🡺 Which of our tabs/subframe has the highest CPU/Energy Impact and what is the value?   
Which is consuming the most memory and what is the value?

*[Browser]* has the highest CPU/Energy Impact with a value of 6.2

*[GPU Process]* consumes the most memory with a value of 242,360k.

[API](https://en.wikipedia.org/wiki/Application_programming_interface) – Application Program Interface

a 🡺 What is sent via the API to another system?

The API receives input or request from a user, and it sends to the system

b 🡺 What is sent from the other system upon receipt of the API?

A request is sent back.

c 🡺 What character signals the beginning of a [query string](https://en.wikipedia.org/wiki/Query_string) in a [URI](https://en.wikipedia.org/wiki/Uniform_Resource_Identifier) / [URL](https://en.wikipedia.org/wiki/URL) ?

?

d 🡺 What character separates multiple key=value pairs?

&

e 🡺 What are three other terms for a [key=value pair](https://en.wikipedia.org/wiki/Attribute%E2%80%93value_pair)?

It called a named-value pair, key-value pair, or field-value pair.

The response to an API query is usually returned in the form of a [JSON](https://en.wikipedia.org/wiki/JSON) object. (XML is another slightly older format.)

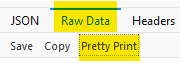
f 🡺 What does the JSON acronym stand for? What does a JSON object contain?

JSON stands for JavaScript Object Notation.

JSON objects contain attribute-value pairs and array data types.

g 🡺 What was your [API request](https://openweathermap.org/current#name) to get the weather for a city *other than Toronto* in metric units?

City name:   
Country Cod:   
API key: **fe781e059e25c50f460f226e052aaa0d**

h 🡺 What JSON data was returned from your API request?   
Using Firefox, copy the Raw Data from "Pretty Print" format, and paste below please.   


{

"coord": {

"lon": 126.98,

"lat": 37.57

},

"weather": [

{

"id": 804,

"main": "Clouds",

"description": "overcast clouds",

"icon": "04n"

}

],

"base": "stations",

"main": {

"temp": 283.86,

"feels\_like": 283.24,

"temp\_min": 283.15,

"temp\_max": 284.15,

"pressure": 1024,

"humidity": 87

},

"visibility": 10000,

"wind": {

"speed": 0.44,

"deg": 37

},

"rain": {

"1h": 0.1

},

"clouds": {

"all": 90

},

"dt": 1602624005,

"sys": {

"type": 1,

"id": 8117,

"country": "KR",

"sunrise": 1602625143,

"sunset": 1602665806

},

"timezone": 32400,

"id": 1835848,

"name": "Seoul",

"cod": 200

}

APIs to determine local time

🡺 TZ.1 What is the URL of your time zone API request for Toronto?

http://worldtimeapi.org/api/timezone/America/Toronto

🡺 TZ.2 What JSON data was returned from your Toronto time zone API request? Using Firefox, copy the Raw Data from "Pretty Print" format, and paste here please.

{

"abbreviation": "EDT",

"client\_ip": "118.32.95.181",

"datetime": "2020-10-13T17:26:11.458015-04:00",

"day\_of\_week": 2,

"day\_of\_year": 287,

"dst": true,

"dst\_from": "2020-03-08T07:00:00+00:00",

"dst\_offset": 3600,

"dst\_until": "2020-11-01T06:00:00+00:00",

"raw\_offset": -18000,

"timezone": "America/Toronto",

"unixtime": 1602624371,

"utc\_datetime": "2020-10-13T21:26:11.458015+00:00",

"utc\_offset": "-04:00",

"week\_number": 42

}

🡺 TZ.3 How do you convert from a UTC-Unix timestamp to a local timestamp? Use the [schema](http://worldtimeapi.org/pages/schema) (data format) to interpret the JSON data. The only thing not in that data is the local timestamp.

ISO8601-valid string representing the current, local date/time

🡺 TZ.4 In the TZ.2 JSON schema, find the values identified in the answer box below and paste. The only value not returned is Toronto’s local timestamp. Calculate and insert Toronto’s local timestamp value. Check it as noted above.

UTC Unix timestamp: 1602632404  
*represents*  
UTC date & time: "2020-10-13T23:40:04.595993+00:00"

Values to convert from Unix to Toronto timestamp: gmt -4

**Toronto Unix timestamp:** "2020-10-13T19:40:04.595993-04:00"   
*represents*  
Toronto date & time: ‬‬‬‬‬‬‬‬‬‬‬‬‬‬‬‬‬‬‬‬‬‬‬‬‬‬‬‬‬‬ Tue, 13 Oct 2020 19:40:04 -0400

SDLC – System Development Life Cycle

You can apply the SDLC process to anything that requires investigation, planning, and execution. e.g. your decision to come to Seneca, moving residences. In our case, apply the SDLC to the work you do for workshops in IPC144. How will you use the steps of software development to do your assignments more efficiently and effectively? Illustrate with an example from a recent assignment. (25 points in 5 steps below)

***What is the problem?***

🡺 **Determine**: This is largely given by the assignment specs but how do you become comfortable with the scope of the assignment? How do you create a plan to complete it?

To begin with, I try to understand the assignment. I carefully read the assignment that states the problem so that I become more comfortable with the assignment. Usually, I set a goal first, and then make a list of the order in which to work.

🡺 **Define** the detailed requirements. What do you do to fully understand the problem? How do you ensure you have a firm grasp of all inputs, processing, and outputs?

I need to understand what the problem asks me, insert input data which categorized data by subject or name, date, type, size, tag, etc into the code, see what the code brings about, and make sure it begets a correct output.

***What is the solution?***

🡺 **Design**: Please, don't jump into coding yet. How will you design a solution? Do you know the technical skills the solution requires? What about creating pseudocode or a flowchart to document the algorithm? Is there value in writing all the coding comments first? (The answer is yes.) How will the process of design help the development process?

Thinking in programming language from the stage of designing algorithms becomes a very difficult and exhausting task. However, if the code is laid out as if writing a paper in natural language, it will be less readable and the process of re-translating it at the coding stage is needed.

The pseudocode acts as a relay between these two disparate language systems, natural language and programming language. Each sentence uses an expression that is close to natural language, but it has properly taken the advantage of both languages by specifying the sequence of execution similar to the actual programming. Pseudo code, while allowing algorithms to be expressed more generally without being subordinate to a particular programming language.

🡺 **Develop**: How do you translate your solution's design into source code and commands, that is, how will the solution be implemented? What is your process of writing, building, testing, and debugging code or commands? *(Please do not send any source code...just a description of your development process.)*

I will use a compiler called Visual Studio 2019 to make a solution by changing my pseudo code to source code. First, create a project and source file. Enter the source code in the text editor. Now I will compile the source code that I entered, where I will build my solution by click the solution build form the menu. If error messages appear in this process, I have to find out what is wrong and fix it and rebuild it. The process of fixing this error is called debugging. The last is to execute the completed program.

🡺 **Deliver**: How do you manage the delivery and deployment of your project? Yes, there are required steps on the matrix server. How do you resolve issues when things do not work as expected? What do you do and how do you make changes to achieve a successful test? Finally, how do you conceive of what to write for the reflection text?

I can upload it on the matrix shell, and then compile it.

I need to check if my output is different from the perfect one, and if there is a difference, I should change it to match it. There is an error and it cannot be executed, I will run the visual studio again and debug to fix the error.

I will write in reflection about what I learned this week, what my mistakes were, and whether I used what I learned well.

IoT – Internet of Things

IoT is an object with embedded microcontrollers, sensors, actuators, *and network connectivity* that works without human interaction.

Many devices exist in the Internet of Things – start [Googling](https://www.google.ca/search?q=what+is+internet+of+things), see [IEEE](https://ieeexplore-ieee-org.libaccess.senecacollege.ca/xpl/RecentIssue.jsp?punumber=6488907).   
**Describe three IoT devices *that the world really needs* and why. What is the value added by its network connectivity? Invent your own or identify an existing device.** (see the notes below)

🡺 1. Smart Temperature Regulator : Using lo T, the temperature status of the time interval is checked to indicate the difference between inside and outside temperature, and automatically adjust the temperature to contribute to reducing energy cost.

🡺 2. Smart Mattress : People can check the breath and heartbeat of a sleeping person every hour and alert people in case of health problems.

🡺 3. Smart drone in forest : Following the pre-set route of the drone flying automatically, the state of the forest is collected in the air, or real-time video pictures or video data are interpreted to send the data to the local area immediately if any abnormalities or other changes are found in the forest.

Software Version

**Research the version of a software application** you use, such as a game, photo editor, browser, or IDE. Usually, the version can be found under the Help menu, About…

🡺What is the name of the software and its current version?

Microsoft Visual Studio Community 2019

Version 16.7.3

🡺What do the components of the version number mean?

It describes build number or build version 16   
For example,16.7.3 means 16.7.30611.23

🡺In what way would that software be [forward compatible](https://en.wikipedia.org/wiki/Forward_compatibility)?

If I can use new version input on this version

🡺What can you observe to indicate that the software is [backward compatible](https://en.wikipedia.org/wiki/Backward_compatibility)?

If I am able to open pervious version on this this version.

🡺Find the release notes for that software and include the URL, release date, a description of one of the latest changes.

[**https://docs.microsoft.com/en-us/visualstudio/releases/2019/release-notes#16.7.6**](https://docs.microsoft.com/en-us/visualstudio/releases/2019/release-notes%2316.7.6)

**Visual Studio 2019 version 16.7.6**

*released October 13, 2020*

**In this Release of Visual Studio 2019 version 16.7.6**

**We cannot generate shim for system.DateTime.**