CS124P M2 ASSESSMENT (ATTENDANCE LOGGING SYSTEM)

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Features implemented in the attendance system:

- **GUI (**main_gui.py)
    - Made using Tkinter

- **Login (**facial_recognition_module.py**)**
    - Allows the student to log in via a video-capturing stream which will run for a given amount of time
    - For each frame in the video stream where a face is detected, the program checks, if the face detected, exists in the dataset
        - For each frame where a face is recognized, each name is added to a “frequently popped up” list and the program assesses which name popped up the most
        - The name that popped up the most is then logged into an Excel file (**attendance logs/date-of-login**) corresponding to the date they logged on, along with the time that they logged on
            - Note: if the Excel file of the current date is open, please close it before you try to log in as the program will not be able to access the file otherwise

- **Register (**encoding_module.py**)**
    - **NewStudent class**
        - Automatically creates a folder named after the student wherein it stores their dataset images for encoding
        - Enables students to upload images themselves
            - Also allows the cropping of images for faster encoding
        - Enables the student to pose while their pictures are being collected through a video-capturing stream
            - The video stream’s uptime is dependent on how many snapshots have been taken
            - For each frame that the video stream detects a face, a snapshot is taken and the rectangle (region of interest) is saved in the student’s dataset folder
                - *I was inspired by the Apple / mobile phone Face ID process in which they ask the user to slowly rotate their face so they can collect your face data*
    - **Regarding Encoding**
        - If the encoding function is run for the first time, it goes through each person’s folder and encodes them into the pickle file
            - If the pickle file is not found, a new one is created

        - Additionally, it ***<u>appends</u>*** the names that have already been encoded into a text file **(misc_files/processed_folders)** to avoid processing pictures that have already been encoded
- If a new student encodes their images, their encoded images are simply appended to the pickle file instead of creating a new pickle file each time the function is run