Meeting #10

11/11/21

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Deliverables

- Complete function to create epochbm_dict
- Document authored functions
- Work on repo readme file

Methodology and Learnings

- Did more research on vhdr files
  - BrainVision documentation
  - Timestamp placed in different location
    - Unable to pull out timestamp
- Fixed comments and uploaded pd_epoch_dict.py
- Worked on readme file

Results

Omar

```
Functions:
pd_epoch_dict(tobii_data, epoch_dict, eeg_ts)
  Function to return a dictionary containing the epcohs as keys and a list of boundaries and data as the values
Libraries:
- numpy

ADELE Dependencies:
- decisionTree_epochDetection
- getEpochbm_dict
- js_pupil_diameter
- read_eeg
ADELE Dependers:
- none

  Inputs:
tobii_data
  Pandas DataFrame containing the pupil diameter data with timestamp values as index.
epoch_dict
  Dictionary with predetermined epochs and boundaries.
eeg_ts
  The initial time of recording of the Tobii Pro Glasses 2 as a string.

  Outputs:
epochbm_dict
  Dictionary containing the integer value of the epochs as keys and a list containing the epoch boundaries and pupil diameter data
as the values.

Description:
  The pd_epoch_dict() function converts the eeg_ts timestamp into the datetime.datetime format. Then, the function iterates through the epoch_dict values
to convert the boundary values into the datetime.datetime format and appends the values to the l_epoch_ts list. For each epoch_dict value, the epoch boundaries are used to determine
which data values from tobii_data within that epoch. Those data values are appended to the l_list list. A tuple is created containing the epoch boundaries from l_epoch_ts and the data
values from l_list. The tuple created is appended to the list l_tps. Once all of the boundary and data tuples are stored, the epochbm_dict dictionary is created by using the zip() function
to pair the epoch_dict keys with the corresponding tuples from l_tps. The function then returns epochbm_dict.
```

```
json_to_dataframe(participant_filename, data_filename)
  Function to parse JSON files for pupil diameter data and start time.
Libraries:
- JSON
- pandas
- numpy
- dateime.dateime

ADELE Dependencies:
- None
ADELE Depenters:
- pd_epoch_dict

  Inputs:
participant_filename
  JSON file produced by running an experiment with the Tobii Pro Glasses 2 containing the information regarding the individual using the device as well as information about recorded data.
data_filename
  JSON file produced by running an experiment with the Tobii Pro Glasses 2 containing the data valuese recorded during the experiment.

  Outputs:
df_final
  The pandas DataFrame containing the left, right, and average pupil diameters as columns and the timestamps of the data as index values.

Description:
  The json_to_dataframe() function retrieves the initial time of the recording from the participant_filename using the get_ptimestamp() function and
the data recorded from the experiment using the get_data() function. Once the data is stored, it is used to create a dataframe that is reshaped through DataFrame.pivot() which
sets the timestamp values as the index and the left and right pupil diameters as the columns. The initial time of recording is then converted into a timestamp value and used
to adjust the values in the DataFrame. A final DataFrame with the converted index values and the left, right, and average pupil diameters is returned.

  Sub-Functions:
-get_ptimestamp(filename)
  Function that returns the inital time of the recording from the participant_filename.

  Inputs:
filename
  JSON file produced by running an experiment with the Tobii Pro Glasses 2 containing the information regarding the individual using the device as well as information about recorded data.

  Outputs:
dt_timestamp
  The initial time of recoding as a datetime.datetime object
```

6.3.2 Marker File

```
BrainVision Data Exchange Marker File, Version 1.0

[Common Infos]
Codepage=UTF-8
DataFile=example.eeg

[Marker Infos]
; Each entry: Mk<Marker number>=<Type>,<Description>,<Position in data points>,
; <Size in data points>, <Channel number (0 = marker is related to all channels)>
; Fields are delimited by commas, some fields might be omitted (empty).
; Commas in type or description text are coded as "\1".
Mk1=New Segment,,1,1,0,20130909192513857877
```

```
Brain Vision Data Exchange Marker File, Version 1.0
[Common Infos]
Codepage=UTF-8
DataFile=2020_06_04_T05_U00T_EEG01.eeg

[Marker Infos]
Mk1=Stimulus,35842,1,0,
Mk2=Stimulus,35843,2178,0,
Mk3=Stimulus,35842,2424,0,
```

Header file

```
[Comment]


Recording Start Time
2020-06-04 23:45:19.217


Channel    Name    Impedance (kOhm)    Offset (mV)
0    Fp1    16    5
1    Fp2    16    8
```