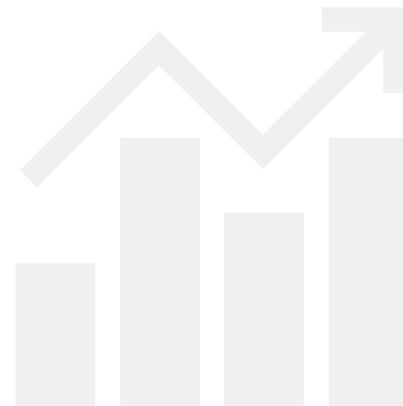


РАЗРАБОТКА  
ДОСТУПНЫХ  
**ГРАФИКОВ**



# SINNERSCHRADER

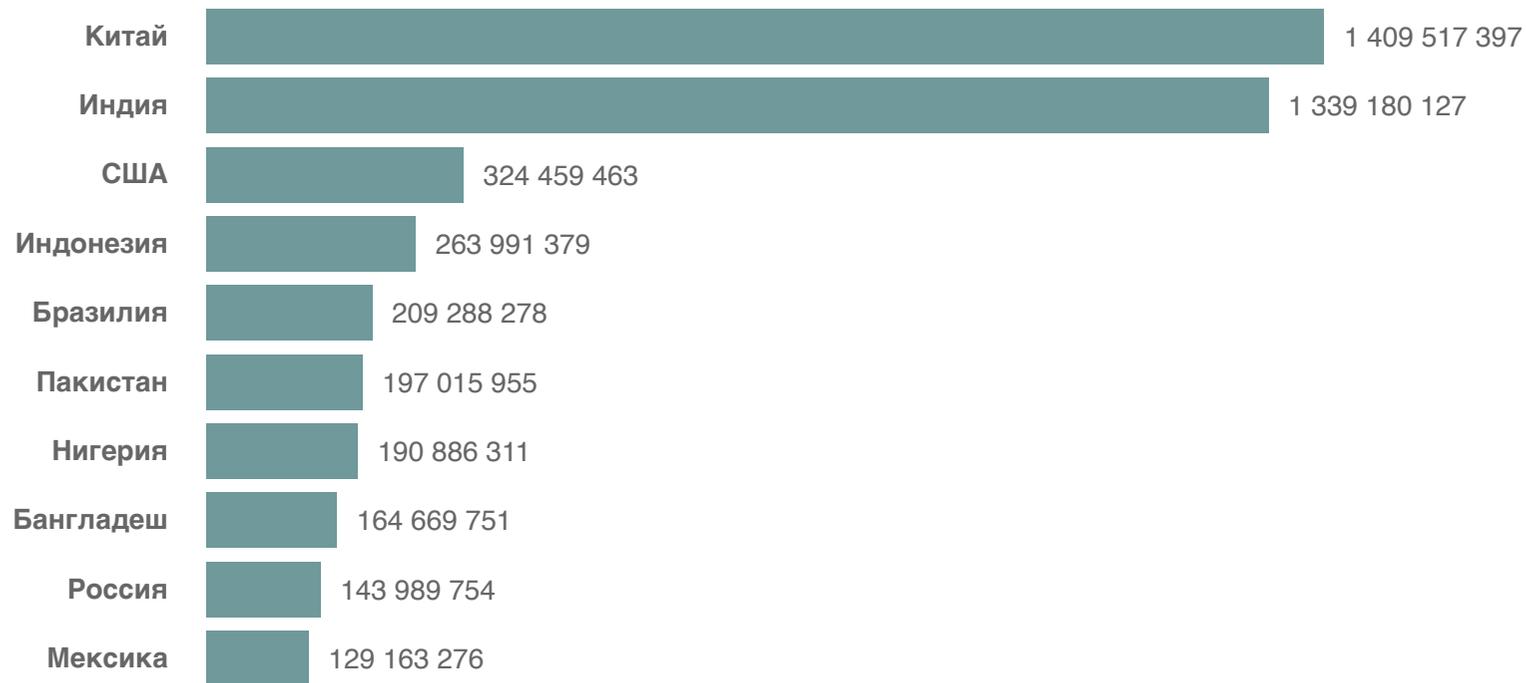
ЕСТЬ ВАКАНСИИ

Part of Accenture Interactive

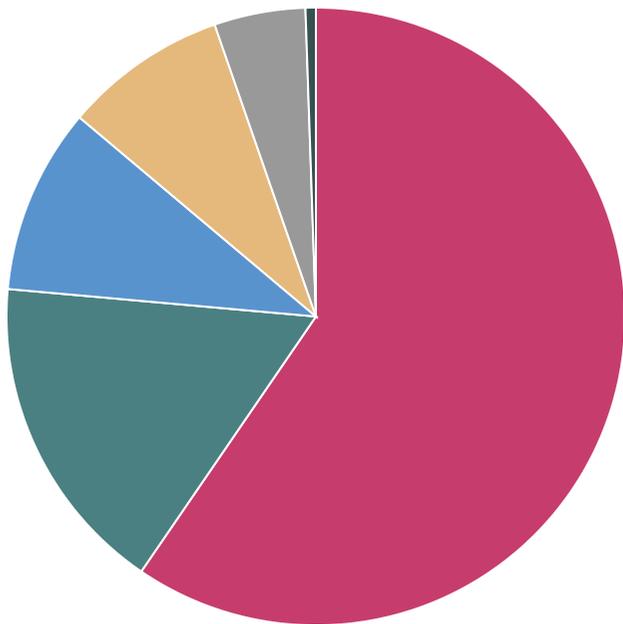
[sergeikrigger.com](http://sergeikrigger.com)

**7 632 819 325**

# ТОП 10



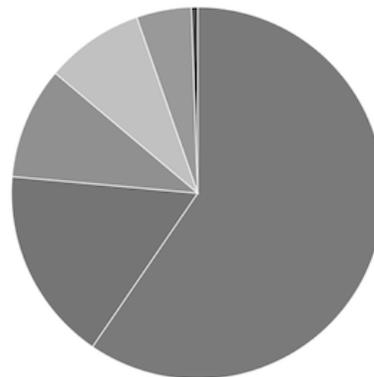
# РЕГИОНЫ



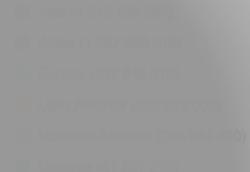
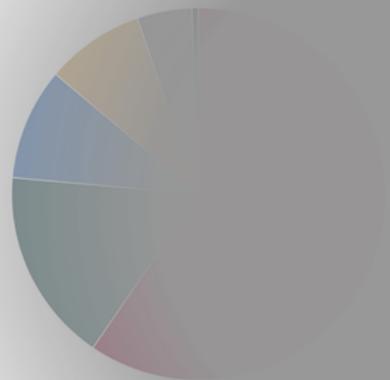
- Азия (4 545 133 094)
- Африка (1 287 920 518)
- Европа (742 648 010)
- Латинская америка (652 012 001)
- Северная америка (363 844 490)
- Океания (41 261 212)



**217 млн**



**307 млн**



**187 млн**

**36 млн**

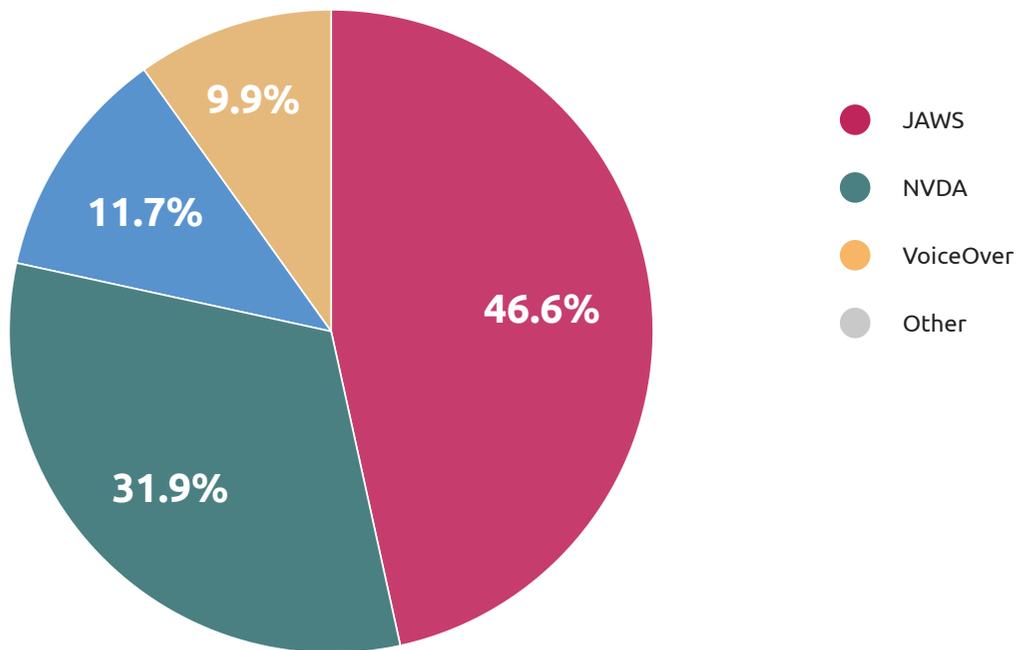
**#1**

**ЭТО ВОЗМОЖНО**

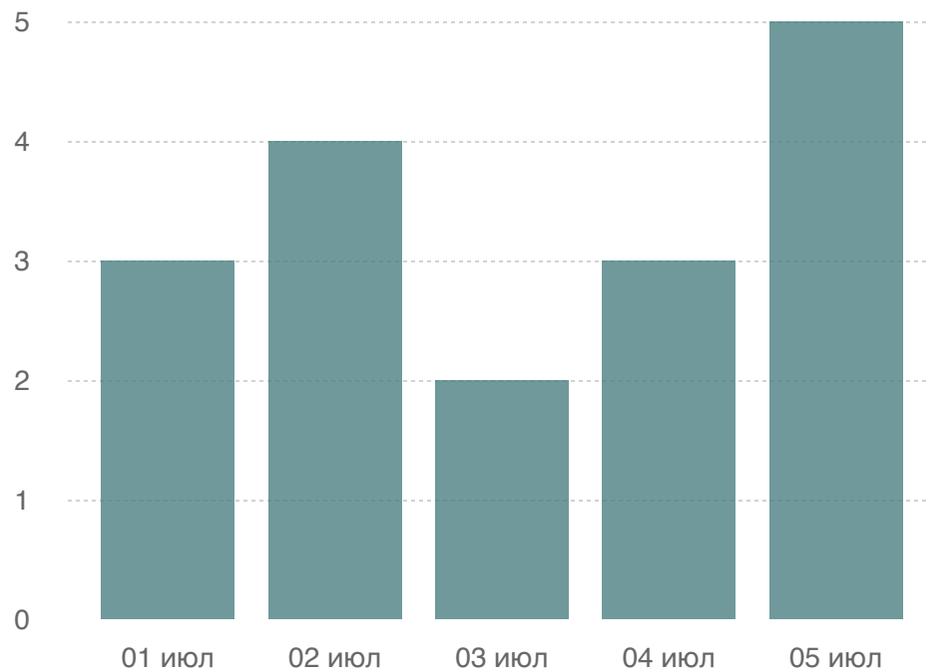
# ПЛАН

- скрин ридеры
- клавиатура
- быстроедействие

# СКРИН РИДЕРЫ

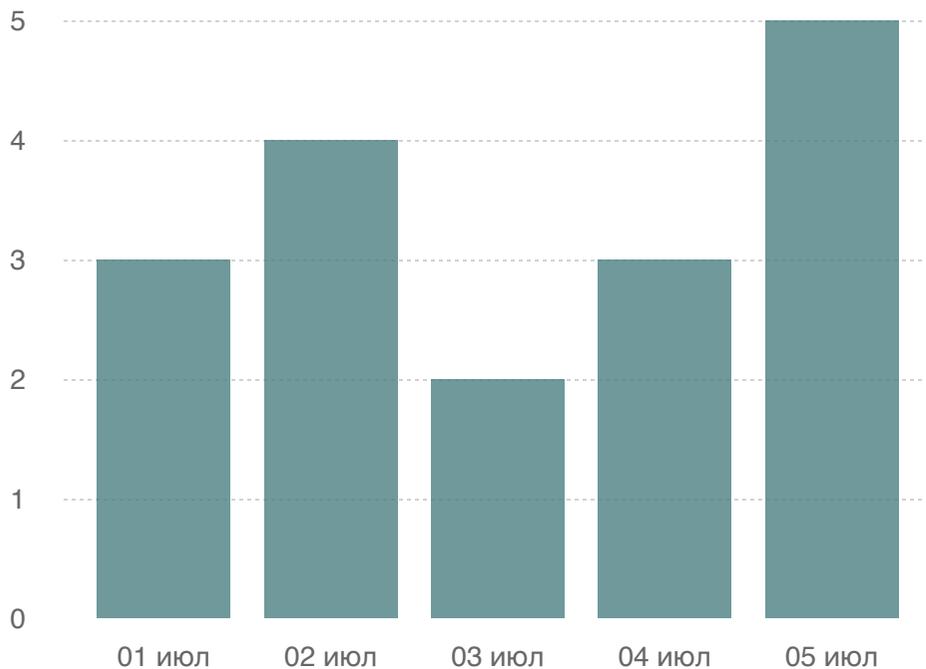






● продано яблок, кг

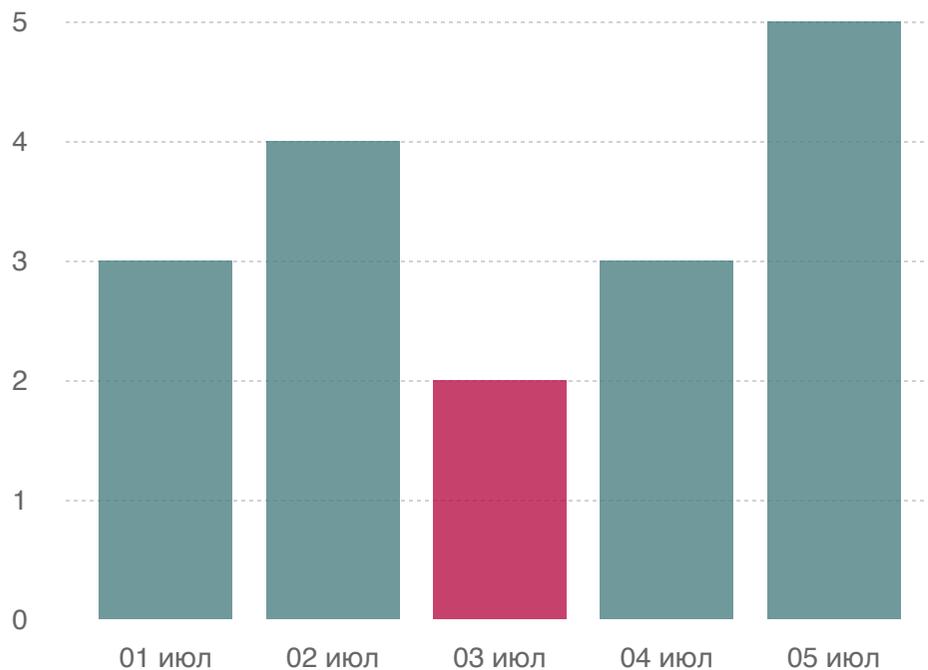




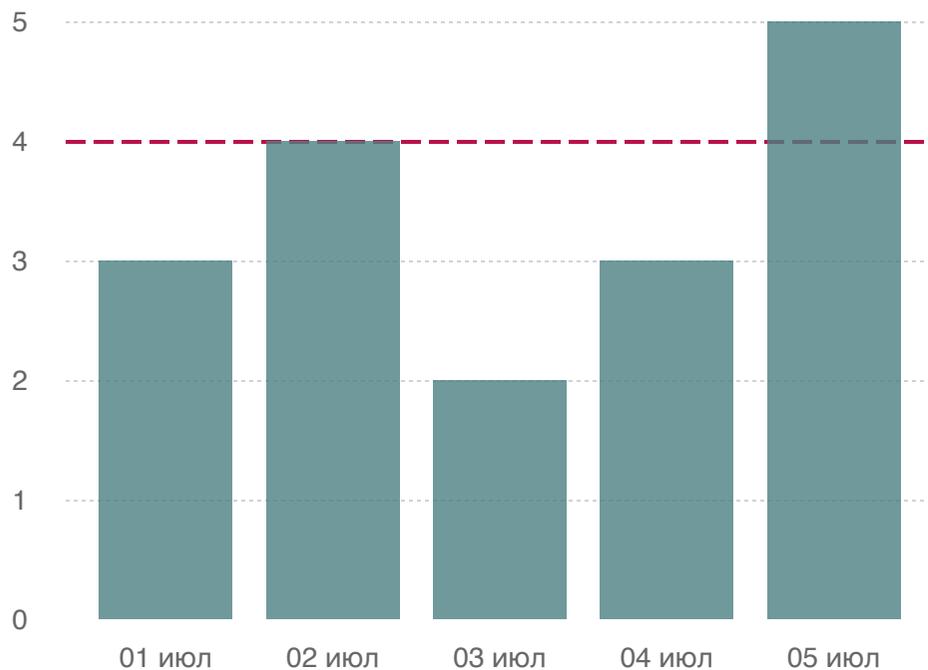
● продано яблок, кг

График с информацией сколько килограммов яблок было продано.

Минимум яблок (2 кг) было  
продано **03 июля**.



- продано яблок, кг
- минимум



● продано яблок, кг      - - - план продаж

План по продаже **4 кг** яблок  
был выполнен **3 июля** и **5 июля**.

**#2**

**ЗНАТЬ, О ЧЕМ ГРАФИК**

01. `const tpl = "Минимум яблок ({{WEIGHT}} кг) было продано {{DATE}}."`

02.

03. `<svg role="img" alt="Минимум яблок (2 кг) было продано 03 июля.">`

04. `...`

05. `</svg>`

01. `const tpl = "Минимум яблок ({{WEIGHT}} кг) было продано {{DATE}}."`

02.

03. `<svg role="img" aria-label="Данные продаж" aria-describedby="chart-desc">`

04. `<desc id="chart-desc">Минимум яблок (2 кг) было продано 03 июля.</desc>`

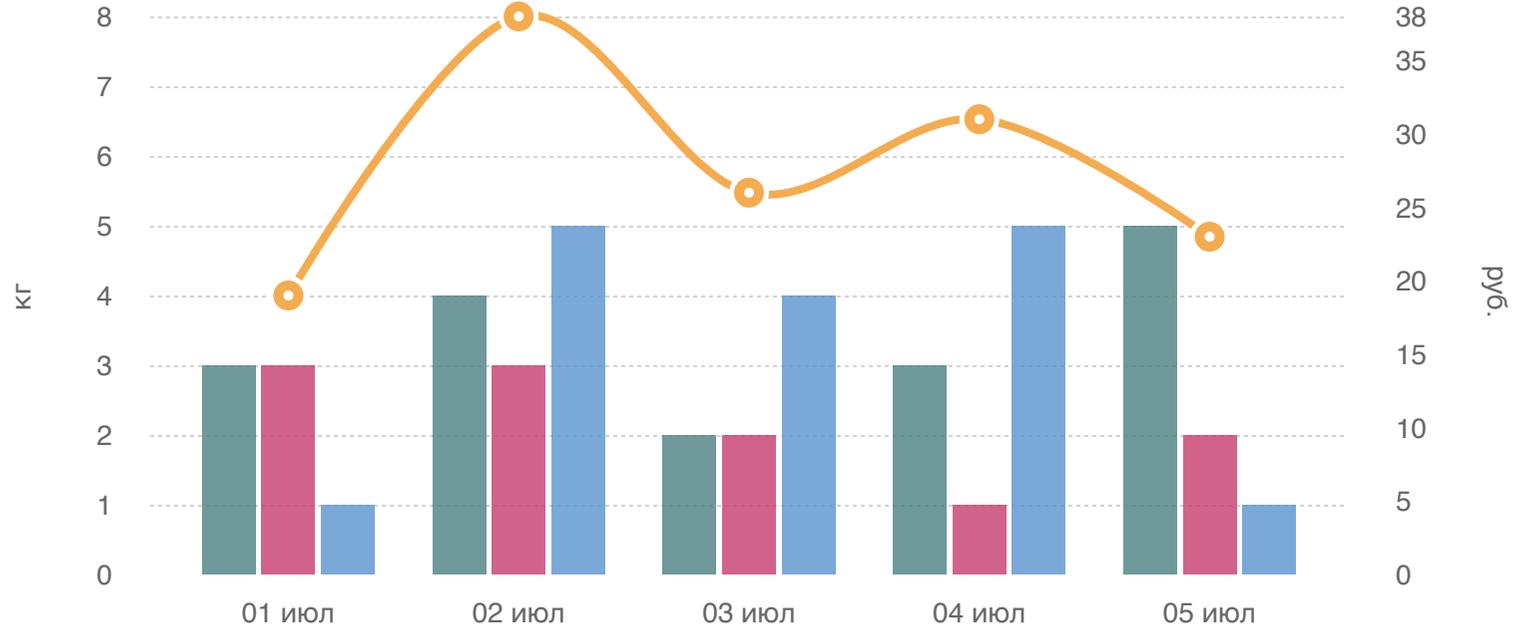
05. `...`

06. `</svg>`

# СОВЕТЫ



- короткий текст
- грамматика
- `aria-label` или `alt`
- простые графики



- яблоки
- бананы
- апельсины

общая сумма продаж

3 кг яблок, 3 кг бананов, 1 кг апельсинов было продано 01 июля с общей суммой продаж 19 руб. 4 кг яблок, 3 кг бананов, 5 кг апельсинов было продано 02 июля с общей суммой продаж 38 руб. 2 кг яблок, 2 кг бананов, 4 кг апельсинов было продано 03 июля с общей суммой продаж 26 руб. 3 кг яблок, 1 кг бананов, 5 кг апельсинов было продано 04 июля с общей суммой продаж 31 руб. 5 кг яблок, 2 кг бананов, 1 кг апельсинов было продано 05 июля с общей суммой продаж 23 руб.



01. <svg class="chart">

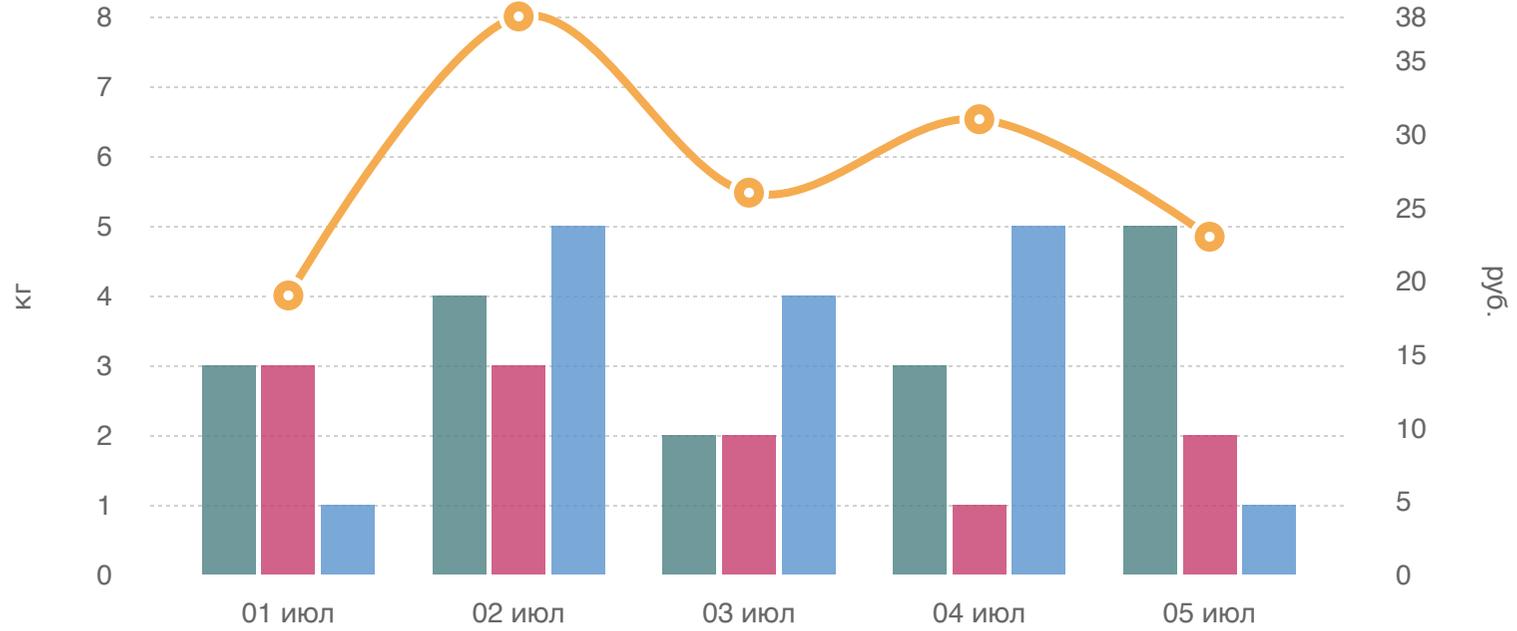
02. <rect tabindex="0" aria-label="Яблоки, 3 кг продано 1 июля"></rect>

03. <rect tabindex="0" aria-label="Яблоки, 4 кг продано 2 июля"></rect>

04. <rect tabindex="0" aria-label="Яблоки, 3 кг продано 3 июля"></rect>

05. </svg>

```
01. <svg class="chart">
02.     <g class="x axis" aria-hidden="true"></g>
03.     <g class="y axis" aria-hidden="true"></g>
04.     ...
05.     <rect tabindex="0" aria-label="Яблоки, 3 кг продано 1 июля"></rect>
06.     <rect tabindex="0" aria-label="Яблоки, 4 кг продано 2 июля"></rect>
07.     <rect tabindex="0" aria-label="Яблоки, 3 кг продано 3 июля"></rect>
08. </svg>
```



- яблоки
- бананы
- апельсины

общая сумма продаж

# SKIP LINK

01. `<a href="#target-element">skip</a>`

02.

03. `<svg class="chart">...</svg>`

04.

05. `<div id="target-element">...</div>`

## ЗАГОЛОВОК 1

Lorem ipsum dolor sit, [перед](#) consectetur adipisicing elit. Quod, facilis dolorem ipsa voluptatem numquam corrupti distinctio neque nulla!



## ЗАГОЛОВОК 2

Libero quam aliquam et! Voluptatum [после](#) ipsam, architecto error obcaecati ea atque dolor, provident explicabo quis eaque.

facebook/react: A declarative, ... x +

← → ↻ 🔒 GitHub, Inc. [US] | https://github.com/facebook/react

Skip to content Jump to... Pull requests Issues Marketplace Explore

facebook / react

Watch 6,519 Star 114,970 Fork 20,746

Code Issues 319 Pull requests 111 Projects 0 Wiki Insights

A declarative, efficient, and flexible JavaScript library for building user interfaces. <https://reactjs.org>

javascript react frontend declarative ui library

10,472 commits 23 branches 103 releases 1,260 contributors MIT

Branch: master New pull request Create new file Upload files Find file Clone or download

trueadm Show deprecated context object warnings usage in ReactDOM server (#14033) Latest commit aa1ffe4 2 hours ago

|                |   |               |
|----------------|---|---------------|
| .circleci      | Use --frozen-lockfile for Yarn in CI build (#12914)                       | 5 months ago  |
| .github        | Reword issue template   | 10 months ago |
| fixtures       | Remove extraneous CSS selector (#13996)                                   | 11 days ago   |
| packages       | Show deprecated context object warnings usage in ReactDOM server (#14033) | 2 hours ago   |
| scripts        | Update bundle sizes for 16.6.1 release                                    | 16 hours ago  |
| .babelrc       | Remove ES3-specific transforms (#12716)                                   | 6 months ago  |
| .editorconfig  | Add insert_final_newline to editorconfig                                  | 3 years ago   |
| .eslintignore  | Use Yarn Workspaces (#11252)  | a year ago    |
| .eslintrc.js   | Enable no-use-before-define rule (#13606)                                 | 2 months ago  |
| .gitattributes | .gitattributes to ensure LF line endings when we should                   | 5 years ago   |
| .gitignore     | Remove 'flow-coverage-report' script. (#13395)                            | 3 months ago  |
|                |   | a year ago    |

https://github.com/facebook/react/commit/a32f857ac78ad1b33c61e6fbd47ccd57f21155c2 |imap

W JavaScript - Wikipedia x +

← → ↻ https://en.wikipedia.org/wiki/JavaScript

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# JavaScript

From Wikipedia, the free encyclopedia

[Jump to navigation](#)

*Not to be confused with [Java \(programming language\)](#), [Java \(software platform\)](#), or [Javanese script](#).*

**JavaScript** (/dʒɑːvɑːskript/<sup>[7]</sup>) often abbreviated as **JS**, is a **high-level, interpreted programming language**. It is a language which is also characterized as **dynamic, weakly typed, prototype-based** and **multi-paradigm**.

Alongside **HTML** and **CSS**, JavaScript is one of the three core technologies of the **World Wide Web**.<sup>[8]</sup> JavaScript enables interactive **web pages** and thus is an essential part of **web applications**. The vast majority of **websites** use it,<sup>[9]</sup> and all major **web browsers** have a dedicated **JavaScript engine** to execute it.

As a multi-paradigm language, JavaScript supports **event-driven**, **functional**, and **imperative** (including **object-oriented** and **prototype-based programming styles**). It has an **API** for working with text, **arrays**, dates, **regular expressions**, and basic manipulation of the **DOM**, but the language itself does not include any **I/O**, such as networking, storage, or graphics facilities, relying for these upon the host environment in which it is embedded.

Initially only implemented **client-side** in web browsers, JavaScript engines are now embedded in many other types of host software, including **server-side** in web servers and databases, and in non-web programs such as word processors and **PDF** software, and in runtime environments that make JavaScript available for writing mobile and desktop applications, including desktop widgets.

Although there are strong outward similarities between JavaScript and **Java**, including language name, **syntax**, and respective **standard libraries**, the two languages are distinct and differ greatly in design; JavaScript was influenced by programming languages such as **Self** and **Scheme**.<sup>[10]</sup>

**Contents** [hide]

- History**
  - Beginnings at Netscape
  - Server-side JavaScript
  - Adoption by Microsoft
  - Standardization
  - Later developments
- Trademark**
- Vanilla JavaScript**
- Features**

|                              |  |
|------------------------------|--|
| <b>JavaScript</b>            |  |
| <b>Paradigm</b>              | Multi-paradigm: object-oriented (prototype-based), imperative, functional, event-driven <sup>[1]</sup> |
| <b>Designed by</b>           | Brendan Eich   |
| <b>Developer</b>             | Netscape Communications Corporation, Mozilla Foundation, Ecma International                            |
| <b>First appeared</b>        | December 4, 1995; 22 years ago <sup>[2]</sup>  |
| <b>Stable release</b>        | ECMAScript 2018 <sup>[3]</sup> / June 2018; 5 months ago   |
| <b>Preview release</b>       | ECMAScript 2019  |
| <b>Typing discipline</b>     | Dynamic, duck  |
| <b>Filename extensions</b>   | .js · .mjs <sup>[4]</sup>  |
| <b>Website</b>               | Mozilla <sup>g</sup>   |
| <b>Major implementations</b> | V8, JavaScriptCore, Rhino, SpiderMonkey, Chakra  |
| <b>Influenced by</b>         | Lua, Scheme, Perl, Self, Java, C, Python, AWK, HyperTalk   |

# СОВЕТЫ

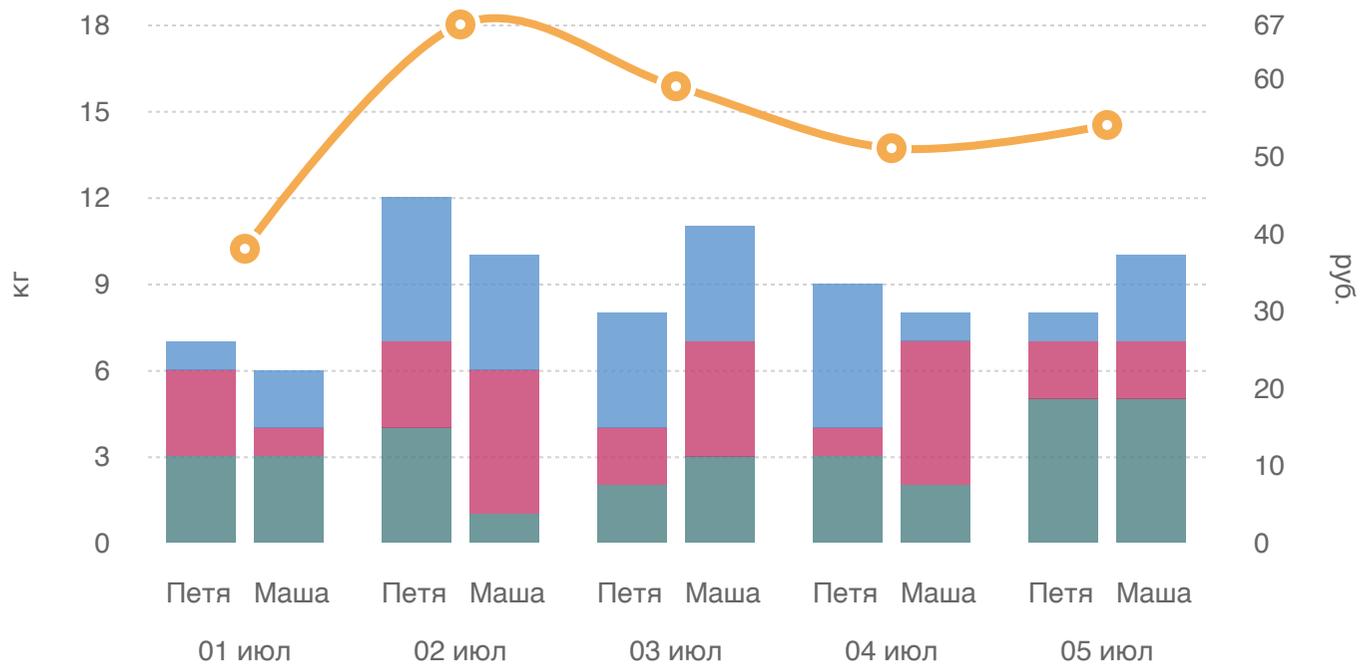
- `tabindex=2`
- skip link
- до 20 элементов





+





- яблоки
- бананы
- апельсины

общая сумма продаж

**#3**

**ДОСТУПНЫЕ ДАННЫЕ**



01. <body>

02. <svg aria-hidden="true"></svg>

03. <table class="visually-hidden"></table>

04. </body>

# VISUALLY HIDDEN

```
01. .visually-hidden {  
02.     position: absolute !important;  
03.     height: 1px;  
04.     width: 1px;  
05.     overflow: hidden;  
06.     clip: rect(1px, 1px, 1px, 1px);  
07. }
```

```
01. <body>
02.     <div class="tabs">
03.         <div class="tab">
04.             <svg></svg>
05.         </div>
06.         <div class="tab">
07.             <table></table>
08.         </div>
09.     </div>
10. </body>
```

Eurostat - Tables, Graphs and ... Guest

Secure [https://ec.europa.eu/eurostat/tgm/table.do;jsessionid=eQeafmsc2TFQP6AqVJjepP8daVOIsBYfmEt\\_QK5MNpjYduaoq7yq!-389200218?tab=table&plugin=1&language=en&pcode=tgs00007](https://ec.europa.eu/eurostat/tgm/table.do;jsessionid=eQeafmsc2TFQP6AqVJjepP8daVOIsBYfmEt_QK5MNpjYduaoq7yq!-389200218?tab=table&plugin=1&language=en&pcode=tgs00007)

**eurostat**

Table Graph Map

2.4.2-r2163-2018-08-17 (PROD) [Online support](#) [Legal Notice](#)

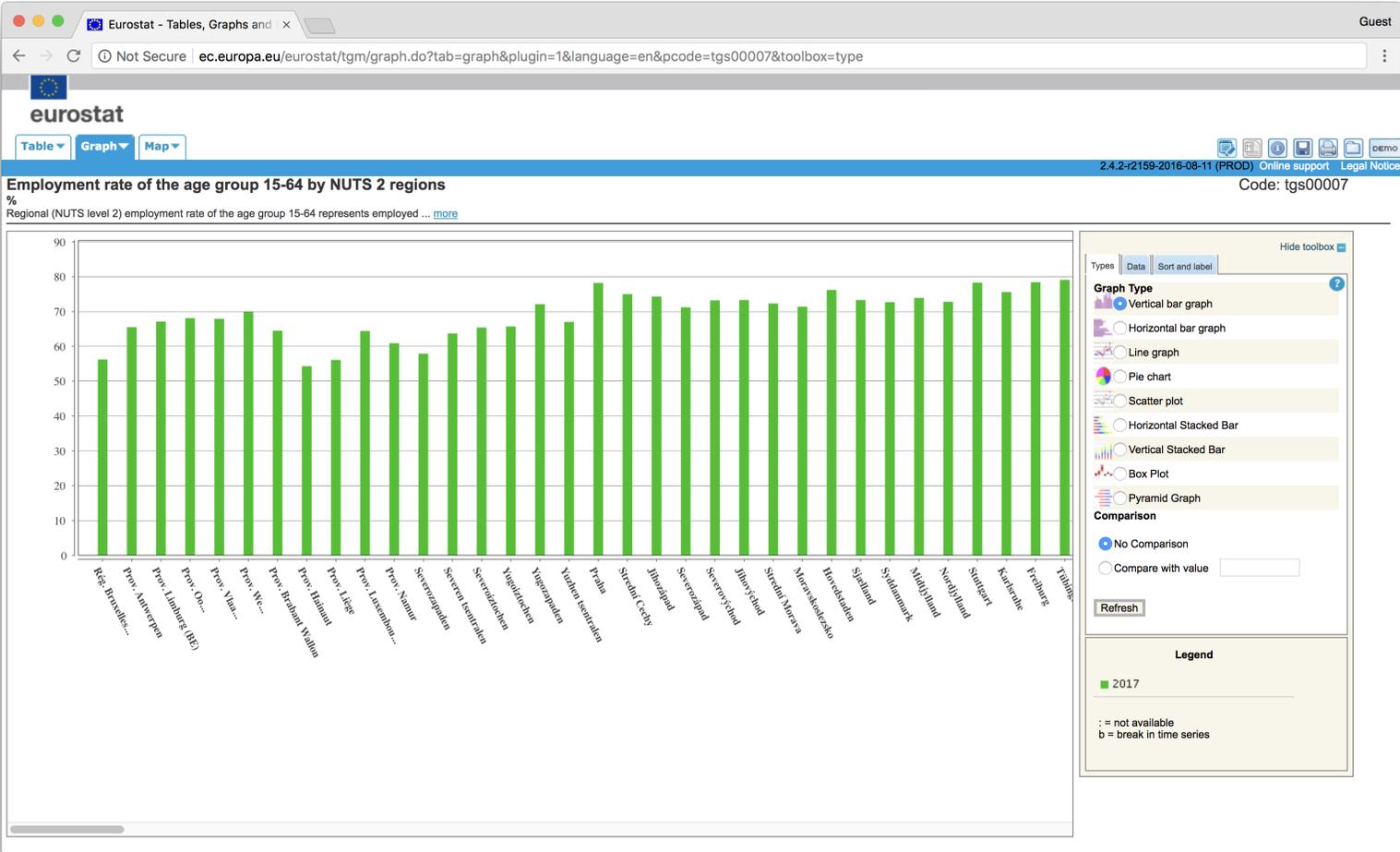
### Employment rate of the age group 15-64 by NUTS 2 regions

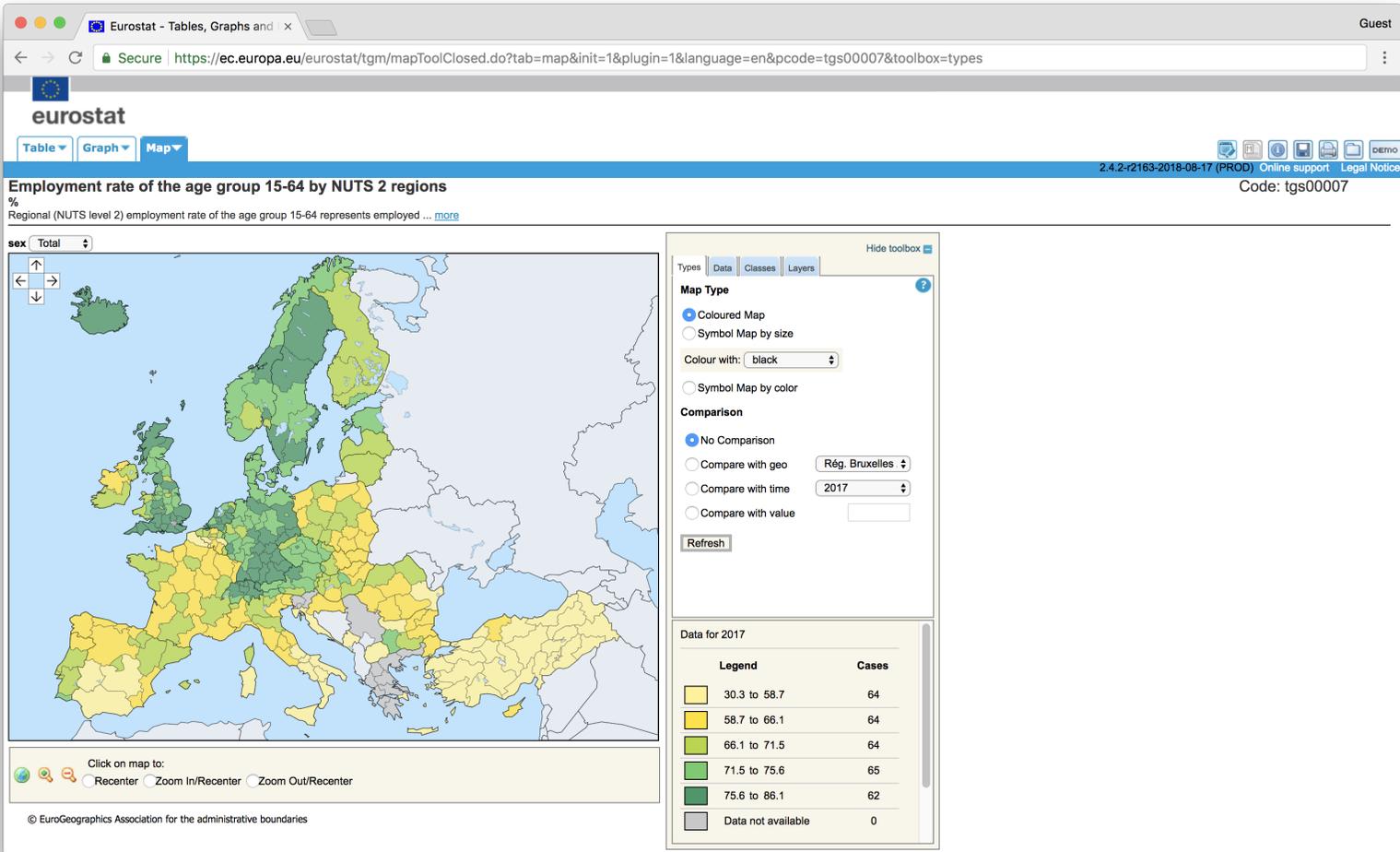
%  
Regional (NUTS level 2) employment rate of the age group 15-64 represents employed ... [more](#)

sex   Flags  Codes  Labels  Codes & Labels  1 234,56  1.234,56  1,234.56

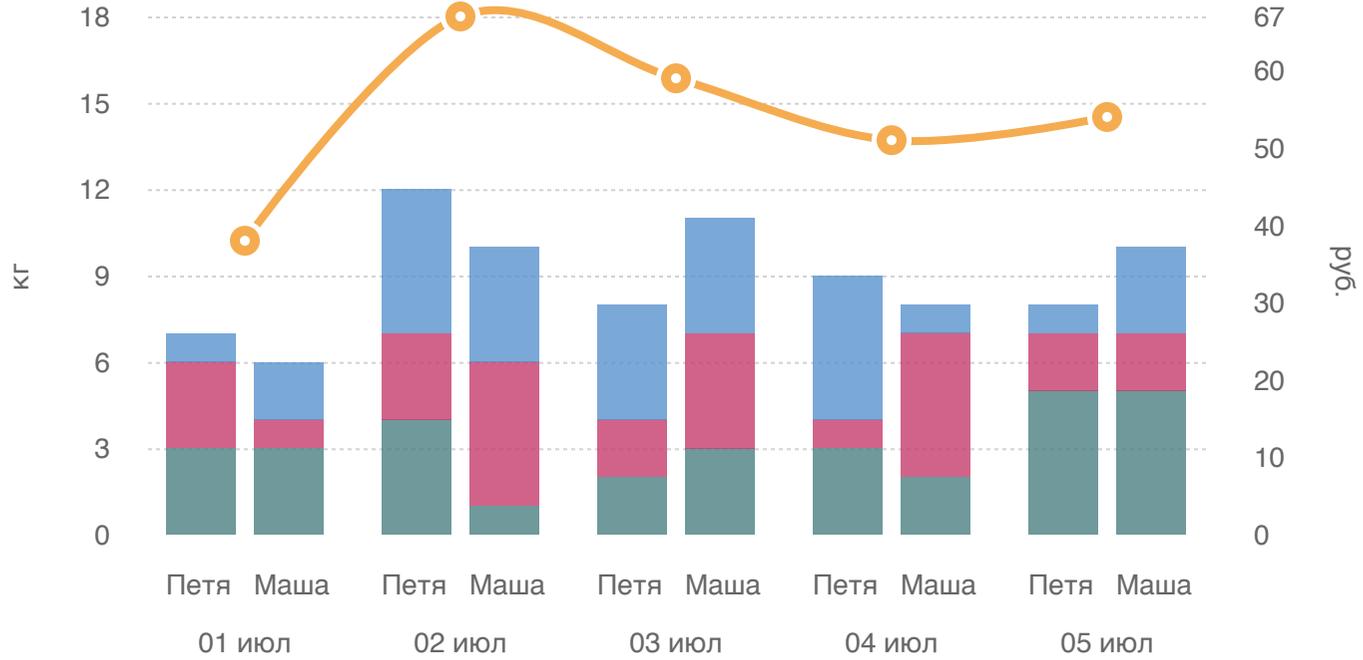
| geo                                     | time | 2006 | 2007 | 2008              | 2009 | 2010              | 2011              | 2012 | 2013 | 2014 | 2015 | 2016 | 2017              |
|---|------|------|------|-------------------|------|-------------------|-------------------|------|------|------|------|------|-------------------|
| <b>Rég. Bruxelles / Brussels Gewest</b> |      | 53.4 | 54.8 | 55.6              | 55.1 | 54.8              | 53.8 <sup>b</sup> | 54.0 | 52.5 | 54.3 | 54.2 | 55.3 | 56.2 <sup>b</sup> |
| <b>Prov. Antwerpen</b>                  |      | 63.4 | 64.9 | 65.2              | 63.8 | 64.6              | 63.8 <sup>b</sup> | 64.0 | 64.0 | 64.1 | 64.8 | 63.9 | 65.5 <sup>b</sup> |
| <b>Prov. Limburg (BE)</b>               |      | 61.8 | 62.9 | 63.8              | 64.0 | 64.4              | 65.1 <sup>b</sup> | 64.0 | 64.1 | 64.1 | 63.8 | 64.8 | 67.1 <sup>b</sup> |
| <b>Prov. Oost-Vlaanderen</b>            |      | 66.3 | 66.9 | 68.6              | 67.9 | 67.7              | 67.4 <sup>b</sup> | 67.5 | 68.5 | 68.3 | 67.6 | 68.3 | 68.1 <sup>b</sup> |
| <b>Prov. Vlaams-Brabant</b>             |      | 66.7 | 67.9 | 67.6              | 67.3 | 67.4              | 68.0 <sup>b</sup> | 67.6 | 67.2 | 67.6 | 67.5 | 67.6 | 67.9 <sup>b</sup> |
| <b>Prov. West-Vlaanderen</b>            |      | 66.4 | 67.7 | 66.8              | 66.1 | 67.4              | 67.4 <sup>b</sup> | 66.6 | 67.3 | 67.9 | 68.1 | 68.6 | 70.0 <sup>b</sup> |
| <b>Prov. Brabant Wallon</b>             |      | 60.9 | 62.7 | 63.2              | 61.5 | 61.9              | 62.0 <sup>b</sup> | 62.6 | 62.9 | 62.4 | 62.8 | 62.9 | 64.5 <sup>b</sup> |
| <b>Prov. Hainaut</b>                    |      | 52.2 | 53.8 | 54.1              | 52.4 | 53.2              | 53.8 <sup>b</sup> | 54.0 | 53.8 | 52.7 | 53.0 | 54.7 | 54.3 <sup>b</sup> |
| <b>Prov. Liège</b>                      |      | 56.8 | 56.4 | 57.1              | 56.7 | 56.5              | 57.0 <sup>b</sup> | 56.9 | 57.0 | 55.6 | 55.8 | 56.1 | 56.1 <sup>b</sup> |
| <b>Prov. Luxembourg (BE)</b>            |      | 61.3 | 61.6 | 61.4              | 61.1 | 62.7              | 62.1 <sup>b</sup> | 62.7 | 63.3 | 62.4 | 61.3 | 62.2 | 64.4 <sup>b</sup> |
| <b>Prov. Namur</b>                      |      | 58.6 | 60.2 | 58.9              | 58.6 | 59.4              | 58.7 <sup>b</sup> | 59.8 | 57.7 | 60.7 | 57.6 | 58.4 | 60.9 <sup>b</sup> |
| <b>Severozapaden</b>                    |      | 53.5 | 57.1 | 59.3 <sup>b</sup> | 57.5 | 54.9 <sup>b</sup> | 53.0 <sup>b</sup> | 53.6 | 54.6 | 55.0 | 56.1 | 54.8 | 57.9              |
| <b>Severen tsentralen</b>               |      | 53.8 | 57.0 | 58.6 <sup>b</sup> | 57.9 | 55.3 <sup>b</sup> | 54.9 <sup>b</sup> | 55.5 | 55.5 | 57.4 | 60.4 | 61.5 | 63.7              |
| <b>Severoiztochen</b>                   |      | 58.2 | 59.8 | 62.0 <sup>b</sup> | 59.2 | 56.8 <sup>b</sup> | 55.8 <sup>b</sup> | 55.0 | 56.5 | 59.8 | 63.1 | 62.9 | 65.4              |
| <b>Yugoiztochen</b>                     |      | 58.1 | 59.7 | 62.3 <sup>b</sup> | 61.2 | 59.1 <sup>b</sup> | 57.7 <sup>b</sup> | 58.5 | 57.5 | 58.0 | 60.6 | 62.3 | 65.7              |

:=not available b=break in time series Source of Data: Eurostat





```
01. <table>
02.     <caption>Bob's data</caption>
03.     <tr>
04.         <th scope="col">Дата</th>
05.     </tr>
06.     <tr>
07.         <th scope="row">01 июля</th>
08.     </tr>
09. </table>
```



- яблоки
- бананы
- апельсины

общая сумма продаж

## ПРОДАВЕЦ 1

| Дата    | Яблоки | Бананы | Апельсины |
|---------|--------|--------|-----------|
| 01 июля | 3      | 3      | 1         |
| 02 июля | 4      | 3      | 5         |
| 03 июля | 2      | 2      | 4         |
| 04 июля | 3      | 1      | 5         |
| 05 июля | 5      | 2      | 1         |

## ПРОДАВЕЦ 2

| <b>Дата</b>    | <b>Яблоки</b> | <b>Бананы</b> | <b>Апельсины</b> |
|----------------|---------------|---------------|------------------|
| <b>01 июля</b> | 3             | 1             | 2                |
| <b>02 июля</b> | 1             | 5             | 4                |
| <b>03 июля</b> | 3             | 4             | 4                |
| <b>04 июля</b> | 2             | 5             | 1                |
| <b>05 июля</b> | 5             | 2             | 3                |

## ОБЩАЯ СУММА ПРОДАЖ

| Дата    | Сумма |
|---------|-------|
| 01 июля | 38    |
| 02 июля | 67    |
| 03 июля | 59    |
| 04 июля | 51    |
| 05 июля | 54    |

WebAIM: Creating Accessible x Guest

Secure | <https://webaim.org/techniques/tables/data>

### Shelly's Daughters

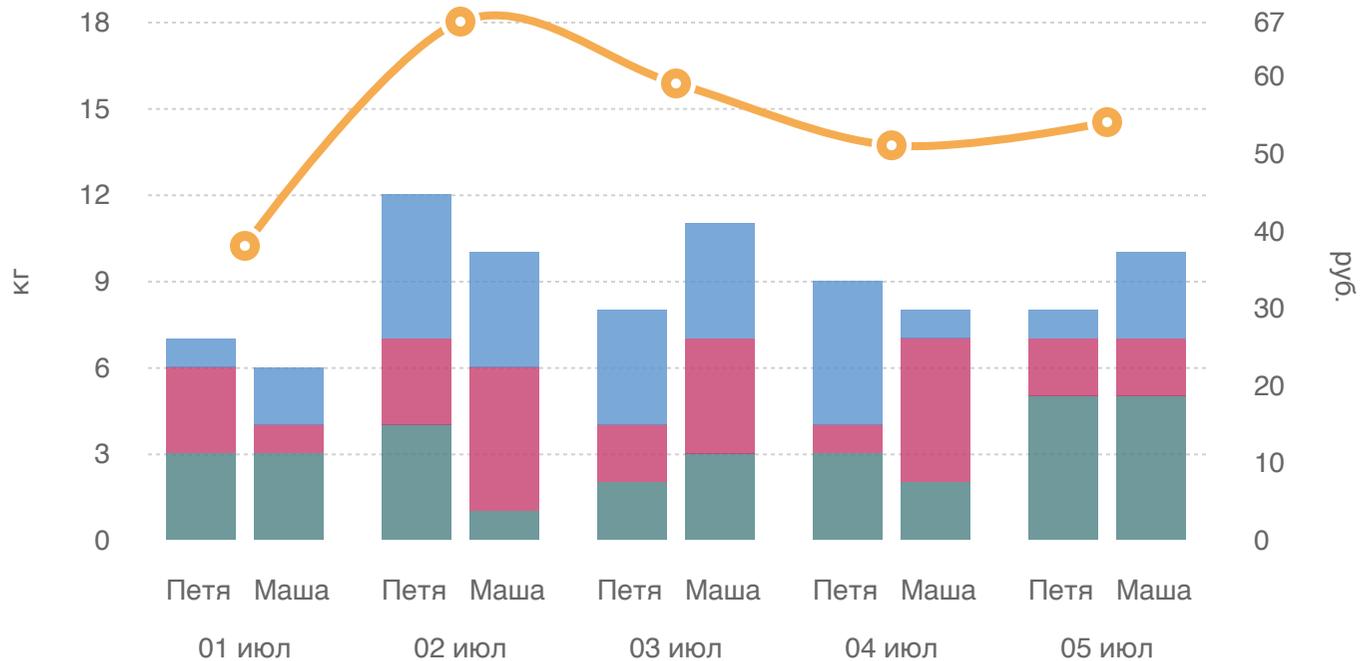
|             | Name   | Age | Birthday   |
|-------------|--------|-----|------------|
| by birth    | Jackie | 5   | April 5    |
|             | Beth   | 8   | January 14 |
| by marriage | Beth   | 8   | January 14 |

In this example, the "by birth" row header has a scope of row, as do the headers with the names. The cell showing the age for Jackie will have 3 headers - one column header ("Age") and two row headers ("by birth" and "Jackie"). A screen reader would identify all of them, including the data cell content (e.g., it might read "by birth. Jackie. Age. 5.").

 **Note**

Despite being standard markup for tables for many years, some screen readers still **do not fully support complex tables** with spanned or multiple levels of row and/or column headers. When possible, try to 'flatten' the table and avoid spanned cells and multiple levels of header cells.

[webaim.org](https://webaim.org)



- яблоки
- бананы
- апельсины

общая сумма продаж

 [XLSX \(36 Кб\)](#)

 [CSV \(27 Кб\)](#)

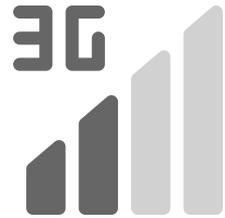
 [PDF \(32 Кб\)](#)

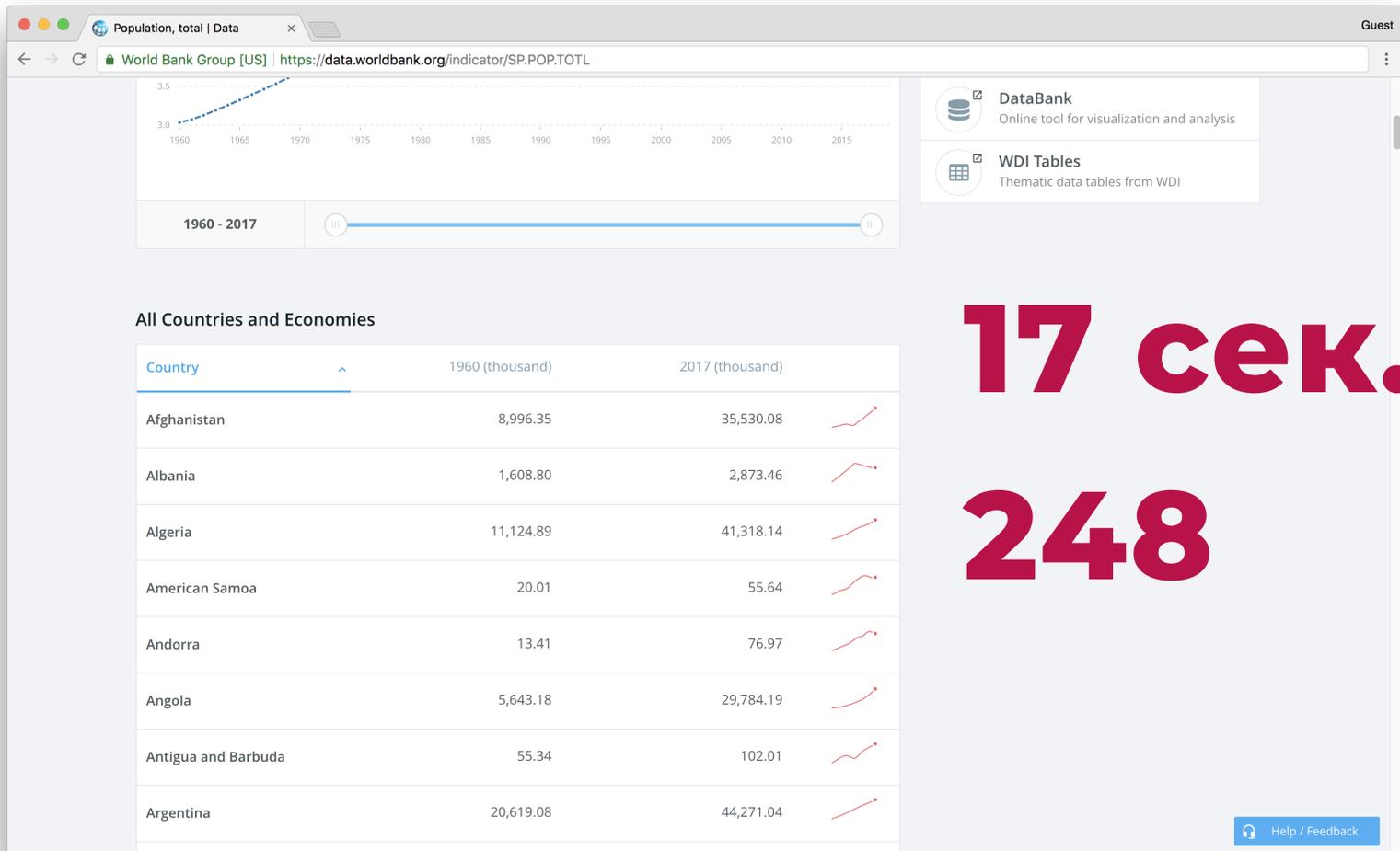
# СОВЕТЫ

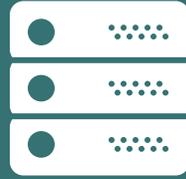
- простые таблицы
- ~~colspan~~ ~~rowspan~~
- размер файла



**ЕЩЁ ЛУЧШЕ?**







# СОВЕТЫ

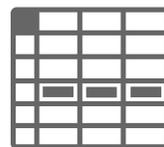
- HTML строка
- без JS
- без CSS
- события



# РЕЗЮМЕ

- ЭТО ВОЗМОЖНО
- знать о чем график
- доступные данные

# РЕЗЮМЕ



# СКРИН РИДЕР

- [Screen Reader Survival Guide](#)
- [Accessibility Testing with a Screen Reader](#)

# ДОСТУПНОСТЬ

- [Accessibility for Everyone](#) – L. Kalbag
- [Inclusive Design Patterns](#) – H. Pickering
- [gist](#) со ссылками

# ГРАФИКИ

- [bl.ocks.org](https://bl.ocks.org)
- [Interactive Data Visualization](#) – S. Murray
- [ЭТОТ](#) и [ЭТОТ](#) посты – L. Watson

**СПАСИБО!..**

[sergeikruger.com](http://sergeikruger.com)

[bit.ly/holyjs-2018](http://bit.ly/holyjs-2018)



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