

Introdução às tecnologias Web - ITW

Aula 11 – Apresentação do trabalho prático final

Sumário

Apresentação do trabalho prático final

O que desenvolver?

Onde ir buscar a informação?

Resultado final esperado



Trabalho prático final

O que desenvolver?

Pretende-se com este trabalho prático juntar as diversas aprendizagens feitas ao longo do semestre.

Para tal, pretende-se que seja desenvolvida um site web que integre a informação dos diversos tipos

Trabalho prático final

Onde ir buscar a informação?

Para o trabalho prático final deverão ser utilizados, como dados, **apenas** os serviços disponibilizados no endereço <http://192.168.160.58/Olympics>

Poderão ser utilizados outros serviços/API's externos para complementar o trabalho

O servidor [192.168.160.58] só está disponível na rede da Universidade de Aveiro. Para que possam aceder de casa, como se estivessem fisicamente na UA, deverão instalar o software disponibilizado em: https://www.ua.pt/pt/stic/teletrabalho_vpn
(disponível para Windows e iOS)


Cenário: Olympics API

<http://192.168.160.58/Olympics>

Home Page - ITW Olympics 2022 x +

Inseguro | 192.168.160.58/Olympics

API Entidades Sobre Contacto



Vancouver 2010

The 2010 Winter Olympics, officially known as the XXI Olympic Winter Games and also known as Vancouver 2010, were an international winter multi-sport event held from February 12 to 28, 2010 in Vancouver, British Columbia, Canada, with some events held in the surrounding suburbs of Richmond, West Vancouver and the University of British Columbia, and in the nearby resort town of Whistler.

Welcome to Olympics ITW 2022

Context

The modern Olympic Games or **Olympics** are the leading international sporting events featuring summer and winter sports competitions in which thousands of athletes from around the world participate in a variety of competitions.

The Olympic Games are considered the world's foremost sports competition with more than 200 teams, representing sovereign states and territories, participating. The Olympic Games are normally held every four years, and since 1994, have alternated between the Summer and Winter Olympics every two years during the four-year period.

This is the scenario chosen for this year in the ITW curricular unit. Based on open data and with the collective participation of the students of the discipline, we will have data with the quality that we are able to give them.

Content

Olympics, the most prestigious event in the life of athletes and aspiring athletes is celebrated and respected around the world. This dataset consists of Olympics data of over a century, from the year 1896 to 2016.

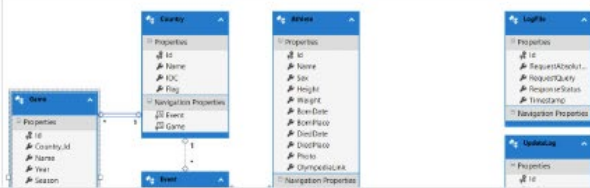
Studying this dataset will help you understand the patterns followed in the games of Olympics, patterns of the most successful athletes and countries in their Olympics journey and much more!

This dataset will help you understand every detail and information that you would want to know in the Olympics using statistical approach and at the same time [help you enhance your programming skills.](#)

The database in numbers

Country (Países)	238	Athlete (Atletas)	135,571
Game (Edições dos jogos)	52	Competition (Competições)	765
Event (Resultados)	269,228	Sport (Modalidades)	66
Medal (Medalhas)	4	LogFile (Resultados das pesquisas)	---
		UpdateLog (Alterações nas tabelas)	---

Database structure



Group

Date

Request

2022-11-01

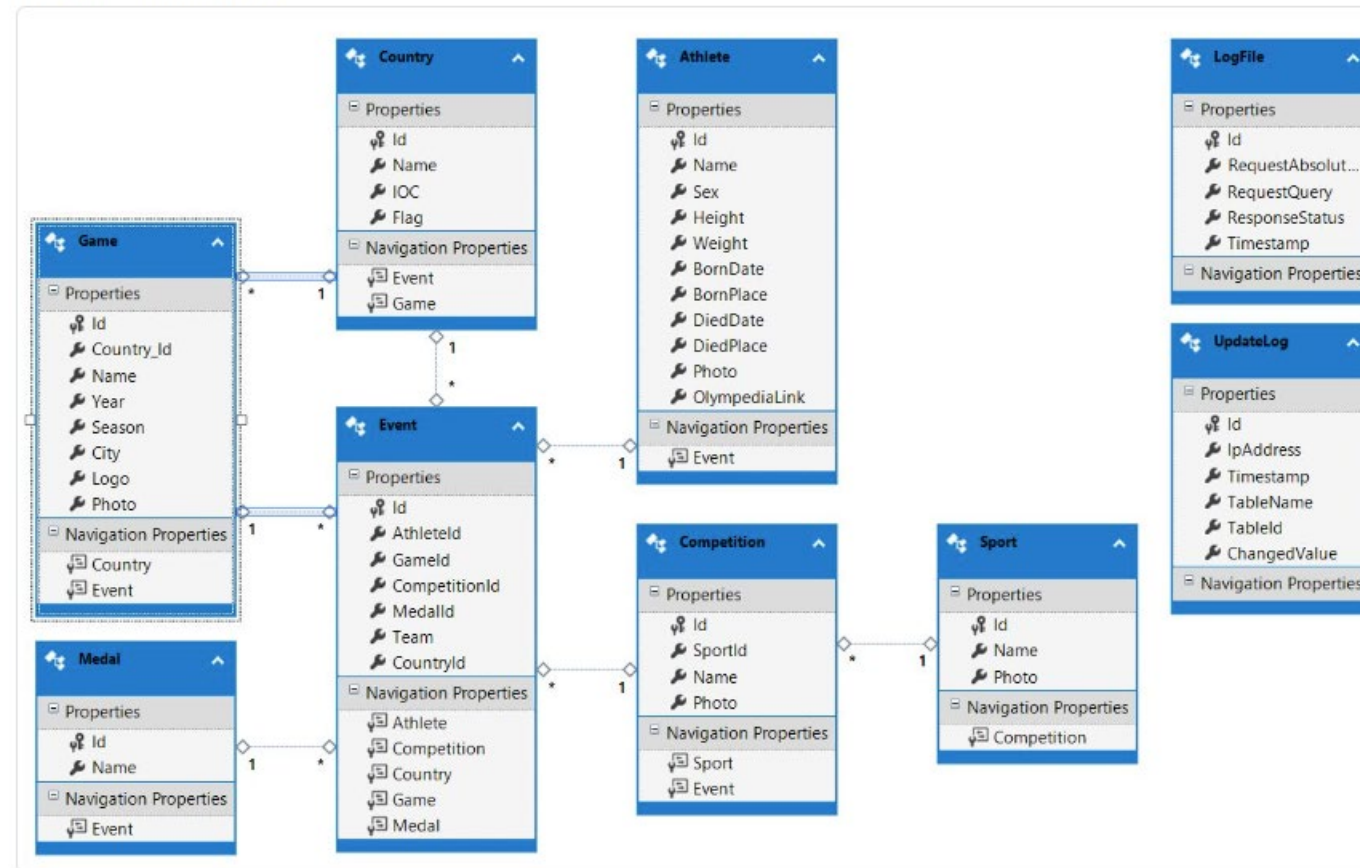
carlens@gmail.com

todo

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Base de dados

Database structure



Documentação técnica

<http://192.168.160.58/Olympics/Help>

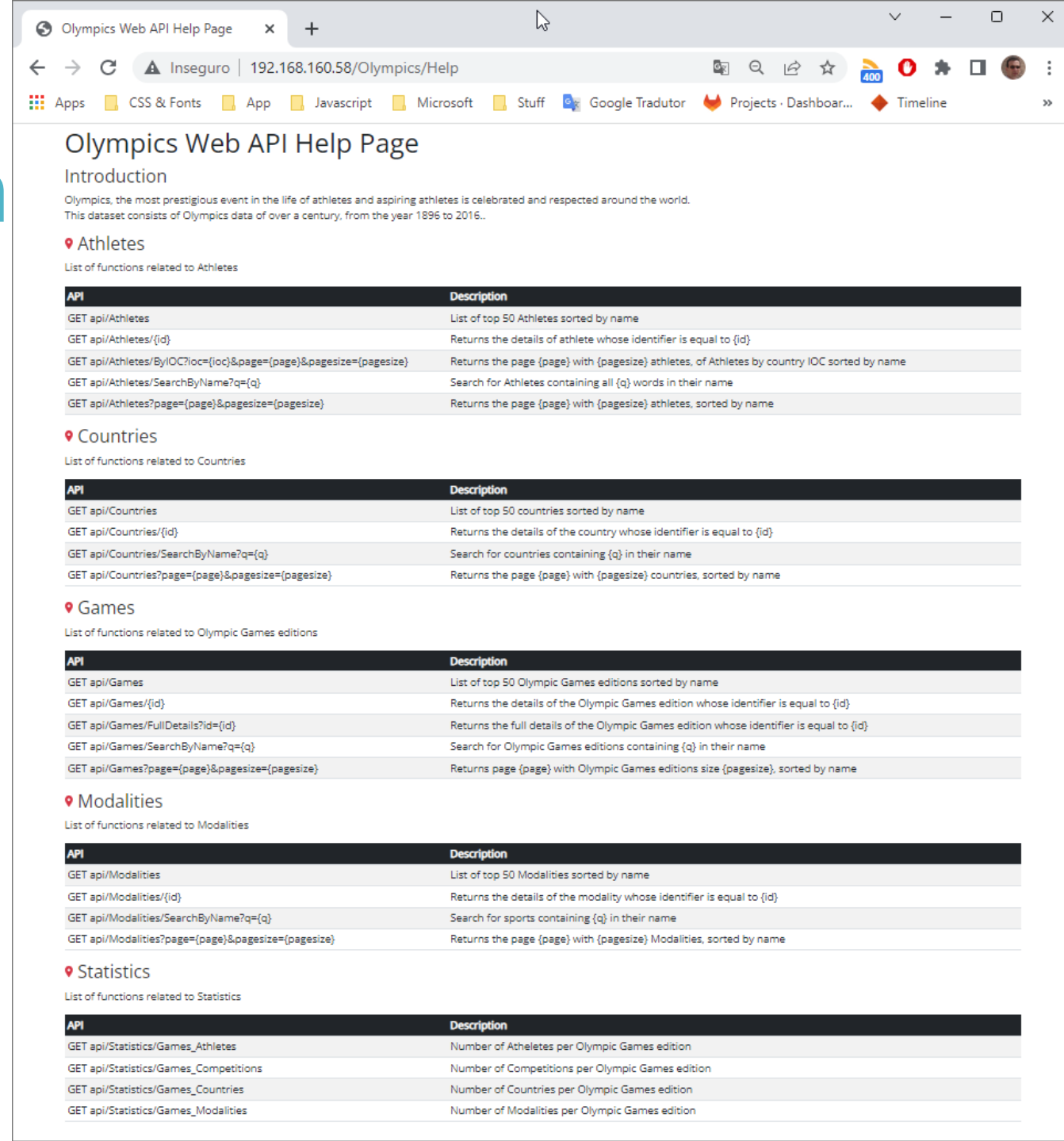
22 métodos distintos (para já)

Material de testes
disponibilizado no e-Learning

Aceito pedidos para
desenvolvimento
de novas funcionalidades.
[Ficarão disponíveis para todos]

29/11/2022

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Olympics Web API Help Page

Introduction

Olympics, the most prestigious event in the life of athletes and aspiring athletes is celebrated and respected around the world. This dataset consists of Olympics data of over a century, from the year 1896 to 2016..

Athletes

List of functions related to Athletes

API	Description
GET api/Athletes	List of top 50 Athletes sorted by name
GET api/Athletes/{id}	Returns the details of athlete whose identifier is equal to {id}
GET api/Athletes/ByIOC?ioc={ioc}&page={page}&pagesize={pagesize}	Returns the page {page} with {pagesize} athletes, of Athletes by country IOC sorted by name
GET api/Athletes/SearchByName?q={q}	Search for Athletes containing all {q} words in their name
GET api/Athletes?page={page}&pagesize={pagesize}	Returns the page {page} with {pagesize} athletes, sorted by name

Countries

List of functions related to Countries

API	Description
GET api/Countries	List of top 50 countries sorted by name
GET api/Countries/{id}	Returns the details of the country whose identifier is equal to {id}
GET api/Countries/SearchByName?q={q}	Search for countries containing {q} in their name
GET api/Countries?page={page}&pagesize={pagesize}	Returns the page {page} with {pagesize} countries, sorted by name

Games

List of functions related to Olympic Games editions

API	Description
GET api/Games	List of top 50 Olympic Games editions sorted by name
GET api/Games/{id}	Returns the details of the Olympic Games edition whose identifier is equal to {id}
GET api/Games/FullDetails?id={id}	Returns the full details of the Olympic Games edition whose identifier is equal to {id}
GET api/Games/SearchByName?q={q}	Search for Olympic Games editions containing {q} in their name
GET api/Games?page={page}&pagesize={pagesize}	Returns page {page} with Olympic Games editions size {pagesize}, sorted by name

Modalities

List of functions related to Modalities

API	Description
GET api/Modalities	List of top 50 Modalities sorted by name
GET api/Modalities/{id}	Returns the details of the modality whose identifier is equal to {id}
GET api/Modalities/SearchByName?q={q}	Search for sports containing {q} in their name
GET api/Modalities?page={page}&pagesize={pagesize}	Returns the page {page} with {pagesize} Modalities, sorted by name

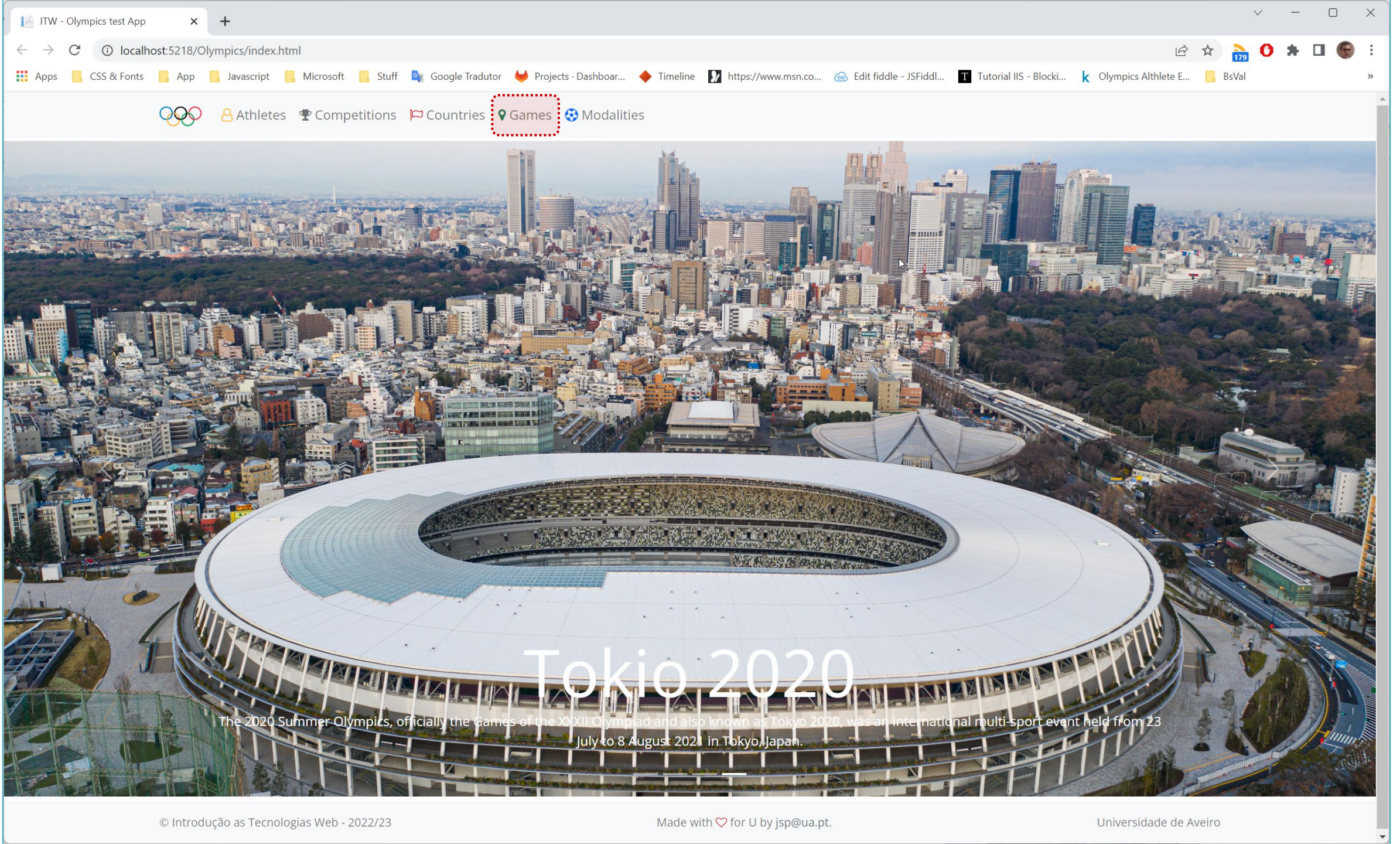
Statistics

List of functions related to Statistics

API	Description
GET api/Statistics/Games_Athletes	Number of Athletes per Olympic Games edition
GET api/Statistics/Games_Competitions	Number of Competitions per Olympic Games edition
GET api/Statistics/Games_Countries	Number of Countries per Olympic Games edition
GET api/Statistics/Games_Modalities	Number of Modalities per Olympic Games edition

index.html

games.js




games.html
games.js


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localhost:5218/Olympics/games.html


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400

 Athletes

 Competitions

 Countries









































 Games

 Modalities

Olympic Games editions List


Page: 1 of 3
Games: 1-20 of 52

1 2 3

Id	Name	Year	City Name	Country Name		
1	1896 Summer	1896	Athina	Greece		
2	1900 Summer	1900	Paris	France		
3	1904 Summer	1904	St. Louis	United States		
4	1906 Summer	1906	Athina	Greece		
5	1908 Summer	1908	London	Great Britain		
6	1912 Summer	1912	Stockholm	Sweden		
7	1920 Summer	1920	Antwerpen	Great Britain		
8	1924 Summer	1924	Paris	France		
9	1924 Winter	1924	Chamonix	France		
10	1928 Summer	1928	Amsterdam	Great Britain		
11	1928 Winter	1928	Sankt Moritz	Switzerland		
12	1932 Summer	1932	Los Angeles	United States		
13	1932 Winter	1932	Lake Placid	United States		
14	1936 Summer	1936	Berlin	Germany		
15	1936 Winter	1936	Garmisch-Partenkirchen	Germany		
16	1948 Summer	1948	London	Great Britain		
17	1948 Winter	1948	Sankt Moritz	Switzerland		
18	1952 Summer	1952	Helsinki	Finland		
19	1952 Winter	1952	Oslo	Norway		
20	1956 Summer	1956	Melbourne	Australia		

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```
// ViewModel KnockOut
var vm = function () {
    console.log('ViewModel initiated...');
    //---Variáveis locais
    var self = this;
    self.baseUrl = ko.observable('http://192.168.160.58/Olympics/api/games');
    self.displayName = 'Olympic Games editions List';
    self.error = ko.observable('');
    self.passingMessage = ko.observable('');
    self.records = ko.observableArray([]);
    self.currentPage = ko.observable(1);
    self.pagesize = ko.observable(20);
    self.totalRecords = ko.observable(50);
    self.totalPages = ko.observable(0);
    self.hasPrevious = ko.observable(false);
    self.hasNext = ko.observable(false);
    self.previousPage = ko.computed(function () { ... }, self);
    self.nextPage = ko.computed(function () { ... }, self);
    self.fromRecord = ko.computed(function () { ... }, self);
    self.toRecord = ko.computed(function () { ... }, self);
    self.pageArray = function () { ... };

    //--- Page Events
    self.activate = function (id) {
        console.log('CALL: getGames...');
        var composedUri = self.baseUrl() + "?page=" + id + "&pageSize=" + self.pagesize();
        ajaxHelper(composedUri, 'GET').done(function (data) {
            self.records(data.Records);
            self.currentPage(data.CurrentPage);
            self.hasNext(data.HasNext);
            self.hasPrevious(data.HasPrevious);
            self.pagesize(data.PageSize);
            self.totalPages(data.TotalPages);
            self.totalRecords(data.TotalRecords);
            //self.SetFavourites();
        });
    };
};
```

GET api/Games

List of top 50 Olympic Games editions sorted by name

Request Information

URI Parameters

None.

Body Parameters

None.

Response Information

Resource Description

Paginated list of Olympic Games editions sorted by name

DTO_GamePage

Name	Description	Type	Additional information
TotalRecords	Total number of Olympic Games editions	integer	None.
TotalPages	Number of Olympic Games editions pages, according to {pagesize}	integer	None.
CurrentPage	Current page	integer	None.
PageSize	Number of elements to display per page	integer	None.
HasPrevious	Has previous page?	boolean	None.
HasNext	Has next page?	boolean	None.
Records	Olympic Games editions list	Collection of DTO_GameSummary	None.

```

<table class="table table-striped table-sm small">
  <thead class="bg-dark text-light">
    <tr>
      <th scope="col">Id</th>
      <th scope="col">Name</th>
      <th scope="col">Year</th>
      <th scope="col">City Name</th>
      <th scope="col">Country Name</th>
      <th scope="col" class="text-right"></th>
    </tr>
  </thead>
  <tbody data-bind="foreach: records">
    <tr>
      <td class="align-middle" data-bind="text:Id"></td>
      <td class="align-middle" data-bind="text:Name"></td>
      <td class="align-middle" data-bind="text:Year"></td>
      <td class="align-middle" data-bind="text:CityName"></td>
      <td class="align-middle" data-bind="text:CountryName"></td>
      <td class="text-end">
        <a class="btn btn-default btn-light btn-xs" data-bind="attr: { href: './gameDetails.html?id=' + Id }">
          <i class="fa fa-eye" title="Selecione para ver detalhes"></i>
        </a>
        <button class="btn btn-default btn-xs">
          <i class="fa fa-heart-o" data-bind="attr : { 'id': 'favourite_' + Id }"
            title="Selecione para adicionar aos favoritos"></i>
        </button>
      </td>
    </tr>
  </tbody>
</table>

```

DTO_GameSummary

Name	Description	Type
Id	Olympic Games edition Identifier	integer
Name	Olympic Games edition Name	string
Year	Olympic Games edition Year	integer
CityName	Name of the host city of the Olympic Games edition	string
CountryName	Name of the country of the Olympic Games edition	string

Um exemplo...






[<http://192.168.160.58/Olympics/api/Games?page=1&pagesize=20>]

```
{
  "TotalRecords": 52,
  "TotalPages": 3,
  "CurrentPage": 1,
  "PageSize": 20,
  "HasPrevious": false,
  "HasNext": true,
  "Records": [
    {"Id": 1, "Name": "1896 Summer", "Year": 1896, "CityName": "Athina", "CountryName": "Greece"},
    {"Id": 2, "Name": "1900 Summer", "Year": 1900, "CityName": "Paris", "CountryName": "France"},
    {"Id": 3, "Name": "1904 Summer", "Year": 1904, "CityName": "St. Louis", "CountryName": "United States"},
    {"Id": 4, "Name": "1906 Summer", "Year": 1906, "CityName": "Athina", "CountryName": "Greece"},
    {"Id": 5, "Name": "1908 Summer", "Year": 1908, "CityName": "London", "CountryName": "Great Britain"},
    {"Id": 6, "Name": "1912 Summer", "Year": 1912, "CityName": "Stockholm", "CountryName": "Sweden"},
    {"Id": 7, "Name": "1920 Summer", "Year": 1920, "CityName": "Antwerpen", "CountryName": "Great Britain"},
    {"Id": 8, "Name": "1924 Summer", "Year": 1924, "CityName": "Paris", "CountryName": "France"},
    {"Id": 9, "Name": "1924 Winter", "Year": 1924, "CityName": "Chamonix", "CountryName": "France"},
    {"Id": 10, "Name": "1928 Summer", "Year": 1928, "CityName": "Amsterdam", "CountryName": "Great Britain"},
    {"Id": 11, "Name": "1928 Winter", "Year": 1928, "CityName": "Sankt Moritz", "CountryName": "Switzerland"},
    {"Id": 12, "Name": "1932 Summer", "Year": 1932, "CityName": "Los Angeles", "CountryName": "United States"},
    {"Id": 13, "Name": "1932 Winter", "Year": 1932, "CityName": "Lake Placid", "CountryName": "United States"},
    {"Id": 14, "Name": "1936 Summer", "Year": 1936, "CityName": "Berlin", "CountryName": "Germany"},
    {"Id": 15, "Name": "1936 Winter", "Year": 1936, "CityName": "Garmisch-Partenkirchen", "CountryName": "Germany"},
    {"Id": 16, "Name": "1948 Summer", "Year": 1948, "CityName": "London", "CountryName": "Great Britain"},
    {"Id": 17, "Name": "1948 Winter", "Year": 1948, "CityName": "Sankt Moritz", "CountryName": "Switzerland"},
    {"Id": 18, "Name": "1952 Summer", "Year": 1952, "CityName": "Helsinki", "CountryName": "Finland"},
    {"Id": 19, "Name": "1952 Winter", "Year": 1952, "CityName": "Oslo", "CountryName": "Norway"},
    {"Id": 20, "Name": "1956 Summer", "Year": 1956, "CityName": "Melbourne", "CountryName": "Australia"}
  ]
}
```

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localhost:5218/Olympics/games.html









































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 Athletes  Competitions  Countries  Games  Modalities

Olympic Games editions List

Page: 1 of 3
Games: 1-20 of 52

1 2 3

Id	Name	Year	City Name	Country Name		
1	1896 Summer	1896	Athina	Greece		
2	1900 Summer	1900	Paris	France		
3	1904 Summer	1904	St. Louis	United States		
4	1906 Summer	1906	Athina	Greece		
5	1908 Summer	1908	London	Great Britain		
6	1912 Summer	1912	Stockholm	Sweden		
7	1920 Summer	1920	Antwerpen	Great Britain		
8	1924 Summer	1924	Paris	France		
9	1924 Winter	1924	Chamonix	France		
10	1928 Summer	1928	Amsterdam	Great Britain		
11	1928 Winter	1928	Sankt Moritz	Switzerland		
12	1932 Summer	1932	Los Angeles	United States		
13	1932 Winter	1932	Lake Placid	United States		
14	1936 Summer	1936	Berlin	Germany		
15	1936 Winter	1936	Garmisch-Partenkirchen	Germany		
16	1948 Summer	1948	London	Great Britain		
17	1948 Winter	1948	Sankt Moritz	Switzerland		
18	1952 Summer	1952	Helsinki	Finland		
19	1952 Winter	1952	Oslo	Norway		
20	1956 Summer	1956	Melbourne	Australia		

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gameDetails.html

gameDetails.js

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localhost:5218/Olympics/gameDetails.html?id=52

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Athletes



Competitions

Countries

Games

Modalities

2016 Summer [52]

Game Id	52
Name	2016 Summer
Country Name	Brazil
Season	Summer
Year	2016
Logo	<div><p>% [https://upload.wikimedia.org/wikipedia/en/d/df/2016_Summer_Olympics_logo.svg]</p></div>
Photo	<div><p>% [https://upload.wikimedia.org/wikipedia/commons/4/48/2016_Summer_Olympics_opening_ceremony_1035301-05082016-v9a2048_04.08.16.jpg]</p></div>

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17

```
// ViewModel KnockOut
var vm = function () {
    console.log('ViewModel initiated...');
    //---Variáveis locais
    var self = this;
    self.baseUrl = ko.observable('http://192.168.160.58/Olympics/api/Games/');
    self.displayName = 'Olympic Games edition Details';
    self.error = ko.observable('');
    self.passingMessage = ko.observable('');
    //--- Data Record
    self.Id = ko.observable('');
    self.CountryName = ko.observable('');
    self.Logo = ko.observable('');
    self.Name = ko.observable('');
    self.Photo = ko.observable('');
    self.Season = ko.observable('');
    self.Year = ko.observableArray('');

    //--- Page Events
    self.activate = function (id) {
        console.log('CALL: getGame...');
        var composedUri = self.baseUrl() + id;
        ajaxHelper(composedUri, 'GET').done(function (data) {
            console.log(data);
            hideLoading();
            self.Id(data.Id);
            self.CountryName(data.CountryName);
            self.Logo(data.Logo);
            self.Name(data.Name);
            self.Photo(data.Photo);
            self.Season(data.Season);
            self.Year(data.Year);
        });
    };
};
```

GET api/Games/{id}

Returns the details of the Olympic Games edition whose identifier is equal to {id}

Request Information

URI Parameters

Name	Description	Type	Additional information
id	Olympic Games edition Identifier	integer	Required

Body Parameters

None.

Response Information

Resource Description

Olympic Games edition info details

DTO_GameDetails

Name	Description	Type	Additional information
Id	Olympic Games edition Identifier	integer	None.
CountryName	Olympic Games edition Country Name	string	None.
Name	Olympic Games edition Name	string	None.
Year	Olympic Games edition Year	integer	None.
Season	Olympic Games edition Season	string	None.
City	Olympic Games edition City	string	None.
Logo	Olympic Games edition Logo	string	None.
Photo	Olympic Games edition Photo	string	None.

```

<!-- Work Area-->
<div class="container">
  <div class="py-2 border-bottom mb-3">
    <h2 data-bind="text: Name() + ' [' + Id() + ']'"></h2>
  </div>
  <!-- ko if: Name().length > 0 -->
  <div class="row border-bottom mx-0 my-1">
    <div class="col-2">Game Id</div><div class="col-10" data-bind="text: Id"></div>
  </div>
  <div class="row border-bottom mx-0 my-1">
    <div class="col-2">Name</div><div class="col-10" data-bind="text: Name"></div>
  </div>
  <div class="row border-bottom mx-0 my-1">
    <div class="col-2">Country Name</div><div class="col-10" data-bind="text: CountryName"></div>
  </div>
  <div class="row border-bottom mx-0 my-1"><div class="col-2">Season</div>
    <div class="col-10" data-bind="text: Season"></div>
  </div>
  <div class="row border-bottom mx-0 my-1">
    <div class="col-2">Year</div><div class="col-10" data-bind="text: Year"></div>
  </div>
  <div class="row border-bottom mx-0 my-1" data-bind="visible: Logo() != '' && Logo() != null">
    <div class="col-2">Logo</div><div class="small col-10">
      <img class="img-thumbnail" data-bind="attr:{src: Logo}"><br /><i class="fa fa-link"></i><br />
      [<a class="link-dark text-decoration-none" data-bind="attr: { href: Logo }, text: Logo" target="_blank"></a>]</div>
    </div>
  <div class="row border-bottom mx-0 my-1" data-bind="visible: Photo() != '' && Photo() != null">
    <div class="col-2">Photo</div><div class="small col-10">
      <img class="img-thumbnail" data-bind="attr:{src: Photo}"><br />
      <i class="fa fa-link"></i> [<a class="link-dark text-decoration-none" data-bind="attr: { href: Photo }, text : Photo" target="_blank"></a>]
    </div>
  </div>
  <!-- /ko -->
  <a href="/games.html" class="btn btn-default btn-sm small"><i class="fa fa-list"></i> Back to List</a>
  <a data-bind="attr: { href: './gameFull.html?id=' + Id() }" class="btn btn-default btn-sm small"><i class="fa fa-th"></i> Full Setails</a>

```

Parece um comentário ...

Mas não é um comentário. É uma instrução knockout colocada dentro de um comentário.

Isto deve ser evitado mas, se não houver um elemento onde se possa “ancorar” a instrução knockout, ela pode ser colocada dentro de uma instrução de comentário

Um exemplo ...

[<http://192.168.160.58/Olympics/api/Games/52>]

```
{ "Id": 52,  
  "CountryName": "Brazil",  
  "Name": "2016 Summer",  
  "Year": 2016,  
  "Season": "Summer",  
  "City": "Rio de Janeiro",  
  "Logo": "https://upload.wikimedia.org/wikipedia/en/d/df/2016_Summer_Olympics_logo.svg",  
  "Photo": "https://upload.wikimedia.org/wikipedia/commons/4/48/2016_Summer_Olympics_opening_ceremony_1035301-05082016-_v9a2048_04.08.16.jpg" }
```

Outras funcionalidades

estatísticas

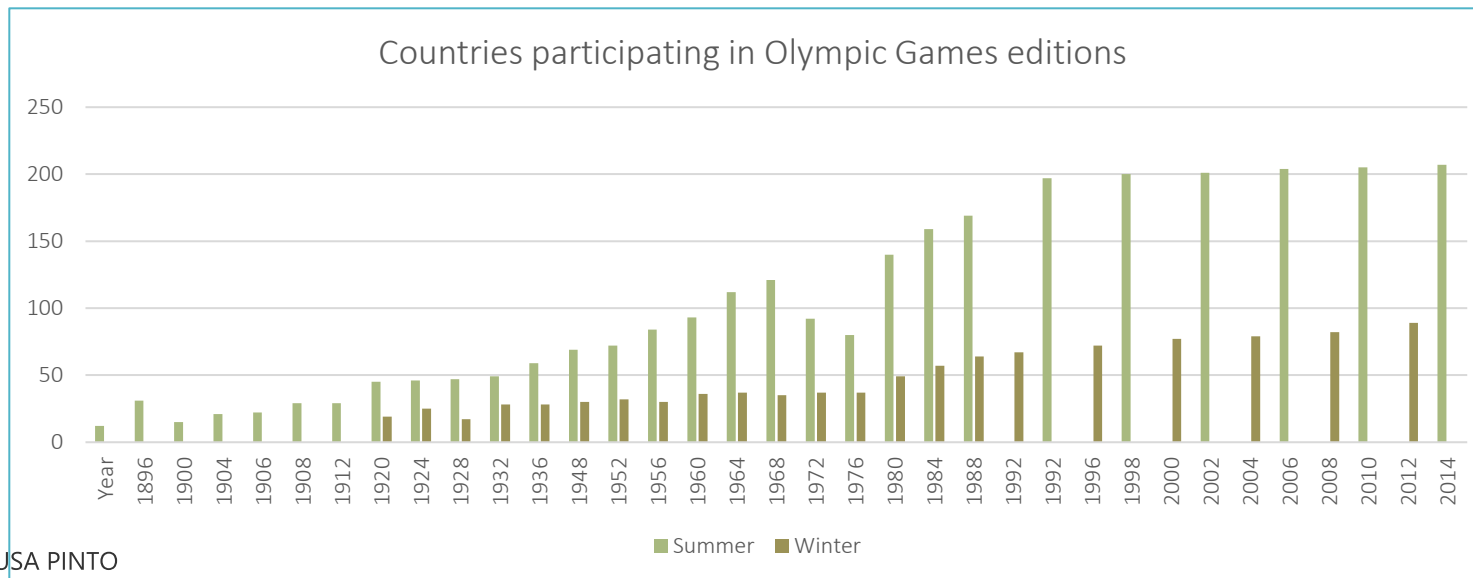
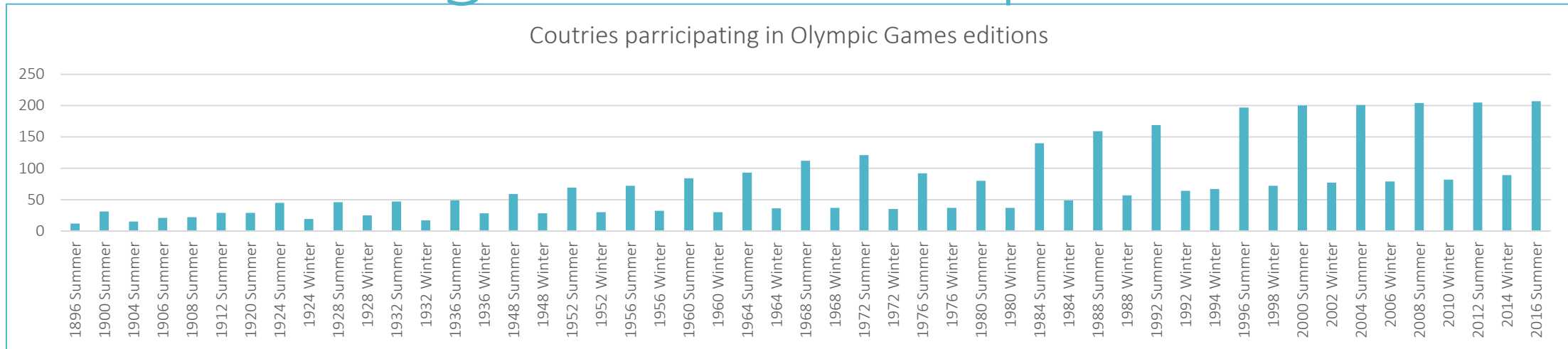
/api/Statistics/Games_Countries

List of total countries by Olympic Games edition

```
[{"Counter":12,"Id":1,"Name":"1896 Summer","Year":1896}, {"Counter":31,"Id":2,"Name":"1900 Summer","Year":1900}, {"Counter":15,"Id":3,"Name":"1904 Summer","Year":1904}, {"Counter":21,"Id":4,"Name":"1906 Summer","Year":1906}, {"Counter":22,"Id":5,"Name":"1908 Summer","Year":1908}, {"Counter":29,"Id":6,"Name":"1912 Summer","Year":1912}, {"Counter":29,"Id":7,"Name":"1920 Summer","Year":1920}, {"Counter":45,"Id":8,"Name":"1924 Summer","Year":1924}, {"Counter":19,"Id":9,"Name":"1924 Winter","Year":1924}, {"Counter":46,"Id":10,"Name":"1928 Summer","Year":1928}, {"Counter":25,"Id":11,"Name":"1928 Winter","Year":1928}, {"Counter":47,"Id":12,"Name":"1932 Summer","Year":1932}, {"Counter":17,"Id":13,"Name":"1932 Winter","Year":1932}, {"Counter":49,"Id":14,"Name":"1936 Summer","Year":1936}, {"Counter":28,"Id":15,"Name":"1936 Winter","Year":1936}, {"Counter":59,"Id":16,"Name":"1948 Summer","Year":1948}, {"Counter":28,"Id":17,"Name":"1948 Winter","Year":1948}, {"Counter":69,"Id":18,"Name":"1952 Summer","Year":1952}, {"Counter":30,"Id":19,"Name":"1952 Winter","Year":1952}, {"Counter":72,"Id":20,"Name":"1956 Summer","Year":1956}, {"Counter":0,"Id":21,"Name":"1956 Winter","Year":1956}, {"Counter":84,"Id":23,"Name":"1960 Summer","Year":1960}, {"Counter":30,"Id":24,"Name":"1960 Winter","Year":1960}, {"Counter":93,"Id":25,"Name":"1964 Summer","Year":1964}, {"Counter":36,"Id":26,"Name":"1964 Winter","Year":1964}, {"Counter":112,"Id":27,"Name":"1968 Summer","Year":1968}, {"Counter":37,"Id":28,"Name":"1968 Winter","Year":1968}, {"Counter":121,"Id":29,"Name":"1972 Summer","Year":1972}, {"Counter":35,"Id":30,"Name":"1972 Winter","Year":1972}, {"Counter":92,"Id":31,"Name":"1976 Summer","Year":1976}, {"Counter":37,"Id":32,"Name":"1976 Winter","Year":1976}, {"Counter":80,"Id":33,"Name":"1980 Summer","Year":1980}, {"Counter":37,"Id":34,"Name":"1980 Winter","Year":1980}, {"Counter":140,"Id":35,"Name":"1984 Summer","Year":1984}, {"Counter":49,"Id":36,"Name":"1984 Winter","Year":1984}, {"Counter":159,"Id":37,"Name":"1988 Summer","Year":1988}, {"Counter":57,"Id":38,"Name":"1988 Winter","Year":1988}, {"Counter":169,"Id":39,"Name":"1992 Summer","Year":1992}, {"Counter":64,"Id":40,"Name":"1992 Winter","Year":1992}, {"Counter":67,"Id":41,"Name":"1994 Summer","Year":1994}, {"Counter":197,"Id":42,"Name":"1994 Winter","Year":1994}, {"Counter":72,"Id":43,"Name":"1996 Summer","Year":1996}, {"Counter":77,"Id":45,"Name":"1998 Summer","Year":1998}, {"Counter":77,"Id":45,"Name":"1998 Winter","Year":1998}, {"Counter":200,"Id":44,"Name":"2000 Summer","Year":2000}, {"Counter":77,"Id":45,"Name":"2002 Summer","Year":2002}, {"Counter":77,"Id":45,"Name":"2002 Winter","Year":2002}, {"Counter":201,"Id":46,"Name":"2004 Summer","Year":2004}, {"Counter":79,"Id":47,"Name":"2006 Summer","Year":2006}, {"Counter":79,"Id":47,"Name":"2006 Winter","Year":2006}, {"Counter":204,"Id":48,"Name":"2008 Summer","Year":2008}, {"Counter":82,"Id":49,"Name":"2010 Summer","Year":2010}, {"Counter":82,"Id":49,"Name":"2010 Winter","Year":2010}, {"Counter":205,"Id":50,"Name":"2012 Summer","Year":2012}, {"Counter":89,"Id":51,"Name":"2014 Summer","Year":2014}, {"Counter":89,"Id":51,"Name":"2014 Winter","Year":2014}, {"Counter":207,"Id":52,"Name":"2016 Summer","Year":2016}]
```



Podem dar gráficos deste tipo ...



Perguntas?

Dúvidas?

Opiniões ?

Outras funcionalidades?



Será fortemente valorizada a criatividade e a imaginação.

Boa sorte e bom trabalho! Mãos à obra.