### [IS216] Extra Exercises - Week 6 - Javascript JSON/Ajax

#### **Objectives**

- To understand how dynamic, interactive web pages can be built using JavaScript
- To use JavaScript to build dynamic, interactive HTML web pages.

#### Instructions

- Questions with no asterisk mark are easy peasy.
- Questions marked with \* are slightly challenging.
- Questions marked with \*\* are challenging.
- Questions marked with \*\*\* are very challenging.

**NOTE:** If you spot any mistakes/errors in the questions, please contact your instructors by email and state the issues. We will try to address it as soon as possible.

Chat (*)	2
Internet Archive Search (*)	4
Part 1 - Search	4
Part 2 - Toggle shorter & longer description (**)	7
Weather forecast (*)	7
Part 1 - Singapore 4-days weather forecast (***)	7
Part 2 - Singapore 24-hour weather forecast (*)	8
Part 3 - Singapore 2-hourly weather forecast (***)	9
Part 4 - Navigation bar (*)	9
Urban Dictionary Search (*)	10
Search & display results	10

# 1. Chat (\*)

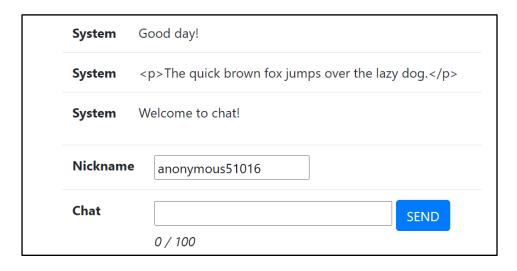
#ajax #bootstrap

Resource: Folder 'chat'

- 1. Create a folder 'chat' in your WAMP web root folder and
  - a. Copy the given resource into it.
  - b. Create login.html file

If done correctly, the folder structure should look like this:

- 2. The **chat.php** simulates mockup JSON Web API for sending and receiving text messages. Look at the given code to understand the required HTTP protocol and parameters, and the expected response.
- 3. **NOTE:** The chat.php is hosted on your local WAMP server.
  - a. Make your AJAX call to <a href="http://localhost/chat/server/chat.php">http://localhost/chat/server/chat.php</a>. If you have placed the resources in another folder, remember to modify the URL accordingly.
  - b. The solution's chat.html accesses the web API using relative URL. If you wish to run the solution, you can either
    - i. Modify the URL accordingly, or
    - ii. Access chat.html via your WAMP server; i.e. <a href="http://localhost/chat/chat.html">http://localhost/chat/chat.html</a>
- 4. You are to create chat.html that looks like this



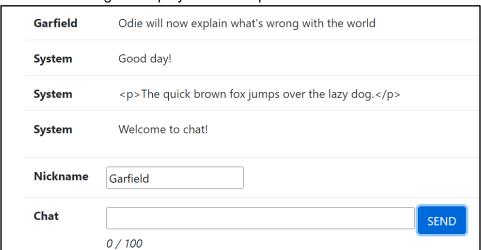
- 5. Upon page load, call chat.php to get the past messages.
- 6. **Notice** that the " ... " is displayed safely. Your code should handle the HTML special characters safely. (\*\*)
- 7. Generate a random nickname for the current user. E.g. prefix "anonymous" and append with a random integer value.
- 8. If the user enters a nickname shorter than 3 characters, display an error message immediately.



9. As the user types his chat message, the number of characters (below the input field) is updated in real time.

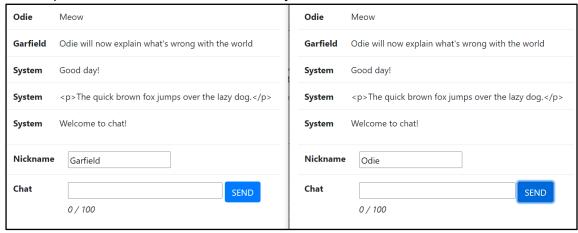


10. When the user presses "ENTER" or click the "SEND" button, call the web API to send the message. The new message is displayed at the top.

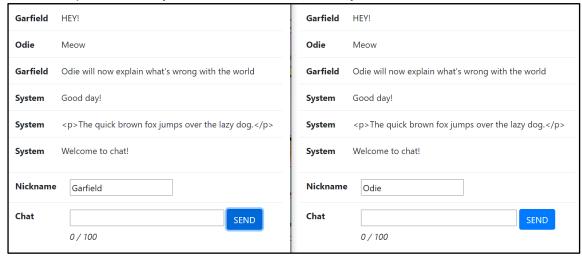


11. The page updates the messages every 1 second so that the user can see the latest messages from other users.

a. Odie replies. Garfield receives it without any additional action



b. Garfield replies. Similarly, Odie receives it without any additional action



# 2. Internet Archive Search (\*)

#ajax #bootstrap
Resource: nil

#### Part 1 - Search

<u>Internet Archive</u> is a non-profit digital library offering free universal access to books, movies & music, as well as 439 billion archived web pages. It provides a search API to sieve through its content.

The following sample URL looks for content with "funny cat" in its title or description and returns at most 5 results.

https://archive.org/advancedsearch.php?fl[]=identifier&fl[]=title&fl[]=descript ion&fl[]=mediatype&fl[]=year&sort[]=&sort[]=&sort[]=&rows=5&page=1&output=json&q=description:"funny cat" OR title:"funny cat"

Sample results

```
"responseHeader": {
           "status": 0,
           "QTime": 62,
           "params": {
                 "query": "description:\"funny cat\" OR title:\"funny cat\"",
                 "qin": "description:\"funny cat\" OR title:\"funny cat\"",
                 "fields": "identifier, title, description, mediatype, year",
                 "wt": "json",
                 "rows": "5",
                 "start": 0
           }
     },
     "response": {
           "numFound": 49,
           "start": 0,
           "docs": [{
                 "description": "MANGA: The Salary Man & Tofu the Funny Cat",
                 "identifier": "manga The Salary Man_Tofu_the_Funny_Cat",
                 "mediatype": "texts",
                 "title": "MANGA: The Salary Man & Tofu the Funny Cat"
           }, {
                 "description": "Funny Cat",
                 "identifier": "pisica",
                 "mediatype": "movies",
                 "title": "pisica",
                 "year": "2019"
           }, {
                 "description": "funny cat",
                 "identifier":
"BeautifulKittenMeowingHermosoGatitoMaullandoAdorableCute",
                 "mediatype": "movies",
                 "title": "Beautiful Kitten Meowing Hermoso Gatito Maullando
Adorable Cute"
           }, {
                 "description": "Funny cat",
                 "identifier": "IMG0254",
                 "mediatype": "movies",
                 "title": "IMG 0254",
                 "year": "2013"
           }, {
                 "description": ["24 unnumbered pages : 23 cm", "This rebus
book is about Otto, a funny cat", "\"Ages 3-5\"--Cover", "Includes 24 flash
cards", "\"Ages 3-5\"--Cover", "This rebus book is about Otto, a funny cat"],
                 "identifier": "ottocat0000herm",
                 "mediatype": "texts",
                 "title": "Otto the cat",
                 "year": "1995"
           }
]
     }
```

Note the following for each element in the property "response.docs"

- a. Property "description" can be either a string or an array
  - i. E.g. The last element's description is an array
  - ii. https://www.w3schools.com/jsref/jsref isarray.asp

- b. Property "year" may not be present
  - i. E.g. The first element does not have a year.
  - ii. Hint: obj.hasOwnProperty( "propName") returns true if obj has a property "propName". See <a href="https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global Objects/Object/hasOwnProperty">https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global Objects/Object/hasOwnProperty</a>
- c. To view a particular result, link to https://archive.org/details/<identifier> where <identifier> is to be replaced by the value of property "identifier"
  - i. E.g. The last element's identifier is "ottocat0000herm", thus, link to https://archive.org/details/ottocat0000herm

Create a search page that allows users to enter a search phrase and retrieve up to 50 results.

Upon initial loading,

Search	Search Internet Archive					
Search	GO!					

After clicking 'Go!' button,

		et Archive
earch funny cat 9 results found.		GO!
Title (Year)	Media	Description
MANGA: The Salary Man & Tofu the Funny Cat	texts	MANGA: The Salary Man & Tofu the Funny Cat
Beautiful Kitten Meowing Hermoso Gatito Maullando Adorable Cute	movies	funny cat
pisica (2019)	movies	Funny Cat
INAC 0254 (2012)	movies	Eunny cat

- Title (Year) takes up 25% of the width and is linked to the result; i.e. https://archive.org/details/<identifier>
- If description is an array, each element of the description is on a separate line. See the 3rd result in the screenshot below

## Part 2 - Toggle shorter & longer description (\*\*)

If the description is more than 100 characters,

- a. Display the first 97 characters and append with "...". See the 2nd and 4th results in the screenshot below.
- b. Upon clicking the "[+]", display the full description. See the 3rd result below.
- c. Upon clicking the "[-]", display the shorter description again.

If the description is 100 characters or less, just display it. See the 1st result below.

funny-cat-gifs18	texts	ahmad
Funny Cat With A Moustache (2006)	movies	[+] Old but gold video that shouldn't be forgotten Video URL (YouTube): https://www.youtube.com/
Otto the cat (1996)	texts	[-] 22 pages : 23 cm This rebus book is about Otto, a funny cat "Ages 3-5" Cover Includes 24 flash cards
Funny cat screaming while mating thumbnail	image	[+] This file was stored at "/sdcard/DCIM/.thumbnails/1487527595282.jpg" 1487527595282.jpg is an aut

#### References:

- https://archive.org/
- http://blog.archive.org/developers/
- https://archive.org/advancedsearch.php#raw

# 3. Weather forecast (\*/\*\*\*)

#ajax #bootstrap
Resource: nil

## Part 1 - Singapore 4-days weather forecast (\*\*\*)

Create the following web page using <a href="https://data.gov.sg/dataset/weather-forecast?resource\_id=9a8bd97e-0e38-46b7-bc39-9a2cb4a53a62">https://data.gov.sg/dataset/weather-forecast?resource\_id=9a8bd97e-0e38-46b7-bc39-9a2cb4a53a62</a> API to display the 4-days weather forecast.

## 4-days

		Temperature		Hu	mid	Wind			
Date	Forecast	Low	High	Low	High	Direction	Low	High	
2020- 05-27	Afternoon thundery showers.	25	34	50	95	SW	5	15	
2020- 05-28	Afternoon thundery showers.	25	34	50	95	SE	5	15	
2020- 05-29	Morning thundery showers, and again in the late afternoon.	25	33	55	95	SW	5	15	
2020- 05-30	Afternoon thundery showers.	24	34	55	95	S	5	15	

Note that the JSON response has multiple forecasts with different update times. Display the **last** item aka latest update time.

## Part 2 - Singapore 24-hour weather forecast (\*)

Create the following web page using <a href="https://data.gov.sg/dataset/weather-forecast?resource\_id=9a8bd97e-0e38-46b7-bc39-9a2cb4a53a62">https://data.gov.sg/dataset/weather-forecast?resource\_id=9a8bd97e-0e38-46b7-bc39-9a2cb4a53a62</a> API to display the 24-hour weather forecast.

#### 24-hours dated 2020-05-26 11:52H

## **Thundery Showers**

	Low	High
Temperature	25	34
Humid	50	95
Wind Speed (SE)	10	20

Start	End	North	South	East	West	Central
2020-05-	2020-05-	Thundery	Partly Cloudy	Partly Cloudy	Thundery	Thundery
26T12:00:00+08:00	26T18:00:00+08:00	Showers	(Day)	(Day)	Showers	Showers
2020-05-	2020-05-	Partly Cloudy				
26T18:00:00+08:00	27T06:00:00+08:00	(Night)	(Night)	(Night)	(Night)	(Night)
2020-05-	2020-05-	Partly Cloudy				
27T06:00:00+08:00	27T12:00:00+08:00	(Day)	(Day)	(Day)	(Day)	(Day)

Similarly, the JSON response has multiple forecasts with different update times. Display the **last** item aka latest update time.

## Part 3 - Singapore 2-hourly weather forecast (\*\*\*)

Create the following web page using <a href="https://data.gov.sg/dataset/weather-forecast?resource\_id=9a8bd97e-0e38-46b7-bc39-9a2cb4a53a62">https://data.gov.sg/dataset/weather-forecast?resource\_id=9a8bd97e-0e38-46b7-bc39-9a2cb4a53a62</a> API to display the 2-hourly weather forecast.



There are more rows below that are not shown.

#### A zoom-in screenshot

#### 2-Hourly dated 2020-05-26

Area	00:30- 02:30	01:00- 03:00	01:30- 03:30	02:00- 04:00	02:30- 04:30	03:00- 05:00	03:30- 05:30	04:00- 06:00	04:30- 06:30	05:00- 07:00	05:30- 07:30	06:00- 08:00	06:30- 08:30	07:00- 09:00	07: 09:
Ang Mo Kio											Partly	Cloudy			
Bedok														Partly Cl	loudy
Bishan											Partly	Cloudy			
Boon Lay									P	artly Cloud	dy				

- a. The JSON response may have multiple forecasts for 2-hourly time slots with different update times; i.e. there may be 2 or more elements in property "items" with "validity\_period.start" equals to 10:00:00. Display the **last** item aka latest update time.
- b. There are forecasts "Partly Cloudy (Night)" and "Partly Cloudy (Day)". Display both of them as just "Partly Cloudy".
- c. For a particular area, merge continuous cells that have the same forecast; i.e. colspan accordingly and display the forecast once.

## Part 4 - Navigation bar (\*)

2-hourly 24-hour 4-days

Add a bootstrap navigation bar to link up all 3 pages.

4-days								
		Temperature		Hu	mid	Wind		
Date	Forecast	Low	High	Low	High	Direction	Low	High
2020-05-27	Afternoon thundery showers.	25	34	50	95	SW	5	15
2020-05-28	Afternoon thundery showers.	25	34	50	95	SE	5	15
2020-05-29	Morning thundery showers, and again in the late afternoon.	25	33	55	95	SW	5	15
2020-05-30	Afternoon thundery showers.	24	34	55	95	S	5	15

Note: 4-days link is disabled.

2-hourly 24-hour 4-days

#### 24-hour dated 2020-05-26 11:52H

#### **Thundery Showers**

							High		
Temperature					25 34				
Humid				50			95		
Wind Speed (SE)				10			20		
Start	End	North South			East W		st	Central	

Note: 24-hour link is disabled.

2-hourly 24-hour 4-days 2-Hourly dated 2020-05-26 07:3 01:00-01:30-02:00-02:30-05:00-06:00-07:00-03:00-03:30-04:00-04:30-05:30-06:30-02:30 03:00 03:30 04:00 04:30 06:00 07:00 07:30 08:00 08:30 09:00 Ang Mo Kio Partly Cloudy Bedok Partly Cloudy Bishan Partly Cloudy Partly Cloudy **Boon Lav Bukit Batok** Partly Cloudy **Bukit Merah** Partly Cloudy **Bukit** Partly Cloudy

Note: 2-hourly link is disabled.

# 4. Urban Dictionary Search (\*)

#ajax #bootstrap

Note: No resource given

## Search & display results

<u>Urban Dictionary</u> is a crowdsourced online dictionary for slang words and phrases, operating under the motto "Define Your World." The API provided is obtained through RapidAPI. You will need to register to access this. Simply use your SMU google account on the registration page.

The following sample URL looks for the term "programmer" and returns 10 results.

https://mashape-community-urbandictionary.p.rapidapi.com/define?term=programmer

#### Sample results (there are 10 but showing only 3 with the last 7 removed for easier reading)

```
"list": [
        {
            "definition": "A person who is [paid] to professionally [scream]
at a [computer].",
            "permalink": "http://programmer.urbanup.com/13009271",
            "thumbs up": 62,
            "sound urls": [],
            "author": "MidnightWasTwoHoursAgo",
            "word": "Programmer",
            "defid": 13009271,
            "current vote": "",
            "written on": "2018-06-18T00:00:00.000Z",
            "example": "Programmer: \"AAAAAAAAHHHHHHHHHHHHHHHHHHHHH-oh, it
[works].\"",
            "thumbs down": 4
        },
            "definition": "pro [gram] [mer] (n) An [organism] capable of
converting caffeine into code.",
            "permalink": "http://programmer.urbanup.com/1546278",
            "thumbs up": 715,
            "sound urls": [],
            "author": "its allgood",
            "word": "Programmer",
            "defid": 1546278,
            "current vote": "",
            "written on": "2005-12-08T00:00:00.000Z",
            "example": "Programmer A \"You started on that program yet?
When's it due anyway?\"\r\n\r\nProgrammer B \"Nah, not yet, and its due
tomorrow morning at eight!\"\r\n\r\nProgrammer A \"Damn, you [gonna get it]
done in time?\"\r\n\r\nProgrammer B \"Yeah, I've got a bottle of [Stacker]
[II's] and a pot of coffee, I should be fine.\"",
            "thumbs down": 118
        },
            "definition": "One who can [read] [the following] [example]",
            "permalink": "http://programmer.urbanup.com/2616331",
            "thumbs up": 359,
            "sound urls": [],
            "author": "John Standish",
            "word": "programmer",
            "defid": 2616331,
            "current vote": "",
            "written on": "2007-10-04T00:00:00.000Z",
            "example": "if( ![User].IsProgrammer ) { \r\n [return]
\"Everyone [Else]\";\r\n}",
            "thumbs down": 66
        }
    1
```

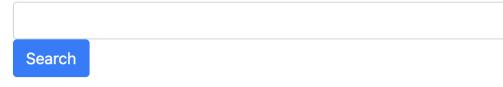
Note the following for the returned data

- a. It is returned as an object with the key "list", the value is an array of objects
- b. When there are no results, the list will still be returned with an empty array.

Create a search page that allows users to enter a search phrase.

Upon initial loading,

# **Urban Dictionary Search**



After clicking 'Search' button,

## **Urban Dictionary Search**

		_
program	mer	

### **Results**

Definition	Author	Thumbs Up	Thumbs Down
A person who is [paid] to professionally [scream] at a [computer].	MidnightWasTwoHoursAgo	62	4
pro·[gram]·[mer] (n) An [organism] capable of converting caffeine into code.	its_allgood	715	118
One who can [read] [the following] [example]	John Standish	359	66
A [programmer] is a human, rock, or any other object capable of turning pizza and [caffeine] into code. Programmers [minds] are very complex - they like to explain things in ways that a normal human would not understand, and makes jokes that only programmers would laugh at.	Quojil	49	9
Semi-sentient being who [inexplicably] survives an extremely unhealthy lifestyle. Usually found in [confined] spaces with low lighting, at a computer [terminal].	Anza Sumeragi	263	133

- Display the list of results for the following fields:
  - o definition
  - author
  - o thumbs\_up
  - o thumbs down
- There are more fields than the chosen field. You can look at the returned JSON data to see all the fields and use more of the fields if you like.

If there are no results,

# **Urban Dictionary Search**

funnyunknownword

Search

No results found.