

# ProblemSet1\_Cyan

February 14, 2024

- author : Cyan Yong Ho Jo
- Python : 3.9.18

```
[ ]: import os
import subprocess
import requests
import pandas as pd
from bs4 import BeautifulSoup
from io import StringIO
import matplotlib as mpl
import matplotlib.pyplot as plt
import numpy as np
import matplotlib.ticker as ticker
import re
```

- `scrounge_requests()` collects data from the web using `requests` package and stores data from each year in `.html` format

```
[ ]: def scrounge_requests():
    dir_resource = 'resources/'

    headers = {
        'User-Agent': 'Chrome/90.0.4430.212'
    }

    for year in range(2009, 2025):
        url = f'https://kenpom.com/index.php?y={year}'

        # Make the GET request to fetch the page's HTML, with headers
        response = requests.get(url, headers=headers)

        if response.status_code == 200:
            file_path = os.path.join(dir_resource, f'{year}.html')
            with open(file_path, 'w', encoding='utf-8') as file:
                file.write(response.text)
            print(f'Saved HTML content for year {year}')
        else:
            print(f"Collection of stats in year {year} failed. Err: {response.
↵status_code}")
```

```
print(response.text)
scrounge_requests()
```

Collection of stats in year 2009 failed. Err: 429

```
<!DOCTYPE html>
<!--[if lt IE 7]> <html class="no-js ie6 oldie" lang="en-US"> <![endif]-->
<!--[if IE 7]> <html class="no-js ie7 oldie" lang="en-US"> <![endif]-->
<!--[if IE 8]> <html class="no-js ie8 oldie" lang="en-US"> <![endif]-->
<!--[if gt IE 8]><!--> <html class="no-js" lang="en-US"> <!--<![endif]-->
<head>
<title>Access denied | kenpom.com used Cloudflare to restrict access</title>
<meta charset="UTF-8" />
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<meta http-equiv="X-UA-Compatible" content="IE=Edge" />
<meta name="robots" content="noindex, nofollow" />
<meta name="viewport" content="width=device-width,initial-scale=1" />
<link rel="stylesheet" id="cf_styles-css" href="/cdn-cgi/styles/main.css" />

<script>
(function(){if(document.addEventListener&&window.XMLHttpRequest&&JSON&&JSON.stringify){var e=function(a){var c=document.getElementById("error-feedback-survey"),d=document.getElementById("error-feedback-success"),b=new XMLHttpRequest;a={event:"feedback clicked",properties:{errorCode:1015,helpful:a,version:1}};b.open("POST","https://sparrow.cloudflare.com/api/v1/event");b.setRequestHeader("Content-Type","application/json");b.setRequestHeader("Sparrow-Source-Key","c771f0e4b54944bebf4261d44bd79a1e");b.send(JSON.stringify(a));c.classList.add("feedback-hidden");d.classList.remove("feedback-hidden");document.addEventListener("DOMContentLoaded",function(){var a=document.getElementById("error-feedback"),c=document.getElementById("feedback-button-yes"),d=document.getElementById("feedback-button-no");"classList"in a&&(a.classList.remove("feedback-hidden"),c.addEventListener("click",function(){e(!0)}),d.addEventListener("click",function(){e(!1)}))}})});
</script>

<script defer src="https://performance.radar.cloudflare.com/beacon.js"></script>
</head>
<body>
<div id="cf-wrapper">
<div class="cf-alert cf-alert-error cf-cookie-error hidden" id="cookie-alert" data-translate="enable_cookies">Please enable cookies.</div>
<div id="cf-error-details" class="p-0">
<header class="mx-auto pt-10 lg:pt-6 lg:px-8 w-240 lg:w-full mb-15 antialiased">
<h1 class="inline-block md:block mr-2 md:mb-2 font-light text-60 md:text-3xl text-black-dark leading-tight">
<span data-translate="error">Error</span>
```

```

        <span>1015</span>
    </h1>
    <span class="inline-block md:block heading-ray-id font-mono text-15
lg:text-sm lg:leading-relaxed">Ray ID: 8554d56a2d42b523 &bull;</span>
    <span class="inline-block md:block heading-ray-id font-mono text-15
lg:text-sm lg:leading-relaxed">2024-02-14 11:05:01 UTC</span>
    <h2 class="text-gray-600 leading-1.3 text-3xl lg:text-2xl font-
light">You are being rate limited</h2>
</header>

<section class="w-240 lg:w-full mx-auto mb-8 lg:px-8">
    <div id="what-happened-section" class="w-1/2 md:w-full">
        <h2 class="text-3xl leading-tight font-normal mb-4 text-black-dark
antialiased" data-translate="what_happened">What happened?</h2>
        <p>The owner of this website (kenpom.com) has banned you temporarily
from accessing this website.</p>

    </div>

</section>

<div class="feedback-hidden py-8 text-center" id="error-feedback">
<div id="error-feedback-survey" class="footer-line-wrapper">
    Was this page helpful?
    <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-yes" type="button">Yes</button>
    <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-no" type="button">No</button>
</div>
<div class="feedback-success feedback-hidden" id="error-feedback-success">
    Thank you for your feedback!
</div>
</div>

<div class="cf-error-footer cf-wrapper w-240 lg:w-full py-10 sm:py-4
sm:px-8 mx-auto text-center sm:text-left border-solid border-0 border-t border-
gray-300">
    <p class="text-13">
        <span class="cf-footer-item sm:block sm:mb-1">Cloudflare Ray ID: <strong
class="font-semibold">8554d56a2d42b523</strong></span>
        <span class="cf-footer-separator sm:hidden">&bull;</span>
        <span id="cf-footer-item-ip" class="cf-footer-item hidden sm:block sm:mb-1">
            Your IP:
            <button type="button" id="cf-footer-ip-reveal" class="cf-footer-ip-reveal-
btn">Click to reveal</button>
            <span class="hidden" id="cf-footer-ip">130.225.188.128</span>

```

```

        <span class="cf-footer-separator sm:hidden">&bull;</span>
    </span>
    <span class="cf-footer-item sm:block sm:mb-1"><span>Performance &
security by</span> <a rel="noopener noreferrer"
href="https://www.cloudflare.com/5xx-error-landing" id="brand_link"
target="_blank">Cloudflare</a></span>

</p>
<script>(function(){function d(){var b=a.getElementById("cf-footer-item-
ip"),c=a.getElementById("cf-footer-ip-reveal");b&&"classList"in b&&(b.classList.
remove("hidden"),c.addEventListener("click",function(){c.classList.add("hidden")
;a.getElementById("cf-footer-ip").classList.remove("hidden")}}))}var a=document;d
ocument.addEventListener&&a.addEventListener("DOMContentLoaded",d))();</script>
</div><!-- /.error-footer -->

</div><!-- /#cf-error-details -->
</div><!-- /#cf-wrapper -->

<script>
window._cf_translation = {};

</script>

</body>
</html>

```

```

Collection of stats in year 2010 failed. Err: 429
<!DOCTYPE html>
<!--[if lt IE 7]> <html class="no-js ie6 oldie" lang="en-US"> <![endif]-->
<!--[if IE 7]> <html class="no-js ie7 oldie" lang="en-US"> <![endif]-->
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<meta name="robots" content="noindex, nofollow" />
<meta name="viewport" content="width=device-width,initial-scale=1" />
<link rel="stylesheet" id="cf_styles-css" href="/cdn-cgi/styles/main.css" />

<script>
(function(){if(document.addEventListener&&window.XMLHttpRequest&&JSON&&JSON.stri
ngify){var e=function(a){var c=document.getElementById("error-feedback-
survey"),d=document.getElementById("error-feedback-success"),b=new

```

```
XMLHttpRequest;a={event:"feedback clicked",properties:{errorCode:1015,helpful:a,
version:1}};b.open("POST","https://sparrow.cloudflare.com/api/v1/event");b.setRe
questHeader("Content-Type","application/json");b.setRequestHeader("Sparrow-
Source-Key","c771f0e4b54944bebf4261d44bd79a1e");
b.send(JSON.stringify(a));c.classList.add("feedback-
hidden");d.classList.remove("feedback-
hidden");document.addEventListener("DOMContentLoaded",function(){var
a=document.getElementById("error-feedback"),c=document.getElementById("feedback-
button-yes"),d=document.getElementById("feedback-button-no");"classList"in
a&&(a.classList.remove("feedback-hidden"),c.addEventListener("click",function(){
e(!0)}),d.addEventListener("click",function(){e(!1)}))}));
```

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</script>

<script defer src="https://performance.radar.cloudflare.com/beacon.js"></script>
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<body>
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  <div id="cf-wrapper">
    <div class="cf-alert cf-alert-error cf-cookie-error hidden" id="cookie-
alert" data-translate="enable_cookies">Please enable cookies.</div>
    <div id="cf-error-details" class="p-0">
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antialiased">
        <h1 class="inline-block md:block mr-2 md:mb-2 font-light text-60
md:text-3xl text-black-dark leading-tight">
          <span data-translate="error">Error</span>
          <span>1015</span>
        </h1>
        <span class="inline-block md:block heading-ray-id font-mono text-15
lg:text-sm lg:leading-relaxed">Ray ID: 8554d56b1c0db512 &bull;</span>
        <span class="inline-block md:block heading-ray-id font-mono text-15
lg:text-sm lg:leading-relaxed">2024-02-14 11:05:01 UTC</span>
        <h2 class="text-gray-600 leading-1.3 text-3xl lg:text-2xl font-
light">You are being rate limited</h2>
      </header>
```

```

      <section class="w-240 lg:w-full mx-auto mb-8 lg:px-8">
        <div id="what-happened-section" class="w-1/2 md:w-full">
          <h2 class="text-3xl leading-tight font-normal mb-4 text-black-dark
antialiased" data-translate="what_happened">What happened?</h2>
          <p>The owner of this website (kenpom.com) has banned you temporarily
from accessing this website.</p>
        </div>
      </section>
```

```

      <div class="feedback-hidden py-8 text-center" id="error-feedback">
```

```

    <div id="error-feedback-survey" class="footer-line-wrapper">
      Was this page helpful?
      <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-yes" type="button">Yes</button>
      <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-no" type="button">No</button>
    </div>
    <div class="feedback-success feedback-hidden" id="error-feedback-success">
      Thank you for your feedback!
    </div>
  </div>

  <div class="cf-error-footer cf-wrapper w-240 lg:w-full py-10 sm:py-4
sm:px-8 mx-auto text-center sm:text-left border-solid border-0 border-t border-
gray-300">
    <p class="text-13">
      <span class="cf-footer-item sm:block sm:mb-1">Cloudflare Ray ID: <strong
class="font-semibold">8554d56b1c0db512</strong></span>
      <span class="cf-footer-separator sm:hidden">&bull;</span>
      <span id="cf-footer-item-ip" class="cf-footer-item hidden sm:block sm:mb-1">
        Your IP:
        <button type="button" id="cf-footer-ip-reveal" class="cf-footer-ip-reveal-
btn">Click to reveal</button>
        <span class="hidden" id="cf-footer-ip">130.225.188.128</span>
        <span class="cf-footer-separator sm:hidden">&bull;</span>
      </span>
      <span class="cf-footer-item sm:block sm:mb-1"><span>Performance &amp;
security by</span> <a rel="noopener noreferrer"
href="https://www.cloudflare.com/5xx-error-landing" id="brand_link"
target="_blank">Cloudflare</a></span>

    </p>
    <script>(function(){function d(){var b=a.getElementById("cf-footer-item-
ip"),c=a.getElementById("cf-footer-ip-reveal");b&&"classList"in b&&(b.classList.
remove("hidden"),c.addEventListener("click",function(){c.classList.add("hidden")
;a.getElementById("cf-footer-ip").classList.remove("hidden")})}})var a=document;d
ocument.addEventListener&&a.addEventListener("DOMContentLoaded",d)}());</script>
  </div><!-- /.error-footer -->

  </div><!-- /#cf-error-details -->
</div><!-- /#cf-wrapper -->

<script>
window._cf_translation = {};

```

</script>

</body>

</html>

Collection of stats in year 2011 failed. Err: 429

<!DOCTYPE html>

<!--[if lt IE 7]> <html class="no-js ie6 oldie" lang="en-US"> <![endif]-->

<!--[if IE 7]> <html class="no-js ie7 oldie" lang="en-US"> <![endif]-->

<!--[if IE 8]> <html class="no-js ie8 oldie" lang="en-US"> <![endif]-->

<!--[if gt IE 8]><!--> <html class="no-js" lang="en-US"> <!--<![endif]-->

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<meta charset="UTF-8" />

<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />

<meta http-equiv="X-UA-Compatible" content="IE=Edge" />

<meta name="robots" content="noindex, nofollow" />

<meta name="viewport" content="width=device-width,initial-scale=1" />

<link rel="stylesheet" id="cf\_styles-css" href="/cdn-cgi/styles/main.css" />

<script>

```
(function(){if(document.addEventListener&&window.XMLHttpRequest&&JSON&&JSON.stringify){var e=function(a){var c=document.getElementById("error-feedback-survey"),d=document.getElementById("error-feedback-success"),b=new XMLHttpRequest;a={event:"feedback clicked",properties:{errorCode:1015,helpful:a,version:1}};b.open("POST","https://sparrow.cloudflare.com/api/v1/event");b.setRequestHeader("Content-Type","application/json");b.setRequestHeader("Sparrow-Source-Key","c771f0e4b54944bebf4261d44bd79a1e");b.send(JSON.stringify(a));c.classList.add("feedback-hidden");d.classList.remove("feedback-hidden");document.addEventListener("DOMContentLoaded",function(){var a=document.getElementById("error-feedback"),c=document.getElementById("feedback-button-yes"),d=document.getElementById("feedback-button-no");"classList"in a&&(a.classList.remove("feedback-hidden"),c.addEventListener("click",function(){e(!0)}),d.addEventListener("click",function(){e(!1)}))}})});
```

</script>

<script defer src="https://performance.radar.cloudflare.com/beacon.js"></script>

</head>

<body>

<div id="cf-wrapper">

<div class="cf-alert cf-alert-error cf-cookie-error hidden" id="cookie-alert" data-translate="enable\_cookies">Please enable cookies.</div>

<div id="cf-error-details" class="p-0">

<header class="mx-auto pt-10 lg:pt-6 lg:px-8 w-240 lg:w-full mb-15 antialiased">

<h1 class="inline-block md:block mr-2 md:mb-2 font-light text-60

```

md:text-3xl text-black-dark leading-tight">
    <span data-translate="error">Error</span>
    <span>1015</span>
</h1>
<span class="inline-block md:block heading-ray-id font-mono text-15
lg:text-sm lg:leading-relaxed">Ray ID: 8554d56c3da2568f &bull;</span>
<span class="inline-block md:block heading-ray-id font-mono text-15
lg:text-sm lg:leading-relaxed">2024-02-14 11:05:02 UTC</span>
<h2 class="text-gray-600 leading-1.3 text-3xl lg:text-2xl font-
light">You are being rate limited</h2>
</header>

<section class="w-240 lg:w-full mx-auto mb-8 lg:px-8">
    <div id="what-happened-section" class="w-1/2 md:w-full">
        <h2 class="text-3xl leading-tight font-normal mb-4 text-black-dark
antialiased" data-translate="what_happened">What happened?</h2>
        <p>The owner of this website (kenpom.com) has banned you temporarily
from accessing this website.</p>

    </div>

</section>

<div class="feedback-hidden py-8 text-center" id="error-feedback">
<div id="error-feedback-survey" class="footer-line-wrapper">
    Was this page helpful?
    <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-yes" type="button">Yes</button>
    <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-no" type="button">No</button>
</div>
<div class="feedback-success feedback-hidden" id="error-feedback-success">
    Thank you for your feedback!
</div>
</div>

<div class="cf-error-footer cf-wrapper w-240 lg:w-full py-10 sm:py-4
sm:px-8 mx-auto text-center sm:text-left border-solid border-0 border-t border-
gray-300">
    <p class="text-13">
        <span class="cf-footer-item sm:block sm:mb-1">Cloudflare Ray ID: <strong
class="font-semibold">8554d56c3da2568f</strong></span>
        <span class="cf-footer-separator sm:hidden">&bull;</span>
        <span id="cf-footer-item-ip" class="cf-footer-item hidden sm:block sm:mb-1">
            Your IP:
            <button type="button" id="cf-footer-ip-reveal" class="cf-footer-ip-reveal-

```



```

btn">Click to reveal</button>
    <span class="hidden" id="cf-footer-ip">130.225.188.128</span>
    <span class="cf-footer-separator sm:hidden">&bull;</span>
</span>
    <span class="cf-footer-item sm:block sm:mb-1"><span>Performance &amp;
security by</span> <a rel="noopener noreferrer"
href="https://www.cloudflare.com/5xx-error-landing" id="brand_link"
target="_blank">Cloudflare</a></span>

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remove("hidden"),c.addEventListener("click",function(){c.classList.add("hidden")
;a.getElementById("cf-footer-ip").classList.remove("hidden")}))}var a=document;d
ocument.addEventListener&&a.addEventListener("DOMContentLoaded",d)}());</script>
</div><!-- /.error-footer -->

</div><!-- /#cf-error-details -->
</div><!-- /#cf-wrapper -->

<script>
window._cf_translation = {};

</script>

</body>
</html>

Collection of stats in year 2012 failed. Err: 429
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<!--[if lt IE 7]> <html class="no-js ie6 oldie" lang="en-US"> <![endif]-->
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<meta name="robots" content="noindex, nofollow" />
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<link rel="stylesheet" id="cf_styles-css" href="/cdn-cgi/styles/main.css" />

<script>
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questHeader("Content-Type","application/json");b.setRequestHeader("Sparrow-
Source-Key","c771f0e4b54944bebf4261d44bd79a1e");
b.send(JSON.stringify(a));c.classList.add("feedback-
hidden");d.classList.remove("feedback-
hidden");document.addEventListener("DOMContentLoaded",function(){var
a=document.getElementById("error-feedback"),c=document.getElementById("feedback-
button-yes"),d=document.getElementById("feedback-button-no");"classList"in
a&&(a.classList.remove("feedback-hidden"),c.addEventListener("click",function(){
e(!0)}),d.addEventListener("click",function(){e(!1)}))}));}();
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ml-4 px-4 py-2 rounded" id="feedback-button-no" type="button">No</button>
    </div>
    <div class="feedback-success feedback-hidden" id="error-feedback-success">
        Thank you for your feedback!
    </div>
</div>

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        <span class="cf-footer-item sm:block sm:mb-1">Cloudflare Ray ID: <strong
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        <span class="cf-footer-separator sm:hidden">&bull;</span>
        <span id="cf-footer-item-ip" class="cf-footer-item hidden sm:block sm:mb-1">
            Your IP:
            <button type="button" id="cf-footer-ip-reveal" class="cf-footer-ip-reveal-
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        </span>
        <span class="cf-footer-item sm:block sm:mb-1"><span>Performance &
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href="https://www.cloudflare.com/5xx-error-landing" id="brand_link"
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remove("hidden"),c.addEventListener("click",function(){c.classList.add("hidden")
;a.getElementById("cf-footer-ip").classList.remove("hidden")}})}var a=document;d
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</div><!-- /.error-footer -->

</div><!-- /#cf-error-details -->
</div><!-- /#cf-wrapper -->

<script>
window._cf_translation = {};

```

</script>

</body>

</html>

Collection of stats in year 2013 failed. Err: 429

<!DOCTYPE html>

<!--[if lt IE 7]> <html class="no-js ie6 oldie" lang="en-US"> <![endif]-->

<!--[if IE 7]> <html class="no-js ie7 oldie" lang="en-US"> <![endif]-->

<!--[if IE 8]> <html class="no-js ie8 oldie" lang="en-US"> <![endif]-->

<!--[if gt IE 8]><!--> <html class="no-js" lang="en-US"> <!--<![endif]-->

<head>

<title>Access denied | kenpom.com used Cloudflare to restrict access</title>

<meta charset="UTF-8" />

<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />

<meta http-equiv="X-UA-Compatible" content="IE=Edge" />

<meta name="robots" content="noindex, nofollow" />

<meta name="viewport" content="width=device-width,initial-scale=1" />

<link rel="stylesheet" id="cf\_styles-css" href="/cdn-cgi/styles/main.css" />

<script>

```
(function(){if(document.addEventListener&&window.XMLHttpRequest&&JSON&&JSON.stringify){var e=function(a){var c=document.getElementById("error-feedback-survey"),d=document.getElementById("error-feedback-success"),b=new XMLHttpRequest;a={event:"feedback clicked",properties:{errorCode:1015,helpful:a,version:1}};b.open("POST","https://sparrow.cloudflare.com/api/v1/event");b.setRequestHeader("Content-Type","application/json");b.setRequestHeader("Sparrow-Source-Key","c771f0e4b54944bebf4261d44bd79a1e");b.send(JSON.stringify(a));c.classList.add("feedback-hidden");d.classList.remove("feedback-hidden");document.addEventListener("DOMContentLoaded",function(){var a=document.getElementById("error-feedback"),c=document.getElementById("feedback-button-yes"),d=document.getElementById("feedback-button-no");"classList"in a&&(a.classList.remove("feedback-hidden"),c.addEventListener("click",function(){e(!0)}),d.addEventListener("click",function(){e(!1)}))}})});
```

</script>

<script defer src="https://performance.radar.cloudflare.com/beacon.js"></script>

</head>

<body>

<div id="cf-wrapper">

<div class="cf-alert cf-alert-error cf-cookie-error hidden" id="cookie-alert" data-translate="enable\_cookies">Please enable cookies.</div>

<div id="cf-error-details" class="p-0">

<header class="mx-auto pt-10 lg:pt-6 lg:px-8 w-240 lg:w-full mb-15">

```

antialiased">
    <h1 class="inline-block md:block mr-2 md:mb-2 font-light text-60
md:text-3xl text-black-dark leading-tight">
        <span data-translate="error">Error</span>
        <span>1015</span>
    </h1>
    <span class="inline-block md:block heading-ray-id font-mono text-15
lg:text-sm lg:leading-relaxed">Ray ID: 8554d56e08af712e &bull;</span>
    <span class="inline-block md:block heading-ray-id font-mono text-15
lg:text-sm lg:leading-relaxed">2024-02-14 11:05:02 UTC</span>
    <h2 class="text-gray-600 leading-1.3 text-3xl lg:text-2xl font-
light">You are being rate limited</h2>
</header>

<section class="w-240 lg:w-full mx-auto mb-8 lg:px-8">
    <div id="what-happened-section" class="w-1/2 md:w-full">
        <h2 class="text-3xl leading-tight font-normal mb-4 text-black-dark
antialiased" data-translate="what_happened">What happened?</h2>
        <p>The owner of this website (kenpom.com) has banned you temporarily
from accessing this website.</p>

    </div>

</section>

<div class="feedback-hidden py-8 text-center" id="error-feedback">
<div id="error-feedback-survey" class="footer-line-wrapper">
    Was this page helpful?
    <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-yes" type="button">Yes</button>
    <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-no" type="button">No</button>
</div>
<div class="feedback-success feedback-hidden" id="error-feedback-success">
    Thank you for your feedback!
</div>
</div>

<div class="cf-error-footer cf-wrapper w-240 lg:w-full py-10 sm:py-4
sm:px-8 mx-auto text-center sm:text-left border-solid border-0 border-t border-
gray-300">
    <p class="text-13">
        <span class="cf-footer-item sm:block sm:mb-1">Cloudflare Ray ID: <strong
class="font-semibold">8554d56e08af712e</strong></span>
        <span class="cf-footer-separator sm:hidden">&bull;</span>
        <span id="cf-footer-item-ip" class="cf-footer-item hidden sm:block sm:mb-1">

```

```

    Your IP:
    <button type="button" id="cf-footer-ip-reveal" class="cf-footer-ip-reveal-
btn">Click to reveal</button>
    <span class="hidden" id="cf-footer-ip">130.225.188.128</span>
    <span class="cf-footer-separator sm:hidden">&bull;</span>
  </span>
  <span class="cf-footer-item sm:block sm:mb-1"><span>Performance &
security by</span> <a rel="noopener noreferrer"
href="https://www.cloudflare.com/5xx-error-landing" id="brand_link"
target="_blank">Cloudflare</a></span>

</p>
<script>(function(){function d(){var b=a.getElementById("cf-footer-item-
ip"),c=a.getElementById("cf-footer-ip-reveal");b&&"classList"in b&&(b.classList.
remove("hidden"),c.addEventListener("click",function(){c.classList.add("hidden")
;a.getElementById("cf-footer-ip").classList.remove("hidden")}}))}var a=document;d
ocument.addEventListener&&a.addEventListener("DOMContentLoaded",d))();</script>
</div><!-- /.error-footer -->

</div><!-- /#cf-error-details -->
</div><!-- /#cf-wrapper -->

<script>
window._cf_translation = {};

</script>

</body>
</html>

```

```

Collection of stats in year 2014 failed. Err: 429
<!DOCTYPE html>
<!--[if lt IE 7]> <html class="no-js ie6 oldie" lang="en-US"> <![endif]-->
<!--[if IE 7]> <html class="no-js ie7 oldie" lang="en-US"> <![endif]-->
<!--[if IE 8]> <html class="no-js ie8 oldie" lang="en-US"> <![endif]-->
<!--[if gt IE 8]><!--> <html class="no-js" lang="en-US"> <!--<![endif]-->
<head>
<title>Access denied | kenpom.com used Cloudflare to restrict access</title>
<meta charset="UTF-8" />
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<meta http-equiv="X-UA-Compatible" content="IE=Edge" />
<meta name="robots" content="noindex, nofollow" />
<meta name="viewport" content="width=device-width,initial-scale=1" />
<link rel="stylesheet" id="cf_styles-css" href="/cdn-cgi/styles/main.css" />

```

```

<script>
(function(){if(document.addEventListener&&window.XMLHttpRequest&&JSON&&JSON.stringify){var e=function(a){var c=document.getElementById("error-feedback-survey"),d=document.getElementById("error-feedback-success"),b=new XMLHttpRequest;a={event:"feedback clicked",properties:{errorCode:1015,helpful:a,version:1}};b.open("POST","https://sparrow.cloudflare.com/api/v1/event");b.setRequestHeader("Content-Type","application/json");b.setRequestHeader("Sparrow-Source-Key","c771f0e4b54944bebf4261d44bd79a1e");b.send(JSON.stringify(a));c.classList.add("feedback-hidden");d.classList.remove("feedback-hidden");document.addEventListener("DOMContentLoaded",function(){var a=document.getElementById("error-feedback"),c=document.getElementById("feedback-button-yes"),d=document.getElementById("feedback-button-no");"classList"in a&&(a.classList.remove("feedback-hidden"),c.addEventListener("click",function(){e(!0)}),d.addEventListener("click",function(){e(!1)}))}})});
</script>

```

```

<script defer src="https://performance.radar.cloudflare.com/beacon.js"></script>
</head>

```

```

<body>
  <div id="cf-wrapper">
    <div class="cf-alert cf-alert-error cf-cookie-error hidden" id="cookie-alert" data-translate="enable_cookies">Please enable cookies.</div>
    <div id="cf-error-details" class="p-0">
      <header class="mx-auto pt-10 lg:pt-6 lg:px-8 w-240 lg:w-full mb-15 antialiased">
        <h1 class="inline-block md:block mr-2 md:mb-2 font-light text-60 md:text-3xl text-black-dark leading-tight">
          <span data-translate="error">Error</span>
          <span>1015</span>
        </h1>
        <span class="inline-block md:block heading-ray-id font-mono text-15 lg:text-sm lg:leading-relaxed">Ray ID: 8554d56eec6956c9 &bull;</span>
        <span class="inline-block md:block heading-ray-id font-mono text-15 lg:text-sm lg:leading-relaxed">2024-02-14 11:05:02 UTC</span>
        <h2 class="text-gray-600 leading-1.3 text-3xl lg:text-2xl font-light">You are being rate limited</h2>
      </header>

      <section class="w-240 lg:w-full mx-auto mb-8 lg:px-8">
        <div id="what-happened-section" class="w-1/2 md:w-full">
          <h2 class="text-3xl leading-tight font-normal mb-4 text-black-dark antialiased" data-translate="what_happened">What happened?</h2>
          <p>The owner of this website (kenpom.com) has banned you temporarily from accessing this website.</p>

        </div>

```

```

</section>

<div class="feedback-hidden py-8 text-center" id="error-feedback">
<div id="error-feedback-survey" class="footer-line-wrapper">
  Was this page helpful?
  <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-yes" type="button">Yes</button>
  <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-no" type="button">No</button>
</div>
<div class="feedback-success feedback-hidden" id="error-feedback-success">
  Thank you for your feedback!
</div>
</div>

<div class="cf-error-footer cf-wrapper w-240 lg:w-full py-10 sm:py-4
sm:px-8 mx-auto text-center sm:text-left border-solid border-0 border-t border-
gray-300">
  <p class="text-13">
    <span class="cf-footer-item sm:block sm:mb-1">Cloudflare Ray ID: <strong
class="font-semibold">8554d56eec6956c9</strong></span>
    <span class="cf-footer-separator sm:hidden">&bull;</span>
    <span id="cf-footer-item-ip" class="cf-footer-item hidden sm:block sm:mb-1">
      Your IP:
      <button type="button" id="cf-footer-ip-reveal" class="cf-footer-ip-reveal-
btn">Click to reveal</button>
      <span class="hidden" id="cf-footer-ip">130.225.188.128</span>
      <span class="cf-footer-separator sm:hidden">&bull;</span>
    </span>
    <span class="cf-footer-item sm:block sm:mb-1"><span>Performance &amp;
security by</span> <a rel="noopener noreferrer"
href="https://www.cloudflare.com/5xx-error-landing" id="brand_link"
target="_blank">Cloudflare</a></span>

  </p>
  <script>(function(){function d(){var b=a.getElementById("cf-footer-item-
ip"),c=a.getElementById("cf-footer-ip-reveal");b&&"classList"in b&&(b.classList.
remove("hidden"),c.addEventListener("click",function(){c.classList.add("hidden")
;a.getElementById("cf-footer-ip").classList.remove("hidden")}})}var a=document;d
ocument.addEventListener&&a.addEventListener("DOMContentLoaded",d))();</script>
</div><!-- /.error-footer -->

</div><!-- /#cf-error-details -->
</div><!-- /#cf-wrapper -->

```



```

<script>
window._cf_translation = {};

</script>

</body>
</html>

Collection of stats in year 2015 failed. Err: 429
<!DOCTYPE html>
<!--[if lt IE 7]> <html class="no-js ie6 oldie" lang="en-US"> <![endif]-->
<!--[if IE 7]> <html class="no-js ie7 oldie" lang="en-US"> <![endif]-->
<!--[if IE 8]> <html class="no-js ie8 oldie" lang="en-US"> <![endif]-->
<!--[if gt IE 8]><!--> <html class="no-js" lang="en-US"> <!--<![endif]-->
<head>
<title>Access denied | kenpom.com used Cloudflare to restrict access</title>
<meta charset="UTF-8" />
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<meta http-equiv="X-UA-Compatible" content="IE=Edge" />
<meta name="robots" content="noindex, nofollow" />
<meta name="viewport" content="width=device-width,initial-scale=1" />
<link rel="stylesheet" id="cf_styles-css" href="/cdn-cgi/styles/main.css" />

<script>
(function(){if(document.addEventListener&&window.XMLHttpRequest&&JSON&&JSON.stringify){var e=function(a){var c=document.getElementById("error-feedback-survey"),d=document.getElementById("error-feedback-success"),b=new XMLHttpRequest;a={event:"feedback clicked",properties:{errorCode:1015,helpful:a,version:1}};b.open("POST","https://sparrow.cloudflare.com/api/v1/event");b.setRequestHeader("Content-Type","application/json");b.setRequestHeader("Sparrow-Source-Key","c771f0e4b54944bebf4261d44bd79a1e");b.send(JSON.stringify(a));c.classList.add("feedback-hidden");d.classList.remove("feedback-hidden");document.addEventListener("DOMContentLoaded",function(){var a=document.getElementById("error-feedback"),c=document.getElementById("feedback-button-yes"),d=document.getElementById("feedback-button-no");"classList"in a&&(a.classList.remove("feedback-hidden"),c.addEventListener("click",function(){e(!0)}),d.addEventListener("click",function(){e(!1)}))}})});
</script>

<script defer src="https://performance.radar.cloudflare.com/beacon.js"></script>
</head>
<body>
<div id="cf-wrapper">
<div class="cf-alert cf-alert-error cf-cookie-error hidden" id="cookie-alert" data-translate="enable_cookies">Please enable cookies.</div>

```

```

<div id="cf-error-details" class="p-0">
  <header class="mx-auto pt-10 lg:pt-6 lg:px-8 w-240 lg:w-full mb-15
antialiased">
    <h1 class="inline-block md:block mr-2 md:mb-2 font-light text-60
md:text-3xl text-black-dark leading-tight">
      <span data-translate="error">Error</span>
      <span>1015</span>
    </h1>
    <span class="inline-block md:block heading-ray-id font-mono text-15
lg:text-sm lg:leading-relaxed">Ray ID: 8554d56fac13b505 &bull;</span>
    <span class="inline-block md:block heading-ray-id font-mono text-15
lg:text-sm lg:leading-relaxed">2024-02-14 11:05:02 UTC</span>
    <h2 class="text-gray-600 leading-1.3 text-3xl lg:text-2xl font-
light">You are being rate limited</h2>
  </header>

  <section class="w-240 lg:w-full mx-auto mb-8 lg:px-8">
    <div id="what-happened-section" class="w-1/2 md:w-full">
      <h2 class="text-3xl leading-tight font-normal mb-4 text-black-dark
antialiased" data-translate="what_happened">What happened?</h2>
      <p>The owner of this website (kenpom.com) has banned you temporarily
from accessing this website.</p>

    </div>

  </section>

  <div class="feedback-hidden py-8 text-center" id="error-feedback">
    <div id="error-feedback-survey" class="footer-line-wrapper">
      Was this page helpful?
      <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-yes" type="button">Yes</button>
      <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-no" type="button">No</button>
    </div>
    <div class="feedback-success feedback-hidden" id="error-feedback-success">
      Thank you for your feedback!
    </div>
  </div>

  <div class="cf-error-footer cf-wrapper w-240 lg:w-full py-10 sm:py-4
sm:px-8 mx-auto text-center sm:text-left border-solid border-0 border-t border-
gray-300">
    <p class="text-13">
      <span class="cf-footer-item sm:block sm:mb-1">Cloudflare Ray ID: <strong
class="font-semibold">8554d56fac13b505</strong></span>

```

```

    <span class="cf-footer-separator sm:hidden">&bull;</span>
    <span id="cf-footer-item-ip" class="cf-footer-item hidden sm:block sm:mb-1">
      Your IP:
      <button type="button" id="cf-footer-ip-reveal" class="cf-footer-ip-reveal-
btn">Click to reveal</button>
      <span class="hidden" id="cf-footer-ip">130.225.188.128</span>
      <span class="cf-footer-separator sm:hidden">&bull;</span>
    </span>
    <span class="cf-footer-item sm:block sm:mb-1"><span>Performance &amp;
security by</span> <a rel="noopener noreferrer"
href="https://www.cloudflare.com/5xx-error-landing" id="brand_link"
target="_blank">Cloudflare</a></span>

</p>
<script>(function(){function d(){var b=a.getElementById("cf-footer-item-
ip"),c=a.getElementById("cf-footer-ip-reveal");b&&"classList"in b&&(b.classList.
remove("hidden"),c.addEventListener("click",function(){c.classList.add("hidden")
;a.getElementById("cf-footer-ip").classList.remove("hidden")}}))}var a=document;d
ocument.addEventListener&&a.addEventListener("DOMContentLoaded",d))();</script>
</div><!-- /.error-footer -->

</div><!-- /#cf-error-details -->
</div><!-- /#cf-wrapper -->

<script>
window._cf_translation = {};

</script>

</body>
</html>

```

```

Collection of stats in year 2016 failed. Err: 429
<!DOCTYPE html>
<!--[if lt IE 7]> <html class="no-js ie6 oldie" lang="en-US"> <![endif]-->
<!--[if IE 7]> <html class="no-js ie7 oldie" lang="en-US"> <![endif]-->
<!--[if IE 8]> <html class="no-js ie8 oldie" lang="en-US"> <![endif]-->
<!--[if gt IE 8]><!--> <html class="no-js" lang="en-US"> <!--<![endif]-->
<head>
<title>Access denied | kenpom.com used Cloudflare to restrict access</title>
<meta charset="UTF-8" />
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<meta http-equiv="X-UA-Compatible" content="IE=Edge" />
<meta name="robots" content="noindex, nofollow" />
<meta name="viewport" content="width=device-width,initial-scale=1" />
<link rel="stylesheet" id="cf_styles-css" href="/cdn-cgi/styles/main.css" />

```

```

<script>
(function(){if(document.addEventListener&&window.XMLHttpRequest&&JSON&&JSON.stringify){var e=function(a){var c=document.getElementById("error-feedback-survey"),d=document.getElementById("error-feedback-success"),b=new XMLHttpRequest;a={event:"feedback clicked",properties:{errorCode:1015,helpful:a,version:1}};b.open("POST","https://sparrow.cloudflare.com/api/v1/event");b.setRequestHeader("Content-Type","application/json");b.setRequestHeader("Sparrow-Source-Key","c771f0e4b54944bebf4261d44bd79a1e");b.send(JSON.stringify(a));c.classList.add("feedback-hidden");d.classList.remove("feedback-hidden")};document.addEventListener("DOMContentLoaded",function(){var a=document.getElementById("error-feedback"),c=document.getElementById("feedback-button-yes"),d=document.getElementById("feedback-button-no");"classList"in a&&(a.classList.remove("feedback-hidden"),c.addEventListener("click",function(){e(!0)}),d.addEventListener("click",function(){e(!1)}))}));})();
</script>

<script defer src="https://performance.radar.cloudflare.com/beacon.js"></script>
</head>
<body>
  <div id="cf-wrapper">
    <div class="cf-alert cf-alert-error cf-cookie-error hidden" id="cookie-alert" data-translate="enable_cookies">Please enable cookies.</div>
    <div id="cf-error-details" class="p-0">
      <header class="mx-auto pt-10 lg:pt-6 lg:px-8 w-240 lg:w-full mb-15 antialiased">
        <h1 class="inline-block md:block mr-2 md:mb-2 font-light text-60 md:text-3xl text-black-dark leading-tight">
          <span data-translate="error">Error</span>
          <span>1015</span>
        </h1>
        <span class="inline-block md:block heading-ray-id font-mono text-15 lg:text-sm lg:leading-relaxed">Ray ID: 8554d5706a6fb512 &bull;</span>
        <span class="inline-block md:block heading-ray-id font-mono text-15 lg:text-sm lg:leading-relaxed">2024-02-14 11:05:02 UTC</span>
        <h2 class="text-gray-600 leading-1.3 text-3xl lg:text-2xl font-light">You are being rate limited</h2>
      </header>

      <section class="w-240 lg:w-full mx-auto mb-8 lg:px-8">
        <div id="what-happened-section" class="w-1/2 md:w-full">
          <h2 class="text-3xl leading-tight font-normal mb-4 text-black-dark antialiased" data-translate="what_happened">What happened?</h2>
          <p>The owner of this website (kenpom.com) has banned you temporarily from accessing this website.</p>
        </div>
      </section>
    </div>
  </div>

```

```

    </div>

</section>

<div class="feedback-hidden py-8 text-center" id="error-feedback">
<div id="error-feedback-survey" class="footer-line-wrapper">
    Was this page helpful?
    <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-yes" type="button">Yes</button>
    <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-no" type="button">No</button>
</div>
<div class="feedback-success feedback-hidden" id="error-feedback-success">
    Thank you for your feedback!
</div>
</div>

<div class="cf-error-footer cf-wrapper w-240 lg:w-full py-10 sm:py-4
sm:px-8 mx-auto text-center sm:text-left border-solid border-0 border-t border-
gray-300">
<p class="text-13">
    <span class="cf-footer-item sm:block sm:mb-1">Cloudflare Ray ID: <strong
class="font-semibold">8554d5706a6fb512</strong></span>
    <span class="cf-footer-separator sm:hidden">&bull;</span>
    <span id="cf-footer-item-ip" class="cf-footer-item hidden sm:block sm:mb-1">
        Your IP:
        <button type="button" id="cf-footer-ip-reveal" class="cf-footer-ip-reveal-
btn">Click to reveal</button>
        <span class="hidden" id="cf-footer-ip">130.225.188.128</span>
        <span class="cf-footer-separator sm:hidden">&bull;</span>
    </span>
    <span class="cf-footer-item sm:block sm:mb-1"><span>Performance &amp;
security by</span> <a rel="noopener noreferrer"
href="https://www.cloudflare.com/5xx-error-landing" id="brand_link"
target="_blank">Cloudflare</a></span>

</p>
<script>(function(){function d(){var b=a.getElementById("cf-footer-item-
ip"),c=a.getElementById("cf-footer-ip-reveal");b&&"classList"in b&&(b.classList.
remove("hidden"),c.addEventListener("click",function(){c.classList.add("hidden")
;a.getElementById("cf-footer-ip").classList.remove("hidden")}})}var a=document;d
ocument.addEventListener&&a.addEventListener("DOMContentLoaded",d))();</script>
</div><!-- /.error-footer -->

</div><!-- /#cf-error-details -->

```

```

</div><!-- /#cf-wrapper -->

<script>
window._cf_translation = {};

</script>

</body>
</html>

Collection of stats in year 2017 failed. Err: 429
<!DOCTYPE html>
<!--[if lt IE 7]> <html class="no-js ie6 oldie" lang="en-US"> <![endif]-->
<!--[if IE 7]> <html class="no-js ie7 oldie" lang="en-US"> <![endif]-->
<!--[if IE 8]> <html class="no-js ie8 oldie" lang="en-US"> <![endif]-->
<!--[if gt IE 8]><!--> <html class="no-js" lang="en-US"> <!--<![endif]-->
<head>
<title>Access denied | kenpom.com used Cloudflare to restrict access</title>
<meta charset="UTF-8" />
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<meta http-equiv="X-UA-Compatible" content="IE=Edge" />
<meta name="robots" content="noindex, nofollow" />
<meta name="viewport" content="width=device-width,initial-scale=1" />
<link rel="stylesheet" id="cf_styles-css" href="/cdn-cgi/styles/main.css" />

<script>
(function(){if(document.addEventListener&&window.XMLHttpRequest&&JSON&&JSON.stringify){var e=function(a){var c=document.getElementById("error-feedback-survey"),d=document.getElementById("error-feedback-success"),b=new XMLHttpRequest;a={event:"feedback clicked",properties:{errorCode:1015,helpful:a,version:1}};b.open("POST","https://sparrow.cloudflare.com/api/v1/event");b.setRequestHeader("Content-Type","application/json");b.setRequestHeader("Sparrow-Source-Key","c771f0e4b54944bebf4261d44bd79a1e");b.send(JSON.stringify(a));c.classList.add("feedback-hidden");d.classList.remove("feedback-hidden")};document.addEventListener("DOMContentLoaded",function(){var a=document.getElementById("error-feedback"),c=document.getElementById("feedback-button-yes"),d=document.getElementById("feedback-button-no");"classList"in a&&(a.classList.remove("feedback-hidden"),c.addEventListener("click",function(){e(!0)}),d.addEventListener("click",function(){e(!1)}))}})});
</script>

<script defer src="https://performance.radar.cloudflare.com/beacon.js"></script>
</head>
<body>
<div id="cf-wrapper">

```

```

    <div class="cf-alert cf-alert-error cf-cookie-error hidden" id="cookie-
alert" data-translate="enable_cookies">Please enable cookies.</div>
    <div id="cf-error-details" class="p-0">
        <header class="mx-auto pt-10 lg:pt-6 lg:px-8 w-240 lg:w-full mb-15
antialiased">
            <h1 class="inline-block md:block mr-2 md:mb-2 font-light text-60
md:text-3xl text-black-dark leading-tight">
                <span data-translate="error">Error</span>
                <span>1015</span>
            </h1>
            <span class="inline-block md:block heading-ray-id font-mono text-15
lg:text-sm lg:leading-relaxed">Ray ID: 8554d571389056b5 &bull;</span>
            <span class="inline-block md:block heading-ray-id font-mono text-15
lg:text-sm lg:leading-relaxed">2024-02-14 11:05:02 UTC</span>
            <h2 class="text-gray-600 leading-1.3 text-3xl lg:text-2xl font-
light">You are being rate limited</h2>
        </header>

        <section class="w-240 lg:w-full mx-auto mb-8 lg:px-8">
            <div id="what-happened-section" class="w-1/2 md:w-full">
                <h2 class="text-3xl leading-tight font-normal mb-4 text-black-dark
antialiased" data-translate="what_happened">What happened?</h2>
                <p>The owner of this website (kenpom.com) has banned you temporarily
from accessing this website.</p>
            </div>

        </section>

        <div class="feedback-hidden py-8 text-center" id="error-feedback">
            <div id="error-feedback-survey" class="footer-line-wrapper">
                Was this page helpful?
                <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-yes" type="button">Yes</button>
                <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-no" type="button">No</button>
            </div>
            <div class="feedback-success feedback-hidden" id="error-feedback-success">
                Thank you for your feedback!
            </div>
        </div>

        <div class="cf-error-footer cf-wrapper w-240 lg:w-full py-10 sm:py-4
sm:px-8 mx-auto text-center sm:text-left border-solid border-0 border-t border-
gray-300">
            <p class="text-13">

```

```

    <span class="cf-footer-item sm:block sm:mb-1">Cloudflare Ray ID: <strong
class="font-semibold">8554d571389056b5</strong></span>
    <span class="cf-footer-separator sm:hidden">&bull;</span>
    <span id="cf-footer-item-ip" class="cf-footer-item hidden sm:block sm:mb-1">
      Your IP:
      <button type="button" id="cf-footer-ip-reveal" class="cf-footer-ip-reveal-
btn">Click to reveal</button>
      <span class="hidden" id="cf-footer-ip">130.225.188.128</span>
      <span class="cf-footer-separator sm:hidden">&bull;</span>
    </span>
    <span class="cf-footer-item sm:block sm:mb-1"><span>Performance &amp;
security by</span> <a rel="noopener noreferrer"
href="https://www.cloudflare.com/5xx-error-landing" id="brand_link"
target="_blank">Cloudflare</a></span>

  </p>
  <script>(function(){function d(){var b=a.getElementById("cf-footer-item-
ip"),c=a.getElementById("cf-footer-ip-reveal");b&&"classList"in b&&(b.classList.
remove("hidden"),c.addEventListener("click",function(){c.classList.add("hidden")
;a.getElementById("cf-footer-ip").classList.remove("hidden")}}))}var a=document;d
ocument.addEventListener&&a.addEventListener("DOMContentLoaded",d))();</script>
</div><!-- /.error-footer -->

</div><!-- /#cf-error-details -->
</div><!-- /#cf-wrapper -->

<script>
window._cf_translation = {};

</script>

</body>
</html>

```

```

Collection of stats in year 2018 failed. Err: 429
<!DOCTYPE html>
<!--[if lt IE 7]> <html class="no-js ie6 oldie" lang="en-US"> <![endif]-->
<!--[if IE 7]> <html class="no-js ie7 oldie" lang="en-US"> <![endif]-->
<!--[if IE 8]> <html class="no-js ie8 oldie" lang="en-US"> <![endif]-->
<!--[if gt IE 8]><!--> <html class="no-js" lang="en-US"> <!--<![endif]-->
<head>
<title>Access denied | kenpom.com used Cloudflare to restrict access</title>
<meta charset="UTF-8" />
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<meta http-equiv="X-UA-Compatible" content="IE=Edge" />
<meta name="robots" content="noindex, nofollow" />

```



```

<meta name="viewport" content="width=device-width,initial-scale=1" />
<link rel="stylesheet" id="cf_styles-css" href="/cdn-cgi/styles/main.css" />

<script>
(function(){if(document.addEventListener&&window.XMLHttpRequest&&JSON&&JSON.stringify){var e=function(a){var c=document.getElementById("error-feedback-survey"),d=document.getElementById("error-feedback-success"),b=new XMLHttpRequest;a={event:"feedback clicked",properties:{errorCode:1015,helpful:a,version:1}};b.open("POST","https://sparrow.cloudflare.com/api/v1/event");b.setRequestHeader("Content-Type","application/json");b.setRequestHeader("Sparrow-Source-Key","c771f0e4b54944bebf4261d44bd79a1e");b.send(JSON.stringify(a));c.classList.add("feedback-hidden");d.classList.remove("feedback-hidden");document.addEventListener("DOMContentLoaded",function(){var a=document.getElementById("error-feedback"),c=document.getElementById("feedback-button-yes"),d=document.getElementById("feedback-button-no");"classList"in a&&(a.classList.remove("feedback-hidden"),c.addEventListener("click",function(){e(!0)}),d.addEventListener("click",function(){e(!1)}))}})});
</script>

<script defer src="https://performance.radar.cloudflare.com/beacon.js"></script>
</head>
<body>
  <div id="cf-wrapper">
    <div class="cf-alert cf-alert-error cf-cookie-error hidden" id="cookie-alert" data-translate="enable_cookies">Please enable cookies.</div>
    <div id="cf-error-details" class="p-0">
      <header class="mx-auto pt-10 lg:pt-6 lg:px-8 w-240 lg:w-full mb-15 antialiased">
        <h1 class="inline-block md:block mr-2 md:mb-2 font-light text-60 md:text-3xl text-black-dark leading-tight">
          <span data-translate="error">Error</span>
          <span>1015</span>
        </h1>
        <span class="inline-block md:block heading-ray-id font-mono text-15 lg:text-sm lg:leading-relaxed">Ray ID: 8554d571e9485693 &bull;</span>
        <span class="inline-block md:block heading-ray-id font-mono text-15 lg:text-sm lg:leading-relaxed">2024-02-14 11:05:03 UTC</span>
        <h2 class="text-gray-600 leading-1.3 text-3xl lg:text-2xl font-light">You are being rate limited</h2>
      </header>

      <section class="w-240 lg:w-full mx-auto mb-8 lg:px-8">
        <div id="what-happened-section" class="w-1/2 md:w-full">
          <h2 class="text-3xl leading-tight font-normal mb-4 text-black-dark antialiased" data-translate="what_happened">What happened?</h2>
          <p>The owner of this website (kenpom.com) has banned you temporarily

```

from accessing this website.</p>

</div>

</section>

```
<div class="feedback-hidden py-8 text-center" id="error-feedback">
  <div id="error-feedback-survey" class="footer-line-wrapper">
    Was this page helpful?
    <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-yes" type="button">Yes</button>
    <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-no" type="button">No</button>
  </div>
  <div class="feedback-success feedback-hidden" id="error-feedback-success">
    Thank you for your feedback!
  </div>
</div>
```

```
<div class="cf-error-footer cf-wrapper w-240 lg:w-full py-10 sm:py-4
sm:px-8 mx-auto text-center sm:text-left border-solid border-0 border-t border-
gray-300">
  <p class="text-13">
    <span class="cf-footer-item sm:block sm:mb-1">Cloudflare Ray ID: <strong
class="font-semibold">8554d571e9485693</strong></span>
    <span class="cf-footer-separator sm:hidden">&bull;</span>
    <span id="cf-footer-item-ip" class="cf-footer-item hidden sm:block sm:mb-1">
      Your IP:
      <button type="button" id="cf-footer-ip-reveal" class="cf-footer-ip-reveal-
btn">Click to reveal</button>
      <span class="hidden" id="cf-footer-ip">130.225.188.128</span>
      <span class="cf-footer-separator sm:hidden">&bull;</span>
    </span>
    <span class="cf-footer-item sm:block sm:mb-1"><span>Performance &amp;
security by</span> <a rel="noopener noreferrer"
href="https://www.cloudflare.com/5xx-error-landing" id="brand_link"
target="_blank">Cloudflare</a></span>
  </p>
  <script>(function(){function d(){var b=a.getElementById("cf-footer-item-
ip"),c=a.getElementById("cf-footer-ip-reveal");b&&"classList"in b&&(b.classList.
remove("hidden"),c.addEventListener("click",function(){c.classList.add("hidden")
;a.getElementById("cf-footer-ip").classList.remove("hidden")}})}var a=document;d
ocument.addEventListener&&a.addEventListener("DOMContentLoaded",d)}());</script>
</div><!-- /.error-footer -->
```

```

    </div><!-- /#cf-error-details -->
</div><!-- /#cf-wrapper -->

<script>
window._cf_translation = {};

</script>

</body>
</html>

Collection of stats in year 2019 failed. Err: 429
<!DOCTYPE html>
<!--[if lt IE 7]> <html class="no-js ie6 oldie" lang="en-US"> <![endif]-->
<!--[if IE 7]> <html class="no-js ie7 oldie" lang="en-US"> <![endif]-->
<!--[if IE 8]> <html class="no-js ie8 oldie" lang="en-US"> <![endif]-->
<!--[if gt IE 8]><!--> <html class="no-js" lang="en-US"> <!--<![endif]-->
<head>
<title>Access denied | kenpom.com used Cloudflare to restrict access</title>
<meta charset="UTF-8" />
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<meta http-equiv="X-UA-Compatible" content="IE=Edge" />
<meta name="robots" content="noindex, nofollow" />
<meta name="viewport" content="width=device-width,initial-scale=1" />
<link rel="stylesheet" id="cf_styles-css" href="/cdn-cgi/styles/main.css" />

<script>
(function(){if(document.addEventListener&&window.XMLHttpRequest&&JSON&&JSON.stringify){var e=function(a){var c=document.getElementById("error-feedback-survey"),d=document.getElementById("error-feedback-success"),b=new XMLHttpRequest;a={event:"feedback clicked",properties:{errorCode:1015,helpful:a,version:1}};b.open("POST","https://sparrow.cloudflare.com/api/v1/event");b.setRequestHeader("Content-Type","application/json");b.setRequestHeader("Sparrow-Source-Key","c771f0e4b54944bebf4261d44bd79a1e");b.send(JSON.stringify(a));c.classList.add("feedback-hidden");d.classList.remove("feedback-hidden");document.addEventListener("DOMContentLoaded",function(){var a=document.getElementById("error-feedback"),c=document.getElementById("feedback-button-yes"),d=document.getElementById("feedback-button-no");"classList"in a&&(a.classList.remove("feedback-hidden"),c.addEventListener("click",function(){e(!0)}),d.addEventListener("click",function(){e(!1)}}))}})});
</script>

<script defer src="https://performance.radar.cloudflare.com/beacon.js"></script>
</head>

```

```

<body>
  <div id="cf-wrapper">
    <div class="cf-alert cf-alert-error cf-cookie-error hidden" id="cookie-
alert" data-translate="enable_cookies">Please enable cookies.</div>
    <div id="cf-error-details" class="p-0">
      <header class="mx-auto pt-10 lg:pt-6 lg:px-8 w-240 lg:w-full mb-15
antialiased">
        <h1 class="inline-block md:block mr-2 md:mb-2 font-light text-60
md:text-3xl text-black-dark leading-tight">
          <span data-translate="error">Error</span>
          <span>1015</span>
        </h1>
        <span class="inline-block md:block heading-ray-id font-mono text-15
lg:text-sm lg:leading-relaxed">Ray ID: 8554d572a8297127 &bull;</span>
        <span class="inline-block md:block heading-ray-id font-mono text-15
lg:text-sm lg:leading-relaxed">2024-02-14 11:05:03 UTC</span>
        <h2 class="text-gray-600 leading-1.3 text-3xl lg:text-2xl font-
light">You are being rate limited</h2>
      </header>

      <section class="w-240 lg:w-full mx-auto mb-8 lg:px-8">
        <div id="what-happened-section" class="w-1/2 md:w-full">
          <h2 class="text-3xl leading-tight font-normal mb-4 text-black-dark
antialiased" data-translate="what_happened">What happened?</h2>
          <p>The owner of this website (kenpom.com) has banned you temporarily
from accessing this website.</p>

        </div>

      </section>

      <div class="feedback-hidden py-8 text-center" id="error-feedback">
<div id="error-feedback-survey" class="footer-line-wrapper">
  Was this page helpful?
  <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-yes" type="button">Yes</button>
  <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-no" type="button">No</button>
</div>
  <div class="feedback-success feedback-hidden" id="error-feedback-success">
    Thank you for your feedback!
  </div>
</div>

    <div class="cf-error-footer cf-wrapper w-240 lg:w-full py-10 sm:py-4
sm:px-8 mx-auto text-center sm:text-left border-solid border-0 border-t border-

```

```

gray-300">
  <p class="text-13">
    <span class="cf-footer-item sm:block sm:mb-1">Cloudflare Ray ID: <strong
class="font-semibold">8554d572a8297127</strong></span>
    <span class="cf-footer-separator sm:hidden">&bull;</span>
    <span id="cf-footer-item-ip" class="cf-footer-item hidden sm:block sm:mb-1">
      Your IP:
      <button type="button" id="cf-footer-ip-reveal" class="cf-footer-ip-reveal-
btn">Click to reveal</button>
      <span class="hidden" id="cf-footer-ip">130.225.188.128</span>
      <span class="cf-footer-separator sm:hidden">&bull;</span>
    </span>
    <span class="cf-footer-item sm:block sm:mb-1"><span>Performance &amp;
security by</span> <a rel="noopener noreferrer"
href="https://www.cloudflare.com/5xx-error-landing" id="brand_link"
target="_blank">Cloudflare</a></span>

  </p>
  <script>(function(){function d(){var b=a.getElementById("cf-footer-item-
ip"),c=a.getElementById("cf-footer-ip-reveal");b&&"classList"in b&&(b.classList.
remove("hidden"),c.addEventListener("click",function(){c.classList.add("hidden")
;a.getElementById("cf-footer-ip").classList.remove("hidden")}))}var a=document;d
ocument.addEventListener&&a.addEventListener("DOMContentLoaded",d)}());</script>
</div><!-- /.error-footer -->

</div><!-- /#cf-error-details -->
</div><!-- /#cf-wrapper -->

<script>
window._cf_translation = {};

</script>

</body>
</html>

```

```

Collection of stats in year 2020 failed. Err: 429
<!DOCTYPE html>
<!--[if lt IE 7]> <html class="no-js ie6 oldie" lang="en-US"> <![endif]-->
<!--[if IE 7]> <html class="no-js ie7 oldie" lang="en-US"> <![endif]-->
<!--[if IE 8]> <html class="no-js ie8 oldie" lang="en-US"> <![endif]-->
<!--[if gt IE 8]><!--> <html class="no-js" lang="en-US"> <!--<![endif]-->
<head>
<title>Access denied | kenpom.com used Cloudflare to restrict access</title>
<meta charset="UTF-8" />
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />

```

```

<meta http-equiv="X-UA-Compatible" content="IE=Edge" />
<meta name="robots" content="noindex, nofollow" />
<meta name="viewport" content="width=device-width,initial-scale=1" />
<link rel="stylesheet" id="cf_styles-css" href="/cdn-cgi/styles/main.css" />

<script>
(function(){if(document.addEventListener&&window.XMLHttpRequest&&JSON&&JSON.stringify){var e=function(a){var c=document.getElementById("error-feedback-survey"),d=document.getElementById("error-feedback-success"),b=new XMLHttpRequest;a={event:"feedback clicked",properties:{errorCode:1015,helpful:a,version:1}};b.open("POST","https://sparrow.cloudflare.com/api/v1/event");b.setRequestHeader("Content-Type","application/json");b.setRequestHeader("Sparrow-Source-Key","c771f0e4b54944bebf4261d44bd79a1e");b.send(JSON.stringify(a));c.classList.add("feedback-hidden");d.classList.remove("feedback-hidden");document.addEventListener("DOMContentLoaded",function(){var a=document.getElementById("error-feedback"),c=document.getElementById("feedback-button-yes"),d=document.getElementById("feedback-button-no");"classList"in a&&(a.classList.remove("feedback-hidden"),c.addEventListener("click",function(){e(!0)}),d.addEventListener("click",function(){e(!1)}))}})});
</script>

<script defer src="https://performance.radar.cloudflare.com/beacon.js"></script>
</head>
<body>
  <div id="cf-wrapper">
    <div class="cf-alert cf-alert-error cf-cookie-error hidden" id="cookie-alert" data-translate="enable_cookies">Please enable cookies.</div>
    <div id="cf-error-details" class="p-0">
      <header class="mx-auto pt-10 lg:pt-6 lg:px-8 w-240 lg:w-full mb-15 antialiased">
        <h1 class="inline-block md:block mr-2 md:mb-2 font-light text-60 md:text-3xl text-black-dark leading-tight">
          <span data-translate="error">Error</span>
          <span>1015</span>
        </h1>
        <span class="inline-block md:block heading-ray-id font-mono text-15 lg:text-sm lg:leading-relaxed">Ray ID: 8554d573bcd156a2 &bull;</span>
        <span class="inline-block md:block heading-ray-id font-mono text-15 lg:text-sm lg:leading-relaxed">2024-02-14 11:05:03 UTC</span>
        <h2 class="text-gray-600 leading-1.3 text-3xl lg:text-2xl font-light">You are being rate limited</h2>
      </header>

      <section class="w-240 lg:w-full mx-auto mb-8 lg:px-8">
        <div id="what-happened-section" class="w-1/2 md:w-full">
          <h2 class="text-3xl leading-tight font-normal mb-4 text-black-dark

```

```
antialiased" data-translate="what_happened">What happened?</h2>
    <p>The owner of this website (kenpom.com) has banned you temporarily
from accessing this website.</p>
```

```
</div>
```

```
</section>
```

```
    <div class="feedback-hidden py-8 text-center" id="error-feedback">
    <div id="error-feedback-survey" class="footer-line-wrapper">
        Was this page helpful?
        <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-yes" type="button">Yes</button>
        <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-no" type="button">No</button>
    </div>
    <div class="feedback-success feedback-hidden" id="error-feedback-success">
        Thank you for your feedback!
    </div>
</div>
```

```
    <div class="cf-error-footer cf-wrapper w-240 lg:w-full py-10 sm:py-4
sm:px-8 mx-auto text-center sm:text-left border-solid border-0 border-t border-
gray-300">
    <p class="text-13">
        <span class="cf-footer-item sm:block sm:mb-1">Cloudflare Ray ID: <strong
class="font-semibold">8554d573bcd156a2</strong></span>
        <span class="cf-footer-separator sm:hidden">&bull;</span>
        <span id="cf-footer-item-ip" class="cf-footer-item hidden sm:block sm:mb-1">
            Your IP:
            <button type="button" id="cf-footer-ip-reveal" class="cf-footer-ip-reveal-
btn">Click to reveal</button>
            <span class="hidden" id="cf-footer-ip">130.225.188.128</span>
            <span class="cf-footer-separator sm:hidden">&bull;</span>
        </span>
        <span class="cf-footer-item sm:block sm:mb-1"><span>Performance &amp;
security by</span> <a rel="noopener noreferrer"
href="https://www.cloudflare.com/5xx-error-landing" id="brand_link"
target="_blank">Cloudflare</a></span>

    </p>
    <script>(function(){function d(){var b=a.getElementById("cf-footer-item-
ip"),c=a.getElementById("cf-footer-ip-reveal");b&&"classList"in b&&(b.classList.
remove("hidden"),c.addEventListener("click",function(){c.classList.add("hidden")
;a.getElementById("cf-footer-ip").classList.remove("hidden")}})}var a=document;d
ocument.addEventListener&&a.addEventListener("DOMContentLoaded",d))();</script>
```

```
</div><!-- /.error-footer -->
```

```
</div><!-- /#cf-error-details -->  
</div><!-- /#cf-wrapper -->
```

```
<script>  
window._cf_translation = {};  
  
</script>
```

```
</body>  
</html>
```

Collection of stats in year 2021 failed. Err: 429

```
<!DOCTYPE html>  
<!--[if lt IE 7]> <html class="no-js ie6 oldie" lang="en-US"> <![endif]-->  
<!--[if IE 7]> <html class="no-js ie7 oldie" lang="en-US"> <![endif]-->  
<!--[if IE 8]> <html class="no-js ie8 oldie" lang="en-US"> <![endif]-->  
<!--[if gt IE 8]><!--> <html class="no-js" lang="en-US"> <!--<![endif]-->  
<head>  
<title>Access denied | kenpom.com used Cloudflare to restrict access</title>  
<meta charset="UTF-8" />  
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />  
<meta http-equiv="X-UA-Compatible" content="IE=Edge" />  
<meta name="robots" content="noindex, nofollow" />  
<meta name="viewport" content="width=device-width,initial-scale=1" />  
<link rel="stylesheet" id="cf_styles-css" href="/cdn-cgi/styles/main.css" />
```

```
<script>  
(function(){if(document.addEventListener&&window.XMLHttpRequest&&JSON&&JSON.stringify){var e=function(a){var c=document.getElementById("error-feedback-survey"),d=document.getElementById("error-feedback-success"),b=new XMLHttpRequest;a={event:"feedback clicked",properties:{errorCode:1015,helpful:a,version:1}};b.open("POST","https://sparrow.cloudflare.com/api/v1/event");b.setRequestHeader("Content-Type","application/json");b.setRequestHeader("Sparrow-Source-Key","c771f0e4b54944bebf4261d44bd79a1e");b.send(JSON.stringify(a));c.classList.add("feedback-hidden");d.classList.remove("feedback-hidden");document.addEventListener("DOMContentLoaded",function(){var a=document.getElementById("error-feedback"),c=document.getElementById("feedback-button-yes"),d=document.getElementById("feedback-button-no");"classList"in a&&(a.classList.remove("feedback-hidden"),c.addEventListener("click",function(){e(!0)}),d.addEventListener("click",function(){e(!1)}))}})});  
</script>
```



```

<script defer src="https://performance.radar.cloudflare.com/beacon.js"></script>
</head>
<body>
  <div id="cf-wrapper">
    <div class="cf-alert cf-alert-error cf-cookie-error hidden" id="cookie-
alert" data-translate="enable_cookies">Please enable cookies.</div>
    <div id="cf-error-details" class="p-0">
      <header class="mx-auto pt-10 lg:pt-6 lg:px-8 w-240 lg:w-full mb-15
antialiased">
        <h1 class="inline-block md:block mr-2 md:mb-2 font-light text-60
md:text-3xl text-black-dark leading-tight">
          <span data-translate="error">Error</span>
          <span>1015</span>
        </h1>
        <span class="inline-block md:block heading-ray-id font-mono text-15
lg:text-sm lg:leading-relaxed">Ray ID: 8554d5749c7b56c5 &bull;</span>
        <span class="inline-block md:block heading-ray-id font-mono text-15
lg:text-sm lg:leading-relaxed">2024-02-14 11:05:03 UTC</span>
        <h2 class="text-gray-600 leading-1.3 text-3xl lg:text-2xl font-
light">You are being rate limited</h2>
      </header>

      <section class="w-240 lg:w-full mx-auto mb-8 lg:px-8">
        <div id="what-happened-section" class="w-1/2 md:w-full">
          <h2 class="text-3xl leading-tight font-normal mb-4 text-black-dark
antialiased" data-translate="what_happened">What happened?</h2>
          <p>The owner of this website (kenpom.com) has banned you temporarily
from accessing this website.</p>

        </div>

      </section>

      <div class="feedback-hidden py-8 text-center" id="error-feedback">
        <div id="error-feedback-survey" class="footer-line-wrapper">
          Was this page helpful?
          <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-yes" type="button">Yes</button>
          <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-no" type="button">No</button>
        </div>
        <div class="feedback-success feedback-hidden" id="error-feedback-success">
          Thank you for your feedback!
        </div>
      </div>

```

```

        <div class="cf-error-footer cf-wrapper w-240 lg:w-full py-10 sm:py-4
sm:px-8 mx-auto text-center sm:text-left border-solid border-0 border-t border-
gray-300">
        <p class="text-13">
            <span class="cf-footer-item sm:block sm:mb-1">Cloudflare Ray ID: <strong
class="font-semibold">8554d5749c7b56c5</strong></span>
            <span class="cf-footer-separator sm:hidden">&bull;</span>
            <span id="cf-footer-item-ip" class="cf-footer-item hidden sm:block sm:mb-1">
                Your IP:
                <button type="button" id="cf-footer-ip-reveal" class="cf-footer-ip-reveal-
btn">Click to reveal</button>
                <span class="hidden" id="cf-footer-ip">130.225.188.128</span>
                <span class="cf-footer-separator sm:hidden">&bull;</span>
            </span>
            <span class="cf-footer-item sm:block sm:mb-1"><span>Performance &amp;
security by</span> <a rel="noopener noreferrer"
href="https://www.cloudflare.com/5xx-error-landing" id="brand_link"
target="_blank">Cloudflare</a></span>

        </p>
        <script>(function(){function d(){var b=a.getElementById("cf-footer-item-
ip"),c=a.getElementById("cf-footer-ip-reveal");b&&"classList"in b&&(b.classList.
remove("hidden"),c.addEventListener("click",function(){c.classList.add("hidden")
;a.getElementById("cf-footer-ip").classList.remove("hidden")}}))}var a=document;d
ocument.addEventListener&&a.addEventListener("DOMContentLoaded",d))();</script>
</div><!-- /.error-footer -->

    </div><!-- /#cf-error-details -->
</div><!-- /#cf-wrapper -->

<script>
window._cf_translation = {};

</script>

</body>
</html>

```

Collection of stats in year 2022 failed. Err: 429

```

<!DOCTYPE html>
<!--[if lt IE 7]> <html class="no-js ie6 oldie" lang="en-US"> <![endif]-->
<!--[if IE 7]> <html class="no-js ie7 oldie" lang="en-US"> <![endif]-->
<!--[if IE 8]> <html class="no-js ie8 oldie" lang="en-US"> <![endif]-->
<!--[if gt IE 8]><!--> <html class="no-js" lang="en-US"> <!--<![endif]-->
<head>
<title>Access denied | kenpom.com used Cloudflare to restrict access</title>

```

```

<meta charset="UTF-8" />
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<meta http-equiv="X-UA-Compatible" content="IE=Edge" />
<meta name="robots" content="noindex, nofollow" />
<meta name="viewport" content="width=device-width,initial-scale=1" />
<link rel="stylesheet" id="cf_styles-css" href="/cdn-cgi/styles/main.css" />

<script>
(function(){if(document.addEventListener&&window.XMLHttpRequest&&JSON&&JSON.stringify){var e=function(a){var c=document.getElementById("error-feedback-survey"),d=document.getElementById("error-feedback-success"),b=new XMLHttpRequest;a={event:"feedback clicked",properties:{errorCode:1015,helpful:a,version:1}};b.open("POST","https://sparrow.cloudflare.com/api/v1/event");b.setRequestHeader("Content-Type","application/json");b.setRequestHeader("Sparrow-Source-Key","c771f0e4b54944bebf4261d44bd79a1e");b.send(JSON.stringify(a));c.classList.add("feedback-hidden");d.classList.remove("feedback-hidden")};document.addEventListener("DOMContentLoaded",function(){var a=document.getElementById("error-feedback"),c=document.getElementById("feedback-button-yes"),d=document.getElementById("feedback-button-no");"classList"in a&&(a.classList.remove("feedback-hidden"),c.addEventListener("click",function(){e(!0)}),d.addEventListener("click",function(){e(!1)}))}})}());
</script>

<script defer src="https://performance.radar.cloudflare.com/beacon.js"></script>
</head>
<body>
  <div id="cf-wrapper">
    <div class="cf-alert cf-alert-error cf-cookie-error hidden" id="cookie-alert" data-translate="enable_cookies">Please enable cookies.</div>
    <div id="cf-error-details" class="p-0">
      <header class="mx-auto pt-10 lg:pt-6 lg:px-8 w-240 lg:w-full mb-15 antialiased">
        <h1 class="inline-block md:block mr-2 md:mb-2 font-light text-60 md:text-3xl text-black-dark leading-tight">
          <span data-translate="error">Error</span>
          <span>1015</span>
        </h1>
        <span class="inline-block md:block heading-ray-id font-mono text-15 lg:text-sm lg:leading-relaxed">Ray ID: 8554d5757ee4712a &bull;</span>
        <span class="inline-block md:block heading-ray-id font-mono text-15 lg:text-sm lg:leading-relaxed">2024-02-14 11:05:03 UTC</span>
        <h2 class="text-gray-600 leading-1.3 text-3xl lg:text-2xl font-light">You are being rate limited</h2>
      </header>

      <section class="w-240 lg:w-full mx-auto mb-8 lg:px-8">

```

```

        <div id="what-happened-section" class="w-1/2 md:w-full">
            <h2 class="text-3xl leading-tight font-normal mb-4 text-black-dark
antialiased" data-translate="what_happened">What happened?</h2>
            <p>The owner of this website (kenpom.com) has banned you temporarily
from accessing this website.</p>

```

```

        </div>

```

```

    </section>

```

```

        <div class="feedback-hidden py-8 text-center" id="error-feedback">
        <div id="error-feedback-survey" class="footer-line-wrapper">
            Was this page helpful?
            <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-yes" type="button">Yes</button>
            <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-no" type="button">No</button>
        </div>
        <div class="feedback-success feedback-hidden" id="error-feedback-success">
            Thank you for your feedback!
        </div>
    </div>

```

```

        <div class="cf-error-footer cf-wrapper w-240 lg:w-full py-10 sm:py-4
sm:px-8 mx-auto text-center sm:text-left border-solid border-0 border-t border-
gray-300">
        <p class="text-13">
            <span class="cf-footer-item sm:block sm:mb-1">Cloudflare Ray ID: <strong
class="font-semibold">8554d5757ee4712a</strong></span>
            <span class="cf-footer-separator sm:hidden">&bull;</span>
            <span id="cf-footer-item-ip" class="cf-footer-item hidden sm:block sm:mb-1">
                Your IP:
                <button type="button" id="cf-footer-ip-reveal" class="cf-footer-ip-reveal-
btn">Click to reveal</button>
                <span class="hidden" id="cf-footer-ip">130.225.188.128</span>
                <span class="cf-footer-separator sm:hidden">&bull;</span>
            </span>
            <span class="cf-footer-item sm:block sm:mb-1"><span>Performance &amp;
security by</span> <a rel="noopener noreferrer"
href="https://www.cloudflare.com/5xx-error-landing" id="brand_link"
target="_blank">Cloudflare</a></span>

        </p>
        <script>(function(){function d(){var b=a.getElementById("cf-footer-item-
ip"),c=a.getElementById("cf-footer-ip-reveal");b&&"classList"in b&&(b.classList.
remove("hidden"),c.addEventListener("click",function(){c.classList.add("hidden")

```

```
;a.getElementById("cf-footer-ip").classList.remove("hidden"))}}var a=document;d
ocument.addEventListener&&a.addEventListener("DOMContentLoaded",d))();</script>
</div><!-- /.error-footer -->
```

```
</div><!-- /#cf-error-details -->
</div><!-- /#cf-wrapper -->
```

```
<script>
window._cf_translation = {};
```

```
</script>
```

```
</body>
</html>
```

Collection of stats in year 2023 failed. Err: 429

```
<!DOCTYPE html>
<!--[if lt IE 7]> <html class="no-js ie6 oldie" lang="en-US"> <![endif]-->
<!--[if IE 7]> <html class="no-js ie7 oldie" lang="en-US"> <![endif]-->
<!--[if IE 8]> <html class="no-js ie8 oldie" lang="en-US"> <![endif]-->
<!--[if gt IE 8]><!--> <html class="no-js" lang="en-US"> <!--<![endif]-->
<head>
<title>Access denied | kenpom.com used Cloudflare to restrict access</title>
<meta charset="UTF-8" />
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<meta http-equiv="X-UA-Compatible" content="IE=Edge" />
<meta name="robots" content="noindex, nofollow" />
<meta name="viewport" content="width=device-width,initial-scale=1" />
<link rel="stylesheet" id="cf_styles-css" href="/cdn-cgi/styles/main.css" />
```

```
<script>
(function(){if(document.addEventListener&&window.XMLHttpRequest&&JSON&&JSON.stri
ngify){var e=function(a){var c=document.getElementById("error-feedback-
survey"),d=document.getElementById("error-feedback-success"),b=new
XMLHttpRequest;a={event:"feedback clicked",properties:{errorCode:1015,helpful:a,
version:1}};b.open("POST","https://sparrow.cloudflare.com/api/v1/event");b.setRe
questHeader("Content-Type","application/json");b.setRequestHeader("Sparrow-
Source-Key","c771f0e4b54944bebf4261d44bd79a1e");
b.send(JSON.stringify(a));c.classList.add("feedback-
hidden");d.classList.remove("feedback-
hidden")};document.addEventListener("DOMContentLoaded",function(){var
a=document.getElementById("error-feedback"),c=document.getElementById("feedback-
button-yes"),d=document.getElementById("feedback-button-no");"classList"in
a&&(a.classList.remove("feedback-hidden"),c.addEventListener("click",function(){
e(!0)}),d.addEventListener("click",function(){e(!1)}))}})}());
```

```

</script>

<script defer src="https://performance.radar.cloudflare.com/beacon.js"></script>
</head>
<body>
  <div id="cf-wrapper">
    <div class="cf-alert cf-alert-error cf-cookie-error hidden" id="cookie-
alert" data-translate="enable_cookies">Please enable cookies.</div>
    <div id="cf-error-details" class="p-0">
      <header class="mx-auto pt-10 lg:pt-6 lg:px-8 w-240 lg:w-full mb-15
antialiased">
        <h1 class="inline-block md:block mr-2 md:mb-2 font-light text-60
md:text-3xl text-black-dark leading-tight">
          <span data-translate="error">Error</span>
          <span>1015</span>
        </h1>
        <span class="inline-block md:block heading-ray-id font-mono text-15
lg:text-sm lg:leading-relaxed">Ray ID: 8554d575febcb500 &bull;</span>
        <span class="inline-block md:block heading-ray-id font-mono text-15
lg:text-sm lg:leading-relaxed">2024-02-14 11:05:03 UTC</span>
        <h2 class="text-gray-600 leading-1.3 text-3xl lg:text-2xl font-
light">You are being rate limited</h2>
      </header>

      <section class="w-240 lg:w-full mx-auto mb-8 lg:px-8">
        <div id="what-happened-section" class="w-1/2 md:w-full">
          <h2 class="text-3xl leading-tight font-normal mb-4 text-black-dark
antialiased" data-translate="what_happened">What happened?</h2>
          <p>The owner of this website (kenpom.com) has banned you temporarily
from accessing this website.</p>

        </div>

      </section>

      <div class="feedback-hidden py-8 text-center" id="error-feedback">
        <div id="error-feedback-survey" class="footer-line-wrapper">
          Was this page helpful?
          <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-yes" type="button">Yes</button>
          <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-no" type="button">No</button>
        </div>
        <div class="feedback-success feedback-hidden" id="error-feedback-success">
          Thank you for your feedback!
        </div>
      </div>

```

```

    <div class="cf-error-footer cf-wrapper w-240 lg:w-full py-10 sm:py-4
sm:px-8 mx-auto text-center sm:text-left border-solid border-0 border-t border-
gray-300">
    <p class="text-13">
        <span class="cf-footer-item sm:block sm:mb-1">Cloudflare Ray ID: <strong
class="font-semibold">8554d575febcb500</strong></span>
        <span class="cf-footer-separator sm:hidden">&bull;</span>
        <span id="cf-footer-item-ip" class="cf-footer-item hidden sm:block sm:mb-1">
            Your IP:
            <button type="button" id="cf-footer-ip-reveal" class="cf-footer-ip-reveal-
btn">Click to reveal</button>
            <span class="hidden" id="cf-footer-ip">130.225.188.128</span>
            <span class="cf-footer-separator sm:hidden">&bull;</span>
        </span>
        <span class="cf-footer-item sm:block sm:mb-1"><span>Performance &amp;
security by</span> <a rel="noopener noreferrer"
href="https://www.cloudflare.com/5xx-error-landing" id="brand_link"
target="_blank">Cloudflare</a></span>

    </p>
    <script>(function(){function d(){var b=a.getElementById("cf-footer-item-
ip"),c=a.getElementById("cf-footer-ip-reveal");b&&"classList"in b&&(b.classList.
remove("hidden"),c.addEventListener("click",function(){c.classList.add("hidden")
;a.getElementById("cf-footer-ip").classList.remove("hidden")}})}var a=document;d
ocument.addEventListener&&a.addEventListener("DOMContentLoaded",d)}());</script>
</div><!-- /.error-footer -->

</div><!-- /#cf-error-details -->
</div><!-- /#cf-wrapper -->

<script>
window._cf_translation = {};

</script>

</body>
</html>

```

```

Collection of stats in year 2024 failed. Err: 429
<!DOCTYPE html>
<!--[if lt IE 7]> <html class="no-js ie6 oldie" lang="en-US"> <![endif]-->
<!--[if IE 7]> <html class="no-js ie7 oldie" lang="en-US"> <![endif]-->
<!--[if IE 8]> <html class="no-js ie8 oldie" lang="en-US"> <![endif]-->
<!--[if gt IE 8]><!--> <html class="no-js" lang="en-US"> <!--<![endif]-->

```

```

<head>
<title>Access denied | kenpom.com used Cloudflare to restrict access</title>
<meta charset="UTF-8" />
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<meta http-equiv="X-UA-Compatible" content="IE=Edge" />
<meta name="robots" content="noindex, nofollow" />
<meta name="viewport" content="width=device-width,initial-scale=1" />
<link rel="stylesheet" id="cf_styles-css" href="/cdn-cgi/styles/main.css" />

<script>
(function(){if(document.addEventListener&&window.XMLHttpRequest&&JSON&&JSON.stringify){var e=function(a){var c=document.getElementById("error-feedback-survey"),d=document.getElementById("error-feedback-success"),b=new XMLHttpRequest;a={event:"feedback clicked",properties:{errorCode:1015,helpful:a,version:1}};b.open("POST","https://sparrow.cloudflare.com/api/v1/event");b.setRequestHeader("Content-Type","application/json");b.setRequestHeader("Sparrow-Source-Key","c771f0e4b54944bebf4261d44bd79a1e");b.send(JSON.stringify(a));c.classList.add("feedback-hidden");d.classList.remove("feedback-hidden")};document.addEventListener("DOMContentLoaded",function(){var a=document.getElementById("error-feedback"),c=document.getElementById("feedback-button-yes"),d=document.getElementById("feedback-button-no");"classList"in a&&(a.classList.remove("feedback-hidden"),c.addEventListener("click",function(){e(!0)}),d.addEventListener("click",function(){e(!1)}))}})}());
</script>

<script defer src="https://performance.radar.cloudflare.com/beacon.js"></script>
</head>
<body>
  <div id="cf-wrapper">
    <div class="cf-alert cf-alert-error cf-cookie-error hidden" id="cookie-alert" data-translate="enable_cookies">Please enable cookies.</div>
    <div id="cf-error-details" class="p-0">
      <header class="mx-auto pt-10 lg:pt-6 lg:px-8 w-240 lg:w-full mb-15 antialiased">
        <h1 class="inline-block md:block mr-2 md:mb-2 font-light text-60 md:text-3xl text-black-dark leading-tight">
          <span data-translate="error">Error</span>
          <span>1015</span>
        </h1>
        <span class="inline-block md:block heading-ray-id font-mono text-15 lg:text-sm lg:leading-relaxed">Ray ID: 8554d5768d5656b7 &bull;</span>
        <span class="inline-block md:block heading-ray-id font-mono text-15 lg:text-sm lg:leading-relaxed">2024-02-14 11:05:03 UTC</span>
        <h2 class="text-gray-600 leading-1.3 text-3xl lg:text-2xl font-light">You are being rate limited</h2>
      </header>

```



```

<section class="w-240 lg:w-full mx-auto mb-8 lg:px-8">
  <div id="what-happened-section" class="w-1/2 md:w-full">
    <h2 class="text-3xl leading-tight font-normal mb-4 text-black-dark
antialiased" data-translate="what_happened">What happened?</h2>
    <p>The owner of this website (kenpom.com) has banned you temporarily
from accessing this website.</p>

  </div>

```

```

</section>

```

```

  <div class="feedback-hidden py-8 text-center" id="error-feedback">
<div id="error-feedback-survey" class="footer-line-wrapper">
  Was this page helpful?
  <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-yes" type="button">Yes</button>
  <button class="border border-solid bg-white cf-button cursor-pointer
ml-4 px-4 py-2 rounded" id="feedback-button-no" type="button">No</button>
</div>
  <div class="feedback-success feedback-hidden" id="error-feedback-success">
    Thank you for your feedback!
  </div>
</div>

```

```

  <div class="cf-error-footer cf-wrapper w-240 lg:w-full py-10 sm:py-4
sm:px-8 mx-auto text-center sm:text-left border-solid border-0 border-t border-
gray-300">
    <p class="text-13">
      <span class="cf-footer-item sm:block sm:mb-1">Cloudflare Ray ID: <strong
class="font-semibold">8554d5768d5656b7</strong></span>
      <span class="cf-footer-separator sm:hidden">&bull;</span>
      <span id="cf-footer-item-ip" class="cf-footer-item hidden sm:block sm:mb-1">
        Your IP:
        <button type="button" id="cf-footer-ip-reveal" class="cf-footer-ip-reveal-
btn">Click to reveal</button>
        <span class="hidden" id="cf-footer-ip">130.225.188.128</span>
        <span class="cf-footer-separator sm:hidden">&bull;</span>
      </span>
      <span class="cf-footer-item sm:block sm:mb-1"><span>Performance &amp;
security by</span> <a rel="noopener noreferrer"
href="https://www.cloudflare.com/5xx-error-landing" id="brand_link"
target="_blank">Cloudflare</a></span>

    </p>
    <script>(function(){function d(){var b=a.getElementById("cf-footer-item-

```

```
ip"),c=a.getElementById("cf-footer-ip-reveal");b&&"classList"in b&&(b.classList.remove("hidden"),c.addEventListener("click",function(){c.classList.add("hidden");a.getElementById("cf-footer-ip").classList.remove("hidden")}))}var a=document;document.addEventListener&&a.addEventListener("DOMContentLoaded",d)}());</script>
</div><!-- /.error-footer -->
```

```
</div><!-- /#cf-error-details -->
</div><!-- /#cf-wrapper -->
```

```
<script>
window._cf_translation = {};
```

```
</script>
```

```
</body>
```

```
</html>
```

- `scrounge()` collects data from running `scrounge.js` with node
- `scrounge.js` looks like this:

```
const fs = require('fs');
const fetch = require('node-fetch');
const path = require('path');

const dirResource = 'resources/';

const headers = {
  'User-Agent': 'Chrome/90.0.4430.212'
};

const scrounge = async () => {
  for (let year = 2009; year < 2025; year++) {
    let url = `https://kenpom.com/index.php?y=${year}`;

    if (year === 2024) {
      url = 'https://kenpom.com/';
    }

    try {
      const response = await fetch(url, { headers: headers });

      if (response.ok) {
        const text = await response.text();
        const filePath = path.join(dirResource, `${year}.html`);
```

```

        // Ensure the directory exists
        fs.mkdirSync(dirResource, { recursive: true });

        fs.writeFileSync(filePath, text, 'utf-8');
        console.log(`Saved HTML content for year ${year}`);
    } else {
        console.log(`Collection of stats in year ${year} failed. Err: ${response.status}`);
    }
} catch (error) {
    console.error(`Error fetching data for year ${year}:`, error);
}
}

};

scrounge();

```

```

[ ]: def scrounge():
    script_path = './scrounge.js'

    # Running the Node.js script using subprocess.run
    try:
        result = subprocess.run(['node', script_path], check=True,
        ↪capture_output=True, text=True)
        print("Script output:", result.stdout)
    except subprocess.CalledProcessError as e:
        print("Error running script:", e.stderr)

scrounge()

```

```

Script output: Collection of stats in year 2009 failed. Err: 429
Collection of stats in year 2010 failed. Err: 429
Collection of stats in year 2011 failed. Err: 429
Collection of stats in year 2012 failed. Err: 429
Collection of stats in year 2013 failed. Err: 429
Collection of stats in year 2014 failed. Err: 429
Collection of stats in year 2015 failed. Err: 429
Collection of stats in year 2016 failed. Err: 429
Collection of stats in year 2017 failed. Err: 429
Collection of stats in year 2018 failed. Err: 429
Collection of stats in year 2019 failed. Err: 429
Collection of stats in year 2020 failed. Err: 429
Collection of stats in year 2021 failed. Err: 429
Collection of stats in year 2022 failed. Err: 429
Collection of stats in year 2023 failed. Err: 429
Saved HTML content for year 2024

```

- check2014 is for investigation of a single dataframe extracted from .html file.

- used for testing purpose **NOT** for mainstream data pipeline

```
[ ]: def check2014():
    HEADER =
    ↪ ['Rk', 'Team', 'Conf', 'W', 'L', 'AdjEM', 'AdjO', 'AdjO_enh', 'AdjD', 'AdjD_enh', 'AdjT', 'AdjT_enh', 'AdjEM_enh_NCSOS']
    ↪ 'AdjEM_enh_NCSOS']
    with open('resources/2014.html', 'r') as file:
        html_content = file.read()
        soup = BeautifulSoup(html_content, 'html.parser')
        table = soup.find('table')
        table_html = StringIO(str(table))

        df = pd.read_html(table_html)[0]

        df.columns = [col[-1] for col in df.columns]

        df[['W', 'L']] = df['W-L'].str.split('-', expand=True)
        df.drop('W-L', axis=1, inplace=True)

        conf_index = df.columns.get_loc('Conf') + 1
        df.insert(conf_index, 'W', df.pop('W'))
        df.insert(conf_index + 1, 'L', df.pop('L'))

        df.columns = HEADER

        for col in df.columns:
            if col not in ['Team', 'Conf']:
                df[col] = pd.to_numeric(df[col], errors='coerce')

        df['Team'] = df['Team'].str.replace(r'\s+\d+$', '', regex=True)

        print(df['Team'])

check2014()
```

```
0           Louisville
1           Arizona
2           Florida
3           Virginia
4           Wisconsin
...
362  Mississippi Valley St.
363      Abilene Christian
364      Presbyterian
365      Grambling St.
366      Southern Utah
Name: Team, Length: 367, dtype: object
```

- processHTMLS() parses the .html files to pandas DataFrame
- Each data from each year is stored in a dictionary : dataframes

```
[ ]: def processHTMLS():
    dataframes = {}
    HEADER =
    ↪ ['Rk', 'Team', 'Conf', 'W', 'L', 'AdjEM', 'AdjO', 'AdjO_enh', 'AdjD', 'AdjD_enh', 'AdjT', 'AdjT_enh', 'AdjEM_enh_NCSOS']
    for year in range(2009, 2025):
        file_path = f'resources/{year}.html'
        with open(file_path, 'r') as file:
            html_content = file.read()

        soup = BeautifulSoup(html_content, 'html.parser')
        table = soup.find('table')
        table_html = StringIO(str(table))

        df = pd.read_html(table_html)[0]

        df.columns = [col[-1] for col in df.columns]

        df[['W', 'L']] = df['W-L'].str.split('-', expand=True)
        df.drop('W-L', axis=1, inplace=True)

        conf_index = df.columns.get_loc('Conf') + 1
        df.insert(conf_index, 'W', df.pop('W'))
        df.insert(conf_index + 1, 'L', df.pop('L'))

        df.columns = HEADER

        for col in df.columns:
            if col not in ['Team', 'Conf']:
                df[col] = pd.to_numeric(df[col], errors='coerce')

        df['Team'] = df['Team'].str.replace(r'\s+\d+$', '', regex=True)
        dataframes[str(year)] = df
    return dataframes
dfs = processHTMLS()
```

- setMplParam(): is customisation for Matplotlib

```
[ ]: def setMplParam(classNum):
    COLOUR = ['#1E90FF', '#FFBF00', '#FF6347', '#00A86B', '#5A4FCF', '#D473D4',
    ↪ '#00CCFF']
    LINE = ['--', '-', '-.', '-', ':', '--', '-']
    MARKER = ['o', 's', '^', '*', '.', 'p', 'o']
    COLOUR_EFF = COLOUR[:classNum]
    LINE_EFF = LINE[:classNum]
```

```

MARKER_EFF = MARKER[:classNum]
plt.rcParams['axes.prop_cycle'] = (plt.cycler(color=COLOUR_EFF) +
                                   plt.cycler(linestyle=LINE_EFF) +
                                   plt.cycler(marker=MARKER_EFF))

plt.rcParams['lines.markersize'] = 10 # Example size
plt.rcParams['lines.linewidth'] = 3 # Example width

plt.rcParams['axes.labelsize'] = 20
plt.rcParams['axes.titlesize'] = 20

plt.rcParams['xtick.direction'] = 'in'
plt.rcParams['xtick.labelsize'] = 20

plt.rcParams['ytick.direction'] = 'in'
plt.rcParams['ytick.labelsize'] = 20

plt.rcParams['legend.fontsize'] = 12

plt.rcParams['axes.grid'] = True
plt.rcParams['grid.alpha'] = 0.8
plt.rcParams['grid.linestyle'] = '--'
plt.rcParams['grid.linewidth'] = 1

mpl.rcParams['axes.linewidth'] = 2

mpl.rcParams['xtick.major.size'] = 7
mpl.rcParams['xtick.major.width'] = 3
mpl.rcParams['xtick.minor.size'] = 2
mpl.rcParams['xtick.minor.width'] = 2

mpl.rcParams['ytick.major.size'] = 7
mpl.rcParams['ytick.major.width'] = 3
mpl.rcParams['ytick.minor.size'] = 2
mpl.rcParams['ytick.minor.width'] = 2

# setMplParam(6)

```

```

[ ]: conferences_5 = ['ACC', 'SEC', 'B10', 'BSky', 'A10']
     conferences_6 = ['ACC', 'SEC', 'B10', 'BSky', 'A10', 'BE']

```

## 1 Ex1

```

[ ]: def stats2014_bar(conferences, isBar=True, isBoth=True):
     df14 = dfs['2014']
     df14_conf = {conf: df14[df14['Conf'] == conf]['AdjD'] for conf in
     ↪conferences}

```

```

all_data = [df14_conf[conf] for conf in conferences]

global_min = min([min(AdjD) for AdjD in all_data])
global_max = max([max(AdjD) for AdjD in all_data])

num_bins = 8
bar_width = 0.85
bins = np.linspace(global_min, global_max, num_bins)

setMplParam(len(conferences)) # Assuming this is a custom function to set
↪matplotlib parameters

fig, ax = plt.subplots(figsize=(10, 6))

if isBar:
    # Plotting the bars
    hist_labels = [f'{conf} ({df14_conf[conf].mean():.2f})' for conf in
↪conferences]
    ax.hist(all_data, bins=bins, alpha=0.4, label=hist_labels,
↪histtype='bar', rwidth=bar_width, edgecolor='black', linewidth=1)

if isBoth or not isBar:
    # Plotting lines for each conference
    line_labels = [f'{conf}' for conf in conferences]
    for AdjD, conf in zip(all_data, conferences):
        hist_values, _ = np.histogram(AdjD, bins=bins)
        bin_centers = 0.5 * (bins[:-1] + bins[1:])
        ax.plot(bin_centers, hist_values, label=f'{conf} Line')

# Handling legends
if isBar:
    # If bars are plotted, manage legends for both bars and lines separately
    handles, labels = ax.get_legend_handles_labels()
    hist_handles, line_handles = handles[:len(conferences)],
↪handles[len(conferences):]
    hist_labels, line_labels = labels[:len(conferences)],
↪labels[len(conferences):]
    legend_line = ax.legend(line_handles, line_labels, loc='upper left',
↪title='Line', ncol=1, bbox_to_anchor=(0.6, 1))
    ax.legend(hist_handles, hist_labels, loc='upper left',
↪title='Histogram(mean)', ncol=1)
    ax.add_artist(legend_line)
else:
    # If only lines are plotted, a single legend is sufficient
    ax.legend(loc='upper left', title='Line', ncol=1)

```

```

ax.set_title(f'Histogram of AdjD by Conference in 2014 (bins = {num_bins})')
ax.set_xlabel('AdjD')
ax.set_ylabel('Frequency')
ax.xaxis.set_major_locator(ticker.FixedLocator(bins))

```

```

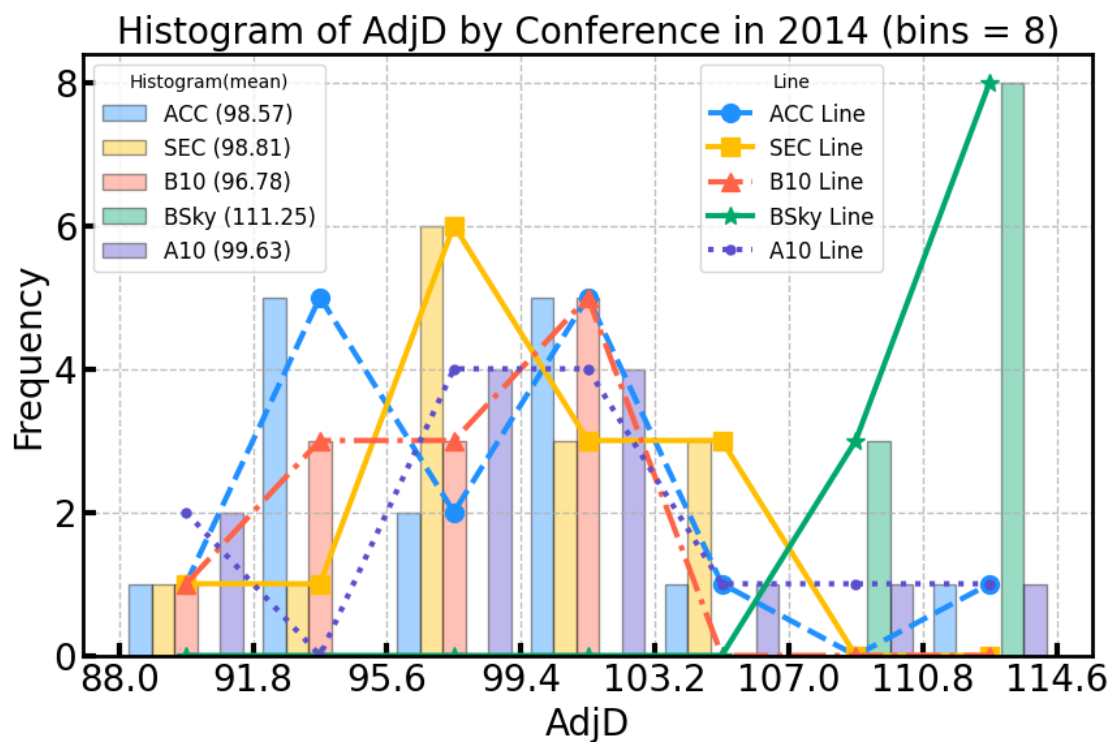
plt.show()

```

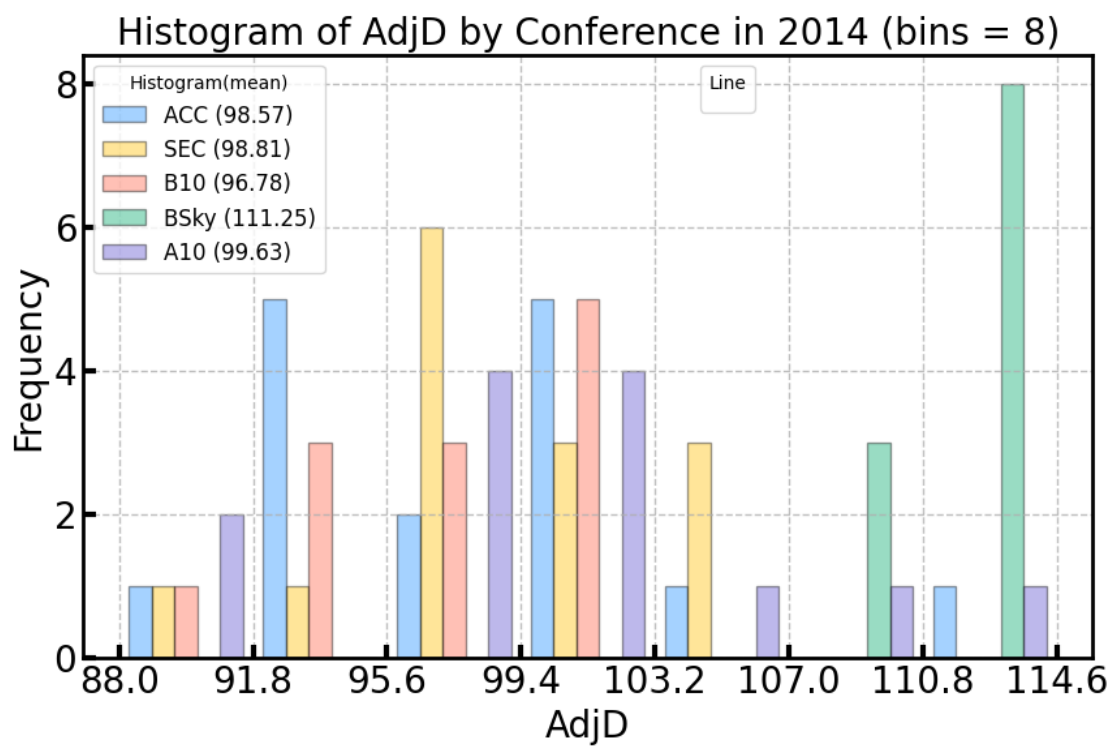
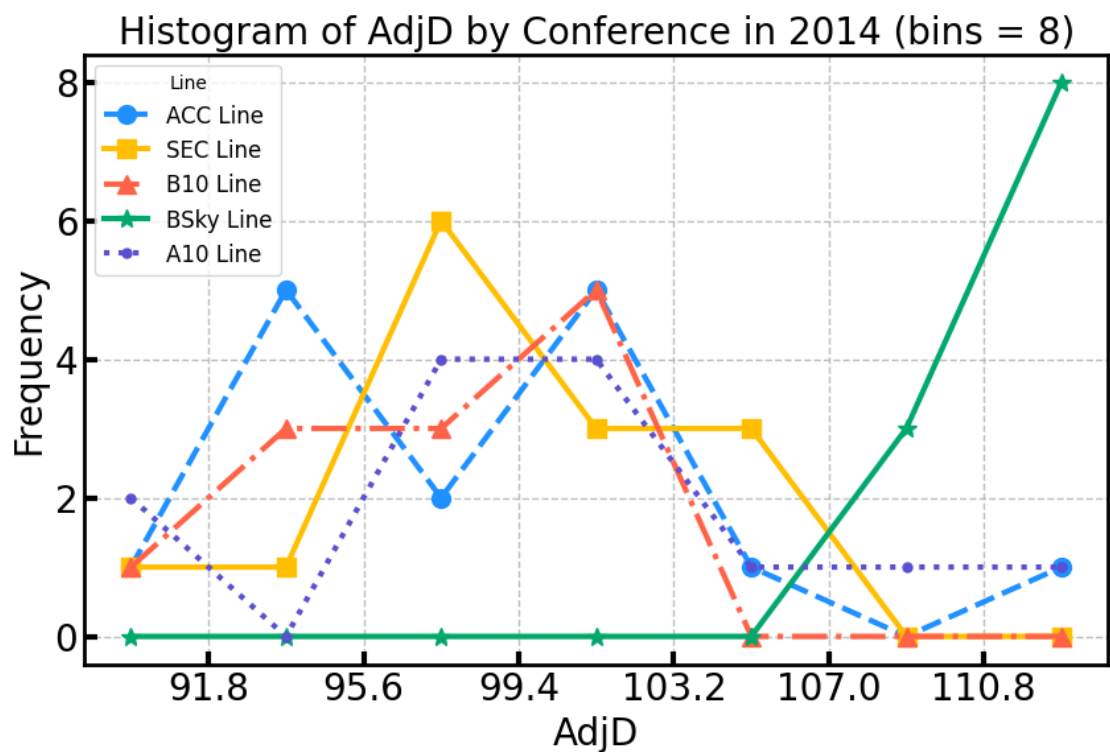
```

stats2014_bar(conferences_5, isBar=True)
stats2014_bar(conferences_5, isBar=False)
stats2014_bar(conferences_5, isBar=True, isBoth=False)

```







## 2 Ex2

- adj0\_kernel collects Adj0 from two dataframes and stores them in a dictionary having keys of input conferences
- only includes teams whose data existing in both years

```
[ ]: def adj0_kernel(df1, df2, conferences):
    adj0_diffs = {}
    adj0_team_1 = {}

    for conf in conferences:
        df1_conf_teams = df1[df1['Conf'] == conf].set_index('Team')['Adj0']
        df2_conf_teams = df2[df2['Conf'] == conf].set_index('Team')['Adj0']

        common_teams = df1_conf_teams.index.intersection(df2_conf_teams.index)
        diff = df2_conf_teams.loc[common_teams] - df1_conf_teams.
        ↪loc[common_teams]
        adj0_diffs[conf] = diff
        adj0_team_1[conf] = df1_conf_teams[common_teams]
    return adj0_diffs, adj0_team_1
```

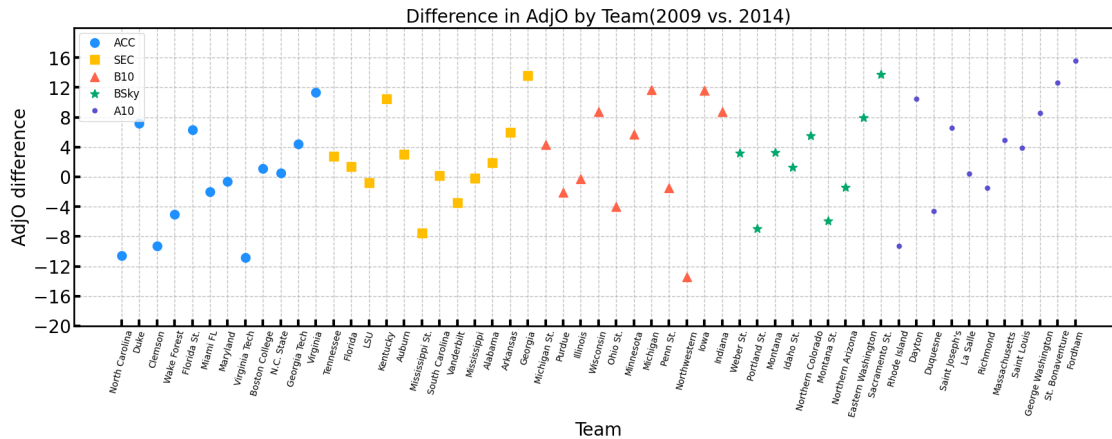
- plot\_2009\_2014\_teams plots the difference in Adj0 by team

```
[ ]: def plot_2009_2014_teams(conferences):
    adj0_diffs, _ = adj0_kernel(dfs['2009'], dfs['2014'], conferences)

    setMplParam(len(conferences))
    fig, ax = plt.subplots(figsize=(21, 6))
    for conf in conferences:
        diff = adj0_diffs[conf].dropna()
        ax.plot(diff.index, diff.values, label=conf, linestyle = '')

    ax.set_xlabel('Team')
    ax.set_ylabel('Adj0 difference')
    ax.set_title('Difference in Adj0 by Team(2009 vs. 2014)')
    END = 20
    ax.set_yticks(np.arange(-END, END, 4))
    ax.set_ylim((-END, END))
    ax.legend()
    plt.xticks(rotation=75, fontsize=10)

plot_2009_2014_teams(conferences_5)
```



- plot\_2009\_2014 plots the difference in AdjO between 2009 and 2014 by team versus the value of AdjO in 2009

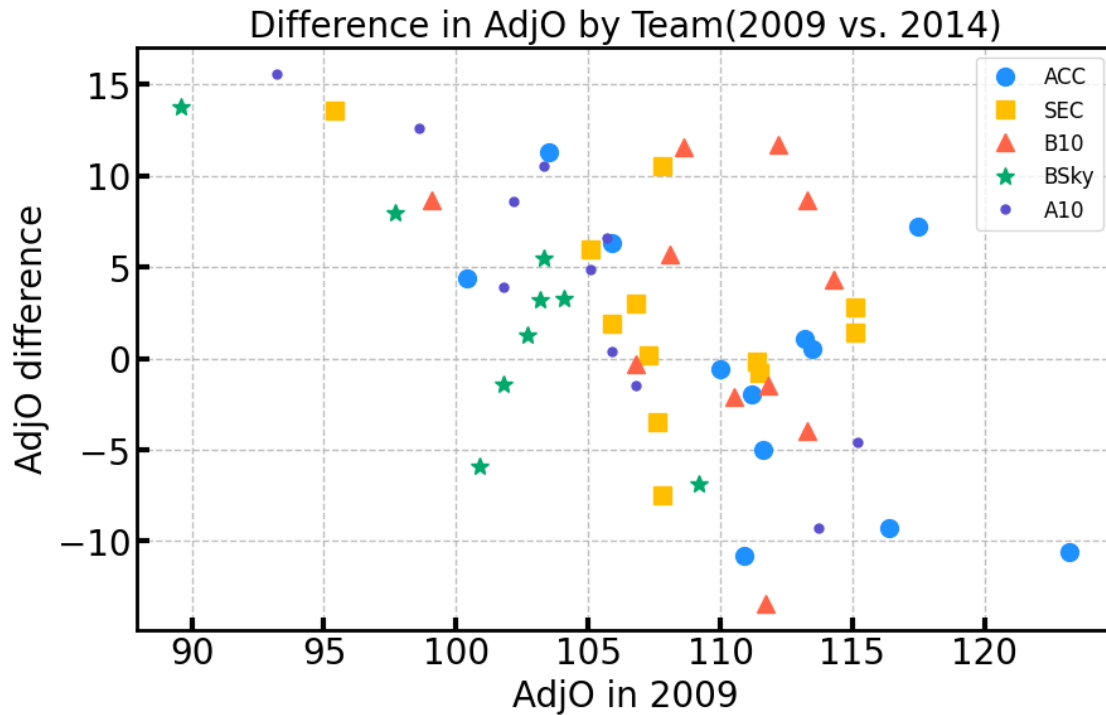
```
[ ]: def plot_2009_2014(conferences):
    adj0_diffs, adj0_09 = adj0_kernel(dfs['2009'], dfs['2014'], conferences)

    setMplParam(len(conferences))

    fig, ax = plt.subplots(figsize=(10, 6))
    for i, conf in enumerate(conferences):
        ax.plot(adj0_09[conf], adj0_diffs[conf], label=conf, linestyle = '')

    ax.set_xlabel('AdjO in 2009')
    ax.set_ylabel('AdjO difference')
    ax.set_title('Difference in AdjO by Team(2009 vs. 2014)')
    ax.legend()

plot_2009_2014(conferences_5)
```



- stats2009\_2014 gets the stats of difference in AdjO from data of 2009 and 2014

```
[ ]: def stats2009_2014(conferences):
    df09 = dfs['2009']
    df14 = dfs['2014']
    adj0_diffs, _ = adj0_kernel(df09, df14, conferences)

    for conf in conferences:
        print('----'+conf+'-----')
        print(f'&mean    & {adj0_diffs[conf].mean():.3f}')
        print(f'&median & {adj0_diffs[conf].median():.3f}')

    condition_others_09 = ~df09['Conf'].isin(conferences)
    df09_others = df09[condition_others_09].set_index('Team')['AdjO']

    condition_others_14 = ~df14['Conf'].isin(conferences)
    df14_others = df14[condition_others_14].set_index('Team')['AdjO']

    common_others = df09_others.index.intersection(df14_others.index)

    adj0_diffs_others = df14_others.loc[common_others] - df09_others.
    ↪loc[common_others]
```

```

print('----others-----')
print(f'&mean    & {adj0_diffs_others.mean():.3f}')
print(f'&median & {adj0_diffs_others.median():.3f}')

```

```
stats2009_2014(conferences_5)
```

```

----ACC-----
&mean    & -0.625
&median & -0.050
----SEC-----
&mean    & 2.283
&median & 1.650
----B10-----
&mean    & 2.673
&median & 4.300
----BSky-----
&mean    & 2.322
&median & 3.200
----A10-----
&mean    & 4.336
&median & 4.900
----others-----
&mean    & 2.595
&median & 1.900

```

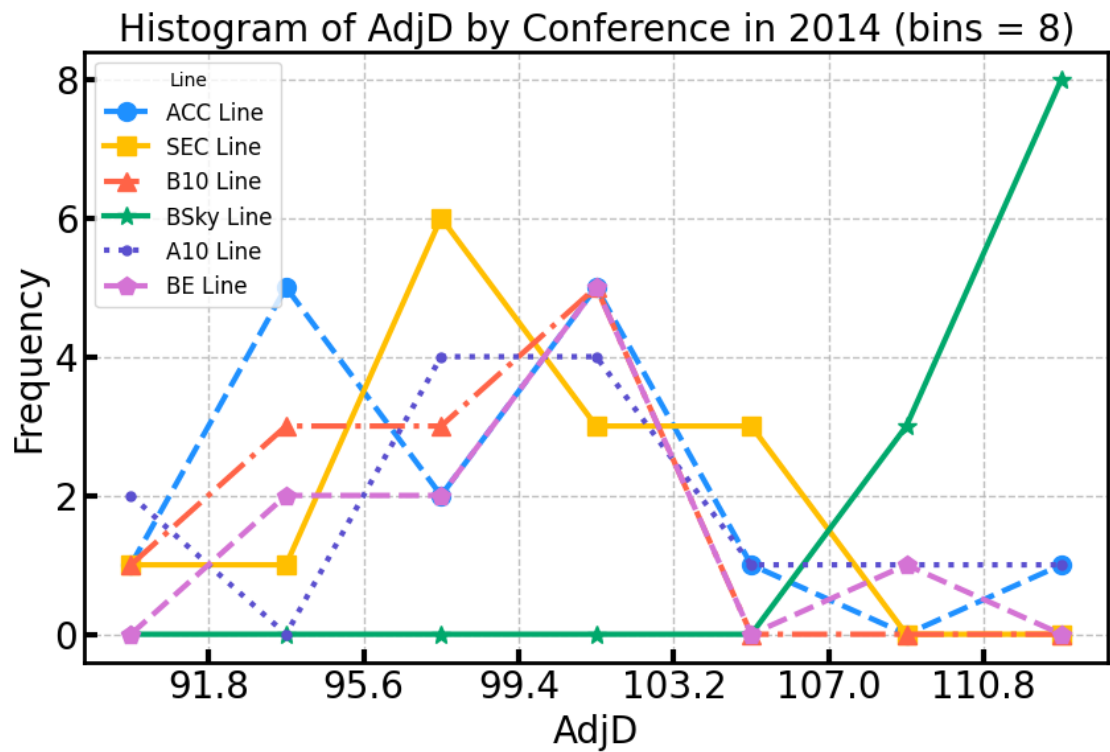
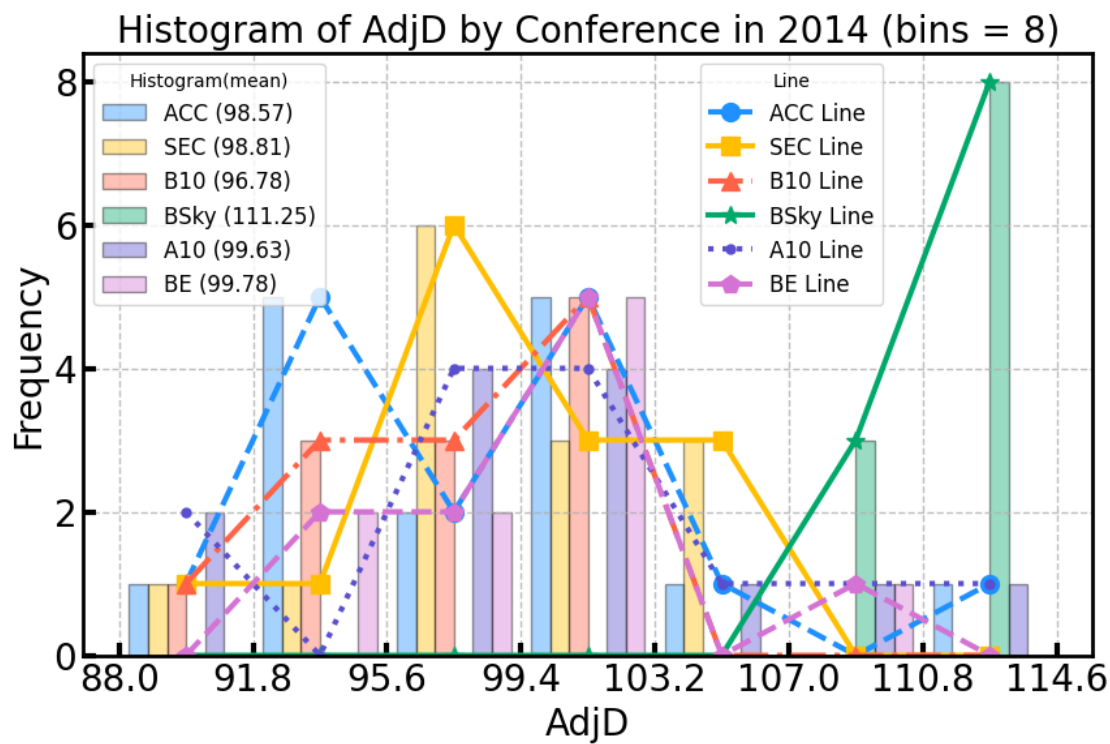
### 3 Ex3

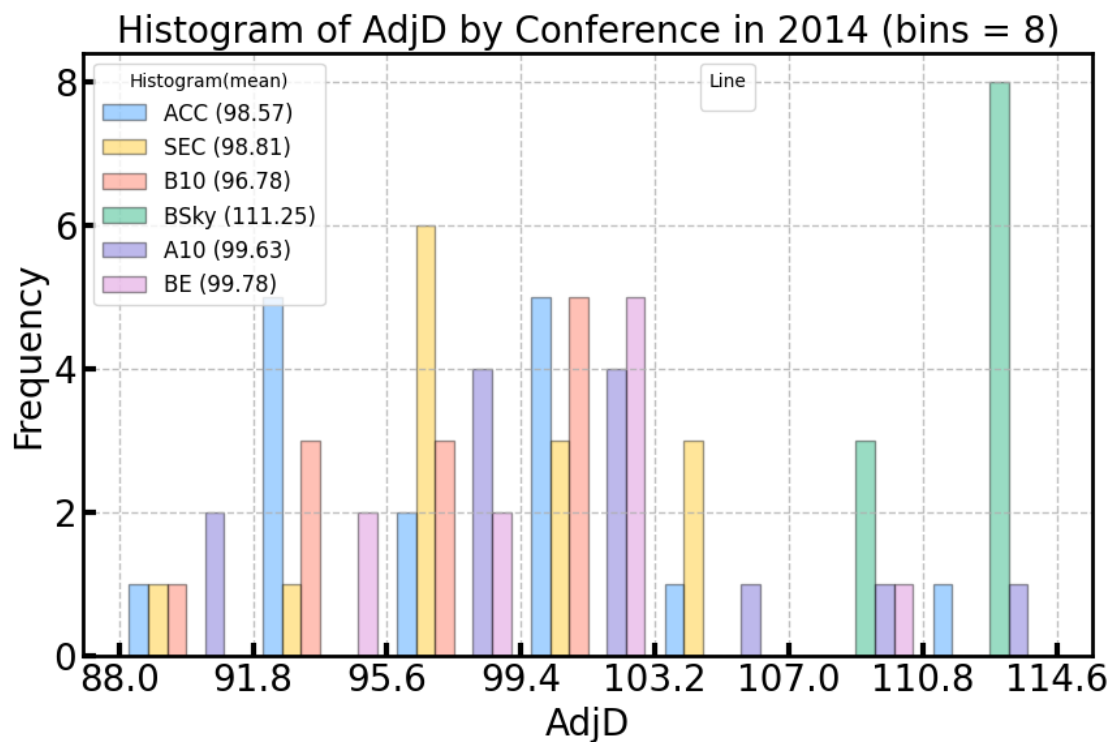
```

[ ]: # repeat Ex1
stats2014_bar(conferences_6, isBar=True)
stats2014_bar(conferences_6, isBar=False)
stats2014_bar(conferences_6, isBar=True, isBoth=False)

# repeat Ex2
plot_2009_2014(conferences_6)
stats2009_2014(conferences_6)

```

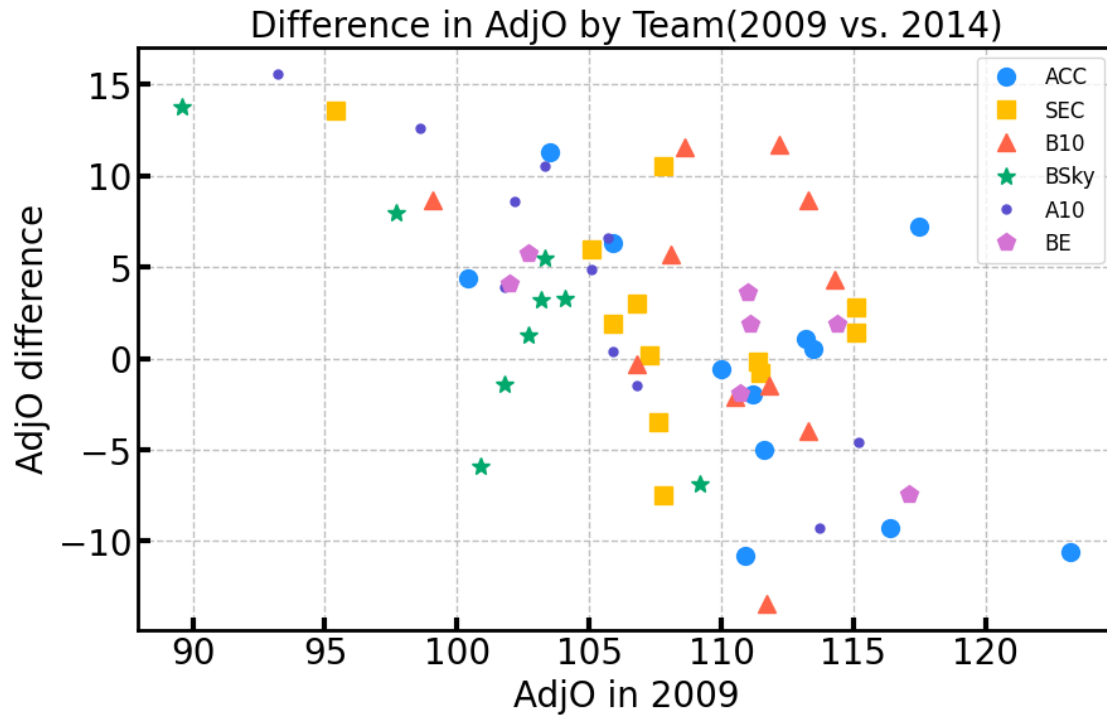




```

-----ACC-----
&mean    & -0.625
&median  & -0.050
-----SEC-----
&mean    & 2.283
&median  & 1.650
-----B10-----
&mean    & 2.673
&median  & 4.300
-----BSky-----
&mean    & 2.322
&median  & 3.200
-----A10-----
&mean    & 4.336
&median  & 4.900
-----BE-----
&mean    & 1.143
&median  & 1.900
-----others-----
&mean    & 2.624
&median  & 1.850

```



#### 4 Ex4

- processOutput processes output.txt to generate processed\_output.txt

```
[ ]: def processOutput(input, output):
    with open(input, 'r', encoding='utf-8') as file:
        lines = file.readlines()

    # Initialize an array to hold the processed lines
    processed_lines = []

    i = 0
    while i < len(lines):
        line = lines[i].strip()

        # Skip lines that match specific patterns (e.g., only a comma or
        # patterns like "(contents),")
        if re.match(r'^\\(\\w*\\),?$\\', line) or line == ',':
            i += 1
            continue

        # Concatenate lines not ending with a comma with the next line, if
        # applicable
```



```

        if not line.endswith(',') and i < len(lines) - 1:
            next_line = lines[i + 1].strip()
            if next_line and next_line != ',':
                line += " " + next_line
                i += 1 # Skip the next line since it's concatenated

    processed_lines.append(line)
    i += 1

    # Remove empty lines and lines starting with "AND" after removing contents
    ↪in parentheses
    final_lines = [re.sub(r'^AND\s|\\(.*?)', '', line).strip() for line in
    ↪processed_lines if line and not line.startswith('AND(')]
    final_lines = [line for line in final_lines if line] # Remove any empty
    ↪lines resulted from previous step

    # Save the processed lines to the output file
    with open(output, 'w', encoding='utf-8') as file:
        file.write('\n'.join(final_lines))

```

- findMiddle finds the middle name

```

[ ]: def findMiddle(file_path):
    # Read the content of the file
    with open(file_path, 'r', encoding='utf-8') as file:
        lines = file.readlines()

    # Extract names, assuming each name ends with a comma
    names = [line.strip().rstrip(',') for line in lines if line.strip().
    ↪endswith(',')]

    # Sort the names alphabetically
    sorted_names = sorted(names)

    # Find the middle name
    middle_name_index = len(sorted_names) // 2
    middle_name = sorted_names[middle_name_index]

    return middle_name

```

```

[ ]: def readPDF():
    input = 'resources/output.txt'
    output = 'resources/processed_output.txt'
    processOutput(input, output)
    middle_name = findMiddle(output)
    print(middle_name)
readPDF()

```

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