

[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.

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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:

```
<web root>
+- chat\
    |
    +- server\      (given resource)
    | +- chat.php
    | +- chat.json
    |
    +- chat.html      (to do)
```

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 <http://localhost/chat/server/chat.php>. 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. <http://localhost/chat/chat.html>
4. You are to create chat.html that looks like this

System

Good day!

System

<p>The quick brown fox jumps over the lazy dog.</p>

System

Welcome to chat!

Nickname

anonymous51016

Chat

SEND

0 / 100

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

Nickname

Must be at least 3 characters

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

Chat

Odie will now explain what's wrong with the world

SEND

49 / 100

- 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.

Garfield

Odie will now explain what's wrong with the world

System

Good day!

System

<p>The quick brown fox jumps over the lazy dog.</p>

System

Welcome to chat!

Nickname

Garfield

Chat

SEND

0 / 100

- 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

Odie Meow	Odie Meow
Garfield Odie will now explain what's wrong with the world	Garfield Odie will now explain what's wrong with the world
System Good day!	System Good day!
System <p>The quick brown fox jumps over the lazy dog.</p>	System <p>The quick brown fox jumps over the lazy dog.</p>
System Welcome to chat!	System Welcome to chat!
Nickname <input type="text" value="Garfield"/>	Nickname <input type="text" value="Odie"/>
Chat <input type="text"/> <input type="button" value="SEND"/>	Chat <input type="text"/> <input type="button" value="SEND"/>
0 / 100	0 / 100

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

Garfield HEY!	Garfield HEY!
Odie Meow	Odie Meow
Garfield Odie will now explain what's wrong with the world	Garfield Odie will now explain what's wrong with the world
System Good day!	System Good day!
System <p>The quick brown fox jumps over the lazy dog.</p>	System <p>The quick brown fox jumps over the lazy dog.</p>
System Welcome to chat!	System Welcome to chat!
Nickname <input type="text" value="Garfield"/>	Nickname <input type="text" value="Odie"/>
Chat <input type="text"/> <input type="button" value="SEND"/>	Chat <input type="text"/> <input type="button" value="SEND"/>
0 / 100	0 / 100

2. Internet Archive Search (*)

#ajax #bootstrap

Resource: nil

Part 1 - Search

[Internet Archive](https://archive.org/) 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[]=description&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": "BeautifulKittenMeowingHermosoGatitoMauillandoAdorableCute",
      "mediatype": "movies",
      "title": "Beautiful Kitten Meowing Hermoso Gatito Mauillando 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
- E.g. The first element does not have a year.
 - Hint: `obj.hasOwnProperty(“propName”)` returns true if obj has a property “propName”. See https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Object/hasOwnProperty
- 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”
- 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 Internet Archive

Search

GO!

After clicking ‘Go!’ button,

Search Internet Archive

Search

GO!

49 results found.

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
IMG 0254 (2013)	movies	Funny 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,

- Display the first 97 characters and append with "...". See the 2nd and 4th results in the screenshot below.
- Upon clicking the "[+]", display the full description. See the 3rd result below.
- 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 https://data.gov.sg/dataset/weather-forecast?resource_id=9a8bd97e-0e38-46b7-bc39-9a2cb4a53a62 API to display the 4-days weather forecast.

4-days

Date	Forecast	Temperature		Humid		Wind		
		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 https://data.gov.sg/dataset/weather-forecast?resource_id=9a8bd97e-0e38-46b7-bc39-9a2cb4a53a62 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
2020-05-26T12:00:00+08:00	2020-05-26T18:00:00+08:00	Thundery Showers	Partly Cloudy (Day)	Partly Cloudy (Day)	Thundery Showers	Thundery Showers
2020-05-26T18:00:00+08:00	2020-05-27T06:00:00+08:00	Partly Cloudy (Night)	Partly Cloudy (Night)	Partly Cloudy (Night)	Partly Cloudy (Night)	Partly Cloudy (Night)
2020-05-27T06:00:00+08:00	2020-05-27T12:00:00+08:00	Partly Cloudy (Day)	Partly Cloudy (Day)	Partly Cloudy (Day)	Partly Cloudy (Day)	Partly Cloudy (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 https://data.gov.sg/dataset/weather-forecast?resource_id=9a8bd97e-0e38-46b7-bc39-9a2cb4a53a62 API to display the 2-hourly weather forecast.

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	07:30-09:30	08:00-10:00	08:30-10:30	09:00-11:00	09:30-11:30	10:00-12:00	10:30-12:30	11:00-13:00	11:30-13:30	12:00-14:00	12:30-14:30	13:00-15:00	13:30-15:30	
Ang Mo Kio	Partly Cloudy																							Thundery Showers		Partly Cloudy		
Bedok	Partly Cloudy																											
Bishan	Partly Cloudy																							Thundery Showers		Partly Cloudy		
Boon Lay	Partly Cloudy																				Thundery Showers		Partly Cloudy		Thundery Showers			
Bukit Batok	Partly Cloudy																						Thundery Showers		Showers		Partly Cloudy	

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	07:30-09:30
Ang Mo Kio	Partly Cloudy														
Bedok	Partly Cloudy														
Bishan	Partly Cloudy														
Boon Lay	Partly Cloudy														

- 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.
- There are forecasts "Partly Cloudy (Night)" and "Partly Cloudy (Day)". Display both of them as just "Partly Cloudy".
- 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 (*)

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

[2-hourly](#) [24-hour](#) [4-days](#)

4-days

Date	Forecast	Temperature		Humid		Wind		
		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

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

Start	End	North	South	East	West	Central

Note: 24-hour link is disabled.

[2-hourly](#) [24-hour](#) [4-days](#)

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	07:30-09:30
Ang Mo Kio	Partly Cloudy														
Bedok	Partly Cloudy														
Bishan	Partly Cloudy														
Boon Lay	Partly Cloudy														
Bukit Batok	Partly Cloudy														
Bukit Merah	Partly Cloudy														
Bukit Panjang	Partly Cloudy														

Note: 2-hourly link is disabled.

4. Urban Dictionary Search (*)

#ajax #bootstrap

Note: No resource given

Search & display results

[Urban Dictionary](#) 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-urban-dictionary.p.rapidapi.com/define?term=programmer`

```
{
  "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: \"AAAAAAAAAAHHHHHHHHHHHHHHHHHHHHH-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
    }
  ]
}
```

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

Upon initial loading,

Urban Dictionary Search

After clicking 'Search' button,

Urban Dictionary Search

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:
 - definition
 - author
 - thumbs_up
 - 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.