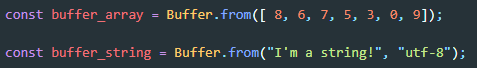
**COMP 3133 – Full Stack Development – Lab 3**

* Buffers and Socket.io

**Developer Note:**

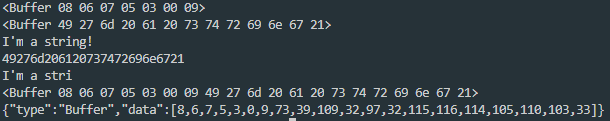
* Try to solve the problems without using search engines or stack overflow for the solutions.
* Create separate files for each exercise

**Exercise 1:**



* Write node script file that use the above two buffers and does the following:
  + convert **buffer\_string** to a **string** and output
  + convert **buffer\_string** to **hex** and output
  + convert **buffer\_string** to **utf-8** and read from **0 to 10**
  + join the **buffer\_array** and **buffer\_string** and output
  + convert the **joined\_buffer** to **JSON** and output *(using* ***Buffer.concat****)*

**Output**



***Buffer - Decode to String - Reference*** [**https://nodejs.org/api/buffer.html#buffer\_buf\_tostring\_encoding\_start\_end**](https://nodejs.org/api/buffer.html#buffer_buf_tostring_encoding_start_end) ***Buffer - Concatenation - Reference*** [**https://nodejs.org/api/buffer.html#buffer\_class\_method\_buffer\_concat\_list\_totallength**](https://nodejs.org/api/buffer.html#buffer_class_method_buffer_concat_list_totallength)

**Exercise 2:**



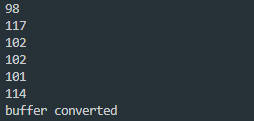
* Write a node script file that uses the buffer above and does the following:
  + creates a new **event emitter**
  + register an event emitter listener **'convert'**
  + when **'convert'** listener is called, a callback will iterate over the buffer elements and console log each string element
  + emits the **'convert'** event

***Event Emitter - Reference***

<https://nodejs.org/api/events.html#events_class_eventemitter>

***Buffer.from(array) - Reference***

<https://nodejs.org/api/buffer.html#buffer_class_method_buffer_from_array>

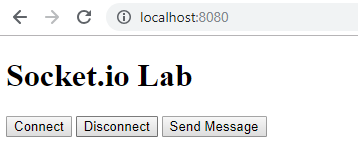
**Output** 

**Exercise 3:**

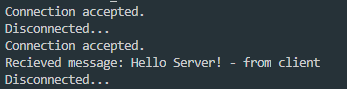
***Socket.io - Reference Documentation***

<https://socket.io/get-started/chat/>

* Use the **starter socket.io** application code and the socket.io documentation to do the following:
  + <https://github.com/georgebrowntech/comp3133_full_stack/tree/master/lab-solutions/Lab3>/ file in the git repo is named [socket-io-lab\_starter.zip](https://github.com/georgebrowntech/comp3133_full_stack/blob/master/lab-solutions/Lab3/socket-io-lab_starter.zip)
* **Server**
  + set up a listener event for any new socket.io connections and log it to the console
  + set up a listener for client sockets disconnecting and log it to console
  + setup a listener for messages sent from a client socket and log it to console
* **Client**
  + wire up the 'Connect' button to send a socket connect event
  + wire up the 'Disconnect' button to send a socket disconnect event
  + wire up the 'Send Message' button to send a 'Hello sever' message to server



**Output**



**Challenges**:

* Do one of the following Socket.io tutorials to build either a chat or game application.

<https://tinyurl.com/y9qkudzd> (Chat Application Tutorial)  
 <https://tinyurl.com/yabvn994> (Game Application Tutorial)