

# 2020

## NEWS PORTAL



**CAB432 Assignment 1**

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## Introduction

### Mashup Purpose & description

The News Portal application is a sophisticated yet a very convenient app, which serves two purposes. Firstly, the purpose of showing the breaking headlines from around the world in real-time, along with the origin location of the publisher in a map. Secondly, this app can also be used for viewing headlines based on search terms, also with the functionality of accessing the original host link for a specific news. With a minimalistic UI (user-interface), this app can be considered user-friendly.

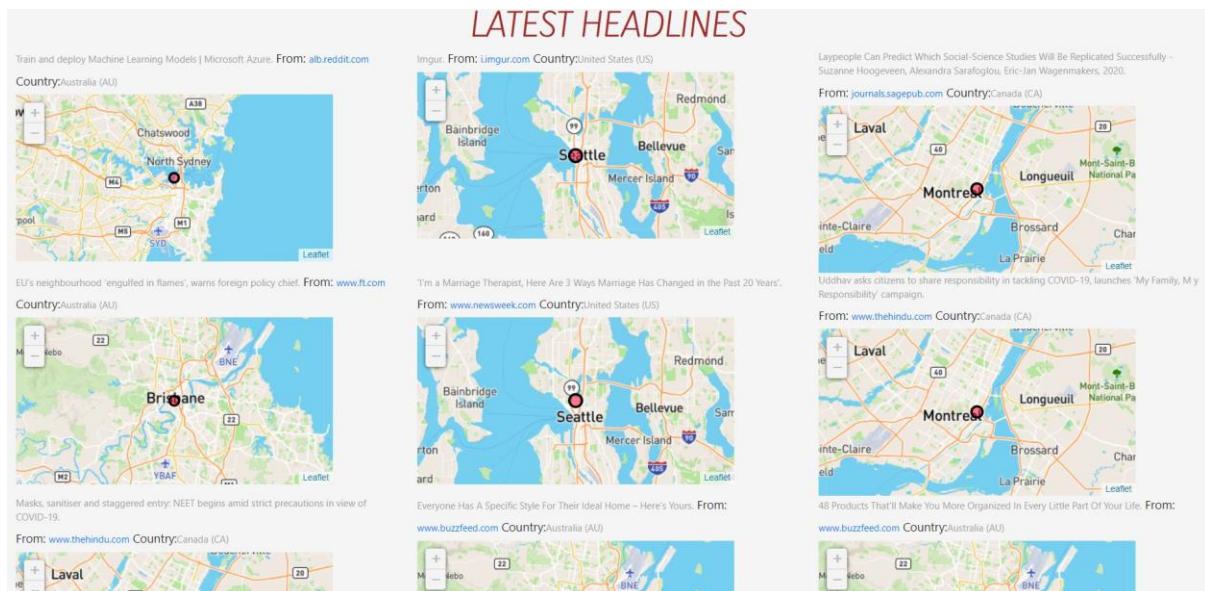


Figure 1: Screenshot 1 of the application, with headlines with their origin in map

## Find News

ufc			
Headline	Source	Published Date	Hosting Country
EA pulls ads from 'UFC 4' replays after widespread complaints	www.engadget.com	2020-09-06T19:40:23Z	Singapore (SG)
UFC 252: Stipe Miocic outpoints Daniel Cormier in Las Vegas to retain heavyweight title	www.bbc.co.uk	2020-08-16T05:29:30Z	United Kingdom (GB)
EA disables in-game adverts in UFC 4 after fan backlash - GamesRadar+	www.gamesradar.com	2020-09-06T12:19:00Z	United States (US)
UFC 252 Embedded: Vlog Series - Episode 6 - UFC - Ultimate Fighting Championship	www.youtube.com	2020-08-15T02:24:51Z	United States (US)
UFC says signs deal to prepare Chinese Olympians - Reuters	www.reuters.com	2020-09-02T08:23:00Z	Australia (AU)
Mixed Martial Arts: Cormier aims to reclaim UFC belt to crown storied career - Reuters	www.reuters.com	2020-08-13T21:11:00Z	Australia (AU)
UFC 252 Miocic vs. Cormier: Start time, how to watch online and full fight card - CNET	www.cnet.com	2020-08-15T23:39:00Z	United States (US)
UFC 252 live stream: How to watch Miocic vs Cormier III online	www.androidcentral.com	2020-08-15T12:24:03Z	Canada (CA)

Figure 2: Screenshot 2 of the application, with news based on a search term

## Services used

For the News Portal application, services from 3 APIs were utilized. IP-API and News API are used in the back end while Mapbox API is used in the front end for the map functionality of the application.

#### *API 1: IP-API*

IP-API is used in this application for retrieving the latitude and longitudinal coordinates for the Hostname of the sources, where the news is coming from. The batch query endpoint is used for retrieving the hostname coordinates instead of a single query, for computational efficiency in the back-end [1].

Endpoint 1: Batch API

<http://ip-api.com/batch>

Docs: <https://ip-api.com/docs>

#### *API 2: News API*

News API is a useful and simple REST API, which can be utilized for searching and getting latest news from different notable news sites, available in the internet [2]. In this News Portal application, two endpoints are being used from News API. The first endpoint for retrieving all news for a specific search term and the second endpoint for retrieving all top headlines from any sources, whether it be from a country, or a notable news publisher in real-time

Endpoint 1: Everything

<https://newsapi.org/v2/everything?q=apple&apiKey=c76e34e380c04ce5a2983ef4e74c3a7e>

Endpoint 2: Top Headlines

<https://newsapi.org/v2/top-headlines?country=us&apiKey=c76e34e380c04ce5a2983ef4e74c3a7e>

Docs: <https://newsapi.org/docs>

#### *API 3: Mapbox*

The latitudinal and the longitudinal coordinates obtained from the IP-API are rendered using the Mapbox API with the combination of leaflet.js from Leaflet to render maps and showing the location of the host in the front-end [3].

Endpoint 1: Static Tiles

[https://api.mapbox.com/styles/v1/{id}/tiles/{z}/{x}/{y}?access\\_token={accessToken}](https://api.mapbox.com/styles/v1/{id}/tiles/{z}/{x}/{y}?access_token={accessToken})

Docs: <https://docs.mapbox.com/>

## Mashup Use Cases and Services

### User Story 1: Getting the latest Headlines

As a	News Reader
I want	To see a list of all the breaking news and their sources
So that	I can be aware of all the important news, from around the world

In this first user story case, for showing the latest headlines from around the world along with their host's location on a map, firstly I am making use of the endpoint "Top Headlines" from News API to retrieve all the headlines that are relevant in the present time. Then from the URL of the headlines, the hostname is retrieved using a Node package, which is then processed using IP-API for getting the coordinates. And finally, the coordinates are used as input of the Mapbox API to show them on a map tile.

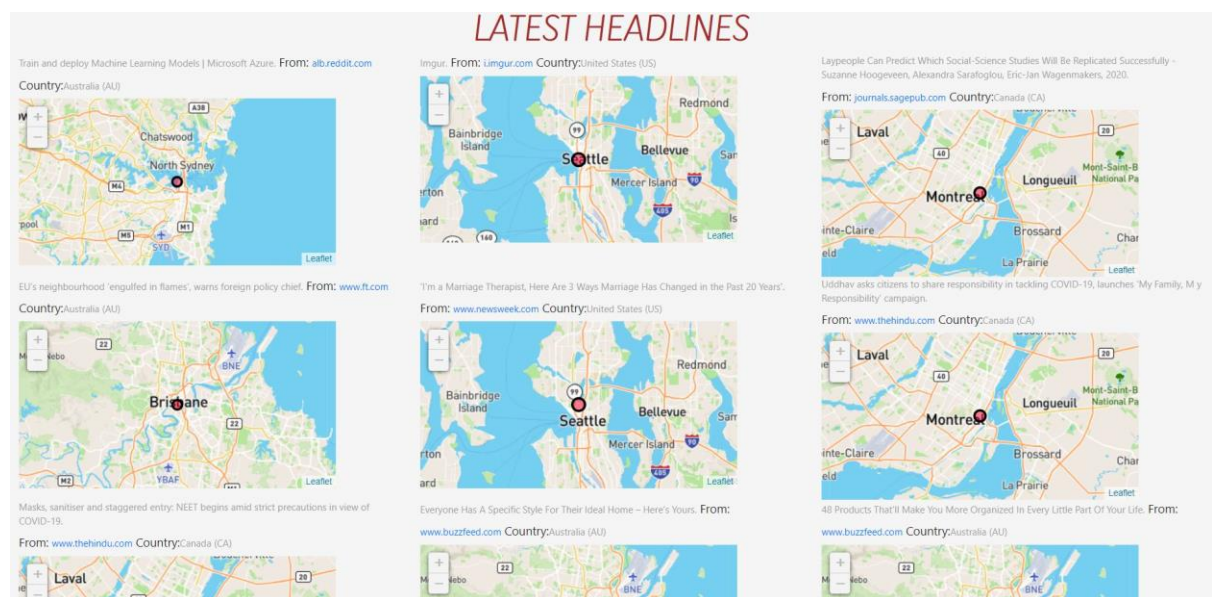


Figure 3: Latest Headlines along with their host location on the map.

### User Story 2: Getting News based on search term

As a	News reader
I want	The application to be able to get news based on a search term
So that	I can see and access all the news about anything I like

This application also provides the functionality of retrieving and viewing news based on the user's input. Similar to the first user story, I am using the News API to retrieve the news articles, but this time, via the "Everything" endpoint, which allows me to retrieve news based on query. After getting all the news for the search term, they will be listed on a table with their original host link, accessible for the user.

## Find News

Find what's happening around the world.....

Figure 3: Search tab for the user to entry their input

Find News			
UFC			
Headline	Source	Published Date	Hosting Country
<a href="#">EA pulls ads from 'UFC 4' replays after widespread complaints</a>	<a href="#">www.engadget.com</a>	2020-09-06T19:40:23Z	Singapore (SG)
<a href="#">UFC 252: Stipe Miocic outpoints Daniel Cormier in Las Vegas to retain heavyweight title</a>	<a href="#">www.bbc.co.uk</a>	2020-08-16T05:29:30Z	United Kingdom (GB)
<a href="#">EA disables in-game adverts in UFC 4 after fan backlash - GamesRadar+</a>	<a href="#">www.gamesradar.com</a>	2020-09-06T12:19:00Z	United States (US)
<a href="#">Top Finishes: Frankie Edgar - UFC - Ultimate Fighting Championship</a>	<a href="#">news.google.com</a>	2020-08-19T14:00:02Z	Australia (AU)
<a href="#">UFC says signs deal to prepare Chinese Olympians - Reuters</a>	<a href="#">www.reuters.com</a>	2020-09-02T08:23:00Z	Australia (AU)
<a href="#">Mixed Martial Arts: Cormier aims to reclaim UFC belt to crown storied career - Reuters</a>	<a href="#">www.reuters.com</a>	2020-08-13T21:11:00Z	Australia (AU)
<a href="#">UFC 252 Miocic vs. Cormier: Start time, how to watch online and full fight card - CNET</a>	<a href="#">www.cnet.com</a>	2020-08-15T23:39:00Z	United States (US)
<a href="#">UFC 252 live stream: How to watch Miocic vs Cormier III online</a>	<a href="#">www.androidcentral.com</a>	2020-08-15T12:24:03Z	Canada (CA)
<a href="#">UFC 252 Embedded: Vlog Series - Episode 6 - UFC - Ultimate Fighting Championship</a>	<a href="#">www.youtube.com</a>	2020-08-15T02:24:51Z	United States (US)
<a href="#">EA Pulls Ads from 'UFC 4' Replays After Widespread Complaints</a>	<a href="#">games.slashdot.org</a>	2020-09-07T18:00:00Z	United States (US)
<a href="#">How to Watch What Happens at the Republican National Convention</a>	<a href="#">lifehacker.com</a>	2020-08-24T21:00:00Z	Canada (CA)

Figure 4: Search results and the list of relevant news related to the search term “UFC”.

## Technical breakdown

The News Portal application is designed to have minimum load on the client-side, putting most of the load to be performed in the server. The application was implemented in the front-end using the markup language HTML5 and for styling, the stylesheet language CSS3 was used. And the back-end was implemented using the Javascript scripting language, served by Node.JS server[4]. And the application is contained by a Docker container hosted by the EC2 of the Amazon Web Services on an Ubuntu 18.04 LTS.

### Server

On the server-side, when a GET request is received, the server gets the URLs of the news articles from the API News API, where the URL of each respective news article is processed using the node package “node-url” or simply “url” to retrieve the hostname for each news article’s link[5]. After the hostnames are retrieved, they are processed using the method *lookup()* of node package “dns” to further retrieve the IP addresses of the hosts[6]. The *lookup()* method takes in a hostname and sends back information of the hostname with its IP address through a callback function. The IP addresses are utilized by the API, IP-API to get the latitude, longitude and information of the host country of the respective hostnames, which is done by a POST request. The hostnames are sent in a batch to the IP-API for more efficient processing. And lastly the information obtained from the IP-API is sent to the client-side to be rendered and displayed to the application user.

### Client

The client side is responsible for rendering and displaying the desired results to the user of the News Portal application. On the client side, two types of GET requests are served. First functionality is displaying the top headlines, which were received as a JSON response and rendered along with the location they are hosted from on a map using the API Mapbox using the coordinates retrieved from



the server. And secondly, to send a query from the client to the back-end of the application, which is processed by the server and the response is sent in JSON format. The JSON response is rendered and displayed on the front-end in a table using HTML5. The front-end is rendered using the jQuery, a Javascript library with the use of AJAX(Asynchronous Javascript And XML), which is a browser built-in XMLHttpRequest type object used for requesting data from a server. And the rendered objects are displayed in the front-end using the HTML5 markup language, where the styling is done using Materialize framework, Bootstrap CSS and CSS3.

### Deployment and the Use of Docker

The News Portal application was deployed using Docker. It is hosted on Amazon Web Services' EC2. Ubuntu 18.04 LTS was used as a base for deploying the Docker image of the application. The necessary commands were written in Dockerfile. The maintainer was listed as "arik". NodeJS Stretch was used for deriving the build from the Docker Node image. After which, the environment port was set at port 3000. The Dockerfile then sets the working directory to /app. After which, *npm install* is ran, in order to make sure that the node packages are installed and the packages are placed in the docker image properly. And then the *npm start* is configured with ENTRYPOINT, which will allow to configure the container to run as an executable. And lastly the port was exposed to port 3000. Excerpts from the Dockerfile is attached in the Appendix A.

### Test plan

TASK	EXPECTED OUTCOME	RESULT	SCREENSHOT/S (APPENDIX B)
Retrieving Top Headlines	Top Articles Displayed at top of page	PASS	01-A
	Display location of publishing source in a Map	PASS	01-B
	Rendering of map	PASS	01-B
	Display url of the news article	PASS	01 – C
	The news article url is accessible	PASS	
	Link to article is redirecting in a new tab correctly	PASS	
Search Articles based on query	Typing a search term in the search tab	Pass	02– A
	Search tab receiving search term through press of "Return" on keyboard	PASS	02– A
	Display list of articles based on the query	PASS	02 – B
	Articles are placed in a table	PASS	02 – B
	The source, published date and hosting country are displayed in the table	PASS	02 – C
	Link to any article redirects correctly	PASS	02-B
Error Handling for Null input in the search tab	Display error message: "There was no input provided to the query"	PASS	03

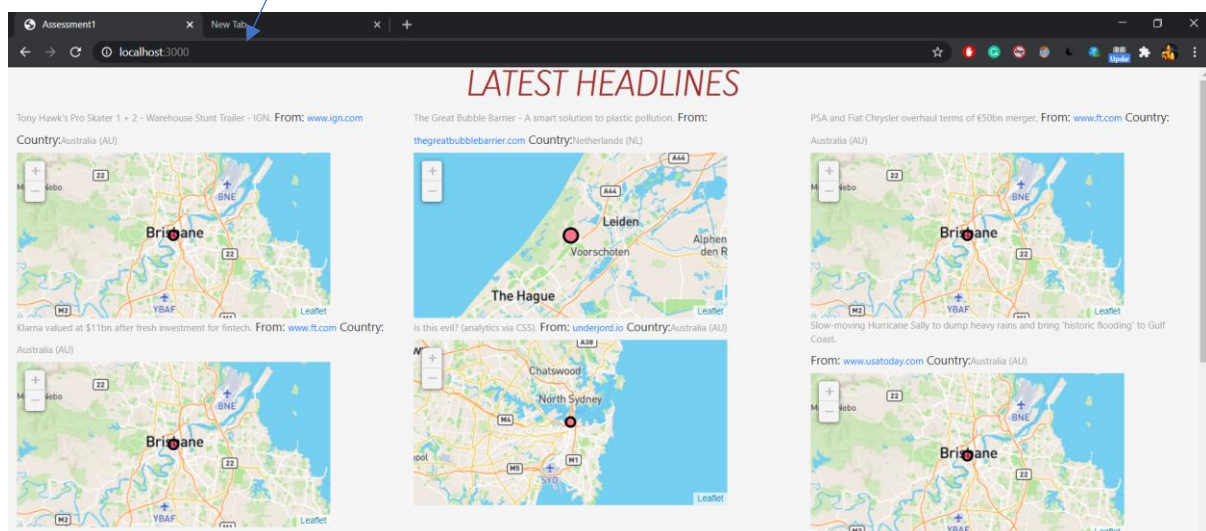
### Difficulties / Exclusions / unresolved & persistent errors

The News Portal application is running and functioning as intended. But still there were limitations that I couldn't overcome due to some limitations. I initially had issues rendering the coordinates to the map in the front-end using the Mapbox API. But after spending more time and researching about it, I was somewhat able to resolve it.

In terms of outstanding bugs, I had issues with the IP-API, as it didn't show me the original location of the host approximately. Rather, the coordinates received, were that of the nearest content delivery cache location.

## User guide

1. Run the application via Node using the command "node index.js"
2. Open a tab in a browser, and type <https://localhost:3000/>
3. The top headlines and their hosting location will get displayed.
4. There are 15 top headlines listed, which are scrollable.
5. Click on the url(*blue text*) of a host to be redirected to the host website.



6. Scroll down to the Search tab
7. Type the search term and press the Return key
8. Click on an headline to go to be redirected

Find News

ufd

Headline	Source	Published Date	Hosting Country
EA pulls ads from 'UFC 4' replays after widespread complaints	<a href="http://www.engadget.com">www.engadget.com</a>	2020-09-06T19:40:23Z	Singapore (SG)
UFC 252: Stipe Miocic outpoints Daniel Cormier in Las Vegas to retain heavyweight title	<a href="http://www.bbc.co.uk">www.bbc.co.uk</a>	2020-08-16T05:29:30Z	United Kingdom (GB)
EA disables in-game adverts in UFC 4 after fan backlash - GamesRadar+	<a href="http://www.gamesradar.com">www.gamesradar.com</a>	2020-09-06T12:19:00Z	United States (US)

## Statement on Assignment Demo

I am not going to be uploading a video and prefer F2F demo

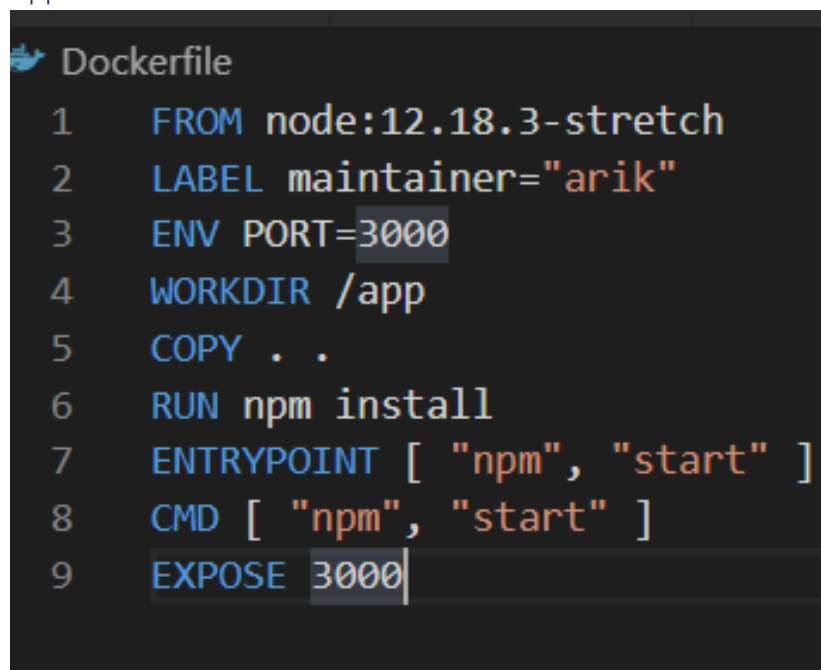


## References

- [1] IP-API, "IP-API", 2020. [Online]. Available:  
<https://ip-api.com/docs>. [Accessed: 14- Sep- 2020].
- [2] News API, "News API", 2020. [Online]. Available:  
<https://newsapi.org/docs>. [Accessed: 14-Sep-2020].
- [3] Mapbox, "Mapbox- Static Images API", 2020. [Online]. Available:  
<https://newsapi.org/docs> . [Accessed: 14-Sep-20 20].
- [4] Node.js, "API reference documentation", 2020. [Online]. Available:  
<https://nodejs.org/en/docs/>. [Accessed: 15-Sep-2020].
- [5] url, "node-url", MIT, 2020. [Online]. Available:  
<https://www.npmjs.com/package/url> [Accessed: 15-Sep-20 20].
- [5] dns, "npm", 2020. [Online]. Available:  
<https://www.npmjs.com/package/dns>. [Accessed: 15-Sep-20 20].

## Appendices

### Appenedix A – Dockerfile

A screenshot of a code editor showing a Dockerfile. The title bar of the editor is labeled 'Dockerfile' with a small icon. The code is as follows:

```
1 FROM node:12.18.3-stretch
2 LABEL maintainer="arik"
3 ENV PORT=3000
4 WORKDIR /app
5 COPY . .
6 RUN npm install
7 ENTRYPOINT [ "npm", "start" ]
8 CMD [ "npm", "start" ]
9 EXPOSE 3000
```

## Appenedix B – Test Plan

### Tests-01

01-B

01-C

01-A

**LATEST HEADLINES**

Tony Hawk's Pro Skater 1 + 2 - Warehouse Stunt Trailer - IGN. From: [www.ign.com](http://www.ign.com)  
Country:Australia (AU)

If You Can't Identify Over 12 Of These Green Vegetables, You're A Fussy Eater. From: [www.buzzfeed.com](http://www.buzzfeed.com)  
Country:Australia (AU)

Alexei Navalny seen for 1st time since poisoning, in picture with family | CBC News. From: [www.cbc.ca](http://www.cbc.ca)  
Country:Australia (AU)

EY chairman admits 'regret' over Wirecard failures in letter to clients. From: [www.ft.com](http://www.ft.com)  
Country:Australia (AU)

Smoke Has Caused 'Temperature Forecasts to Go Crazy Plus An Update. From: [cliffmass.blogspot.com](http://cliffmass.blogspot.com)  
Country:Australia (AU)

JUST IN | ANC to reimburse govt for party delegation's Zim trip on airforce jet. From: [www.news24.com](http://www.news24.com)  
Country:Canada (CA)

Eskom secures R2.5 billion worth of farmland as security for municipal debt. From: [www.news24.com](http://www.news24.com)  
Country:Canada (CA)

Eye Opener: Gulf Coast residents brace for Hurricane Sally. From: [www.cbsnews.com](http://www.cbsnews.com)  
Country:United States (US)

Dozens dead, at least 24 missing in western wildfires. From: [www.cbsnews.com](http://www.cbsnews.com)  
Country:United States (US)

## Tests-02

02-A

02-B

02-C

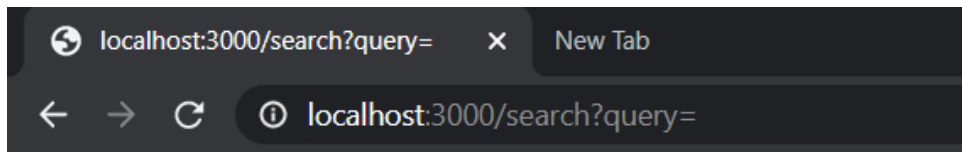
03

Find News

Sydney

Headline	Source	Published Date	Hosting Country
<a href="#">Back to Where They Started</a>	www.nytimes.com	2020-08-29T04:13:58Z	Australia (AU)
<a href="#">Theater to Stream: A World of Fringe and More Apples</a>	www.nytimes.com	2020-08-26T17:28:54Z	Australia (AU)
<a href="#">Sydney blue whale: Rare sighting was 'possibly third in 100 years'</a>	www.bbc.co.uk	2020-09-04T15:46:29Z	United Kingdom (GB)
<a href="#">Ruby Princess: Australian officials failed to carry out health checks</a>	www.bbc.co.uk	2020-08-18T11:46:36Z	United Kingdom (GB)
<a href="#">Coronavirus: 'Serious mistakes' made over Ruby Princess outbreak</a>	www.bbc.co.uk	2020-08-14T11:28:36Z	United Kingdom (GB)
<a href="#">Sydney FC youngster seals Brighton move - Reuters India</a>	in.reuters.com	2020-08-18T11:50:00Z	Australia (AU)
<a href="#">Soccer: Grant's extra time goal gives Sydney FC fifth A-League title - Reuters India</a>	in.reuters.com	2020-08-30T11:13:00Z	Australia (AU)
<a href="#">Australia owed Fahey a debt of gratitude for Sydney Games: AOC - Reuters India</a>	in.reuters.com	2020-09-12T08:30:00Z	Australia (AU)
<a href="#">Inconsistent Sydney still confident of clinching A-League title - Reuters India</a>	in.reuters.com	2020-08-16T06:27:00Z	Australia (AU)
<a href="#">Sydney took to create history in A-League final - Reuters India</a>	in.reuters.com	2020-08-29T05:01:00Z	Australia (AU)
<a href="#">Australia lights Olympic cauldron 20 years after Sydney Games - Reuters</a>	www.reuters.com	2020-09-15T03:19:00Z	Australia (AU)

## Tests-03



03

`{"error": "There was no input provided to the query."}`

Complexity is 7 It's time to do something...

```
search = async (req, res) => {  
  const { query } = req.query;  
  
  //CHECK parameter query and send bad response if eligible  
  if (query == "" || query == undefined || query == null) {  
    res.status(StatusCode.BAD_REQUEST).json({  
      error: "There was no input provided to the query.",  
    });  
    return;  
  }  
}
```