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| Functional Requirement Number | Functional Requirement Description | Functional Requirement Function(s)/Class(es) |
| FR1 | The system must be able to load DICOM files. | capapp.gui.start\_page()   * function containing the tkinter GUI where the user will be able to load the DICOM files and make predictions. * The page will contain three buttons (cancel,load image, and predict) to allow the user to close the window, load the file, and use the loaded data for prediction * Tkinter allows one to “load” a file by simply recording the absolute file path as opposed as literally loading the file as an object into the program.   capapp2.gui.load\_images()   * Function used to load the images through the use of the path collection by Tkinter’s filedialog module. |
| FR2 | The system must be able to make predictions based on loaded DICOM files. | capapp.gui.predict()   * Function within the custom GUI class used to begin the prediction procedure.   pipeline.extract\_data()   * Function which uses the pydicom library to read and extract useful data from the DICOM files. * Activated upon the user interaction with the predict button on the main page GUI.   pipeline.transform\_data()   * Function which uses basic python operations to prepare the data for model input.   models.tumor\_classifier()   * Function that uses TensorFlow’s Functional API to * Uses a combination of convolutional neural networks, pooling layers, and linear layers for final classification. * Outputs the prediction for use. * Activated once data is fully extracted from user selected files. |
| FR3 | The system must be able to display data extracted. | capapp2.gui.main\_dashboard()   * Displays the data within a dashboard format. * Contains a list of image files and some basic data related to the image file. * The list will also have a button to the right to allow the user to another frame that displays the targeted image.   capapp2.gui.download()   * Function that allows the download of a csv report containing the data together with the prediction.   capapp2.gui.plot()   * Plots the six charts. |