatible" content="ie=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <title>Foundation Starter Template</title>
    <link rel="stylesheet" href="css/foundation.css" />
  </head>
  <body>
    <h1>Hello, world!</h1>

    <script src="js/vendor/jquery.js"></script>
    <script src="js/vendor/what-input.js"></script>
    <script src="js/vendor/foundation.min.js"></script>
    <script>
      $(document).foundation();
    </script>
  </body> </html>
```

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# FOUNDATION GRID SYSTEM

	 Small screens (≤ 640px)	 Medium screens (≥ 641px)	 Large screens (≥ 1025px)	 XLarge screens (≥ 1441px)	 XXLarge screens (≥ 1921px)
Grid behavior	Horizontal at all times				
General class	.columns				
Class prefix	. small-*	.medium-*	.large-*	Not Activated	Not Activated

Foundation's grids for XLarge and XXLarge screens are by default deactivated. 36

If you want to use them, you have to “uncomment” and set the values of the `$include-xl-html-grid-classes` and `$include-xl-html-block-grid-classes` variables to `true`.

# FOUNDATION GRID SYSTEM EXAMPLE

Foundation's grid system contains 3 grid types:  
Float Grid (disabled), Flex Grid, XY(display-grid) Grid

## Flex/Float grid syntax

```
<div class="row">  
  <div class="columns small-2 large-4"><!-- ... --></div>  
  <div class="columns small-4 large-4"><!-- ... --></div>  
  <div class="columns small-6 large-4"><!-- ... --></div>  
</div>
```

## XY grid syntax

```
<div class="grid-x">  
  <div class="cell medium-6 large-4">12/6/4 cells</div>  
  <div class="cell medium-6 large-8">12/6/8 cells</div>  
</div>
```

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# USEFUL FEATURES

---

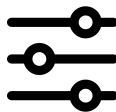
Foundation framework is filled with lot's of useful UI features

Utilities



Typography

Controls



Navigation

Containers



# COMPONENTS USAGE

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1

Open page with documentation

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Find the desired item

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PROFIT!

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# FOUNDATION EQUALIZER PLUGIN

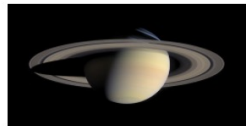
## HTML

```
<div
  class="grid-x grid-margin-x"
  data-equalizer data-equalize-on="medium"
>
  <div class="cell medium-4">
    <div class="callout" data-equalizer-watch>
      <img src= "assets/img/generic/square-1.jpg">
    </div>
  </div>
  <div class="cell medium-4">
    <div class="callout" data-equalizer-watch>
      <p>Pellentesque habitant morbi tristique
senectus et netus et, ante.</p>
    </div>
  </div>
  <div class="cell medium-4">
    <div class="callout" data-equalizer-watch>
      <img src= "assets/img/generic/rectangle-1.jpg">
    </div>
  </div>
</div>
```

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Pellentesque habitant morbi  
tristique senectus et netus et,  
ante.





# FOUNDATION INTERCHANGE

- Interchange can now pull in HTML partials so you can load different sections of your page for particular media queries.
- This is great for loading up a mobile-friendly component on small devices, and a more robust or heavier load component on desktops.

## HTML

```
<!--for images -->
<img data-interchange="[assets/img/interchange/small.jpg, small], [assets/img/interchange/medium.jpg,
medium], [assets/img/interchange/large.jpg, large]">

<!--for background -->
<div data-interchange="[assets/img/interchange/small.jpg, small], [assets/img/interchange/medium.jpg,
medium], [assets/img/interchange/large.jpg, large]"></div>
```

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# CONCLUSION

## HOW TO CHOOSE?

- 01 Does the framework supports the main project's needs?
- 02 Does the framework offer good documentation?
- 03 Has the framework reached maturity?
- 04 Is the framework under active development?
- 05 Does the framework have enough popularity?

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# FE Online UA Training Course Feedback

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I hope that you will find this material useful.

If you find errors or inaccuracies in this material or know how to improve it, please report on to the electronic address:

dmytro\_shakhov1@epam.com

With the note [FE Online UA Training Course Feedback]

Thank you.

# Q&A



DRIVEN



CANDID



CREATIVE



ORIGINAL



INTELLIGENT



EXPERT

UA Frontend Online LAB