

ArSLR-ML Application

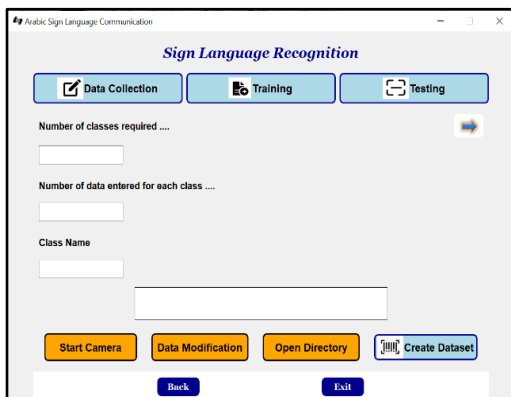
Main Page

When you click on this option, a page appears Sign Language Recognition

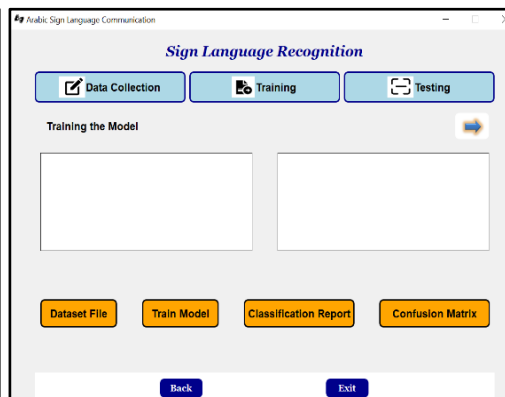


Sign Language Recognition Page

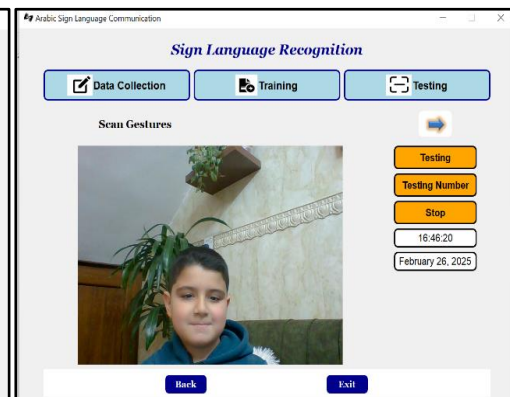
When you click on any option, a different interface appears like Data Collection (a), Training (b), and Testing (c)



(a)

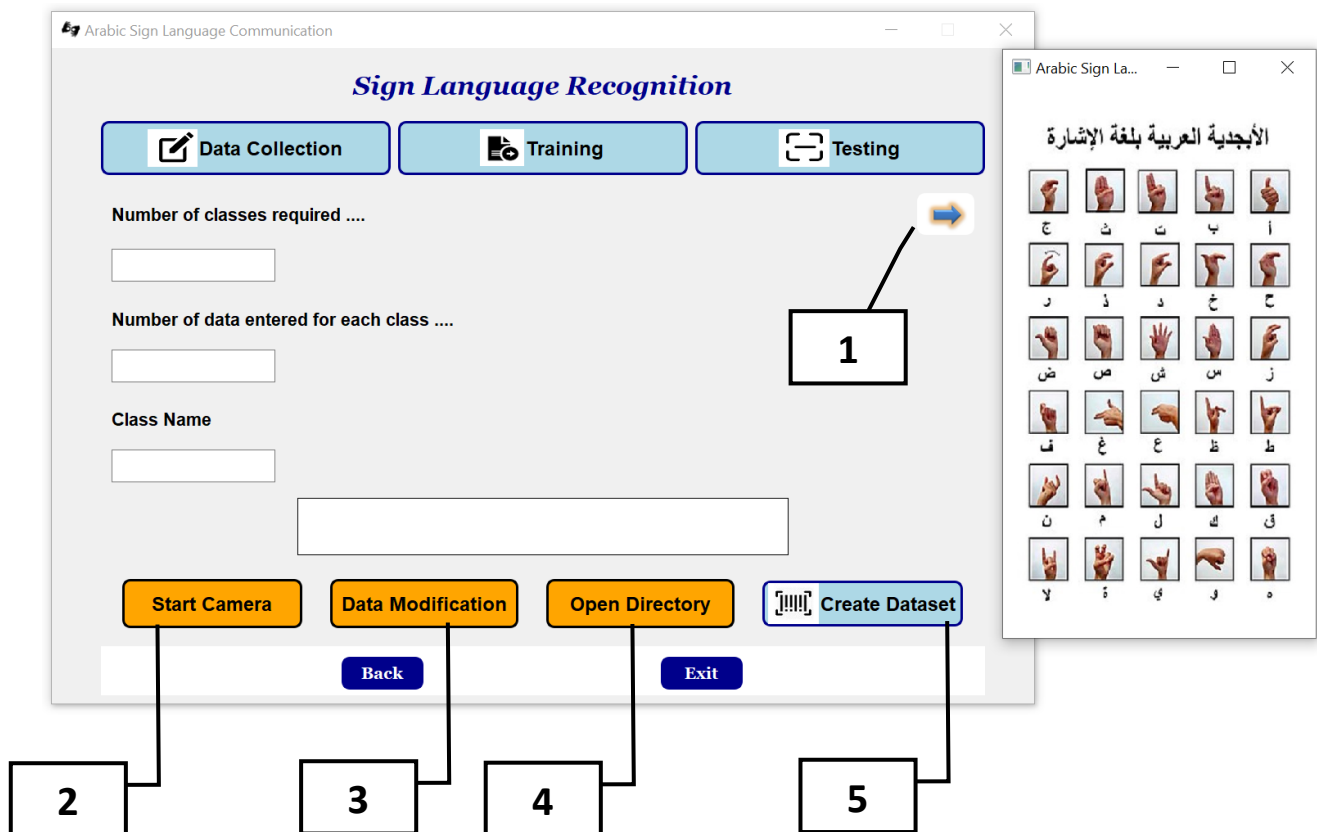


(b)



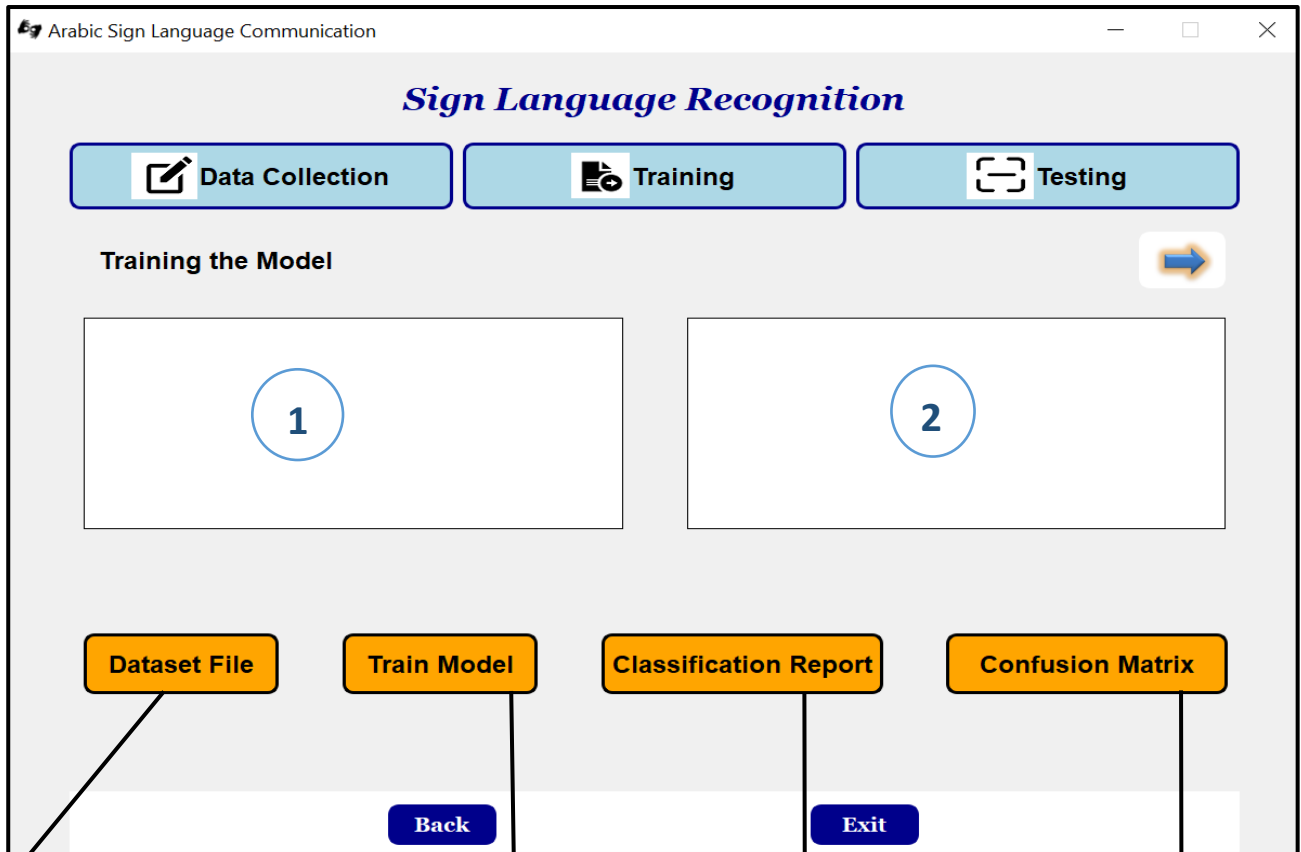
(c)

Data collection Option



- 1 When you click on this arrow, a sub-image of the Arabic sign language alphabet will appear. Therefore, this sub-image was placed to verify the shape during the process of taking the image for each sign, or during the prediction process in real time.
- 2 This option '**Start Camera**' creates the data that will be used after processing it and entering it into MediaPipe to create the Dataset used in training. Before clicking on the option "**Start Camera**", it is required to have a file "**arabic_labels_dict.txt**" which is a dictionary containing the names to create the required data folders (**classes**), as well as the number of classes through "**Number of required classes....**" and the number of images for each class through "**Number of data entered for each class....**".
- 3 As for the '**Data Modification**' option, we benefit from it when we find some images that are not good, or we want to modify a class by writing the class name through '**Class Name**', for example "ت", and then we specify the number of images for this class through '**Number of data entered for each class**'.
- 4 This option '**Open Directory**' provides direct access to a "**My Data**" directory.
- 5 When you click on this option '**Create Dataset**' it processes the images in the "**My Data**" directory, extracts the hand features and stores the results inside the 'Dataset.pickle' file.

Training Option



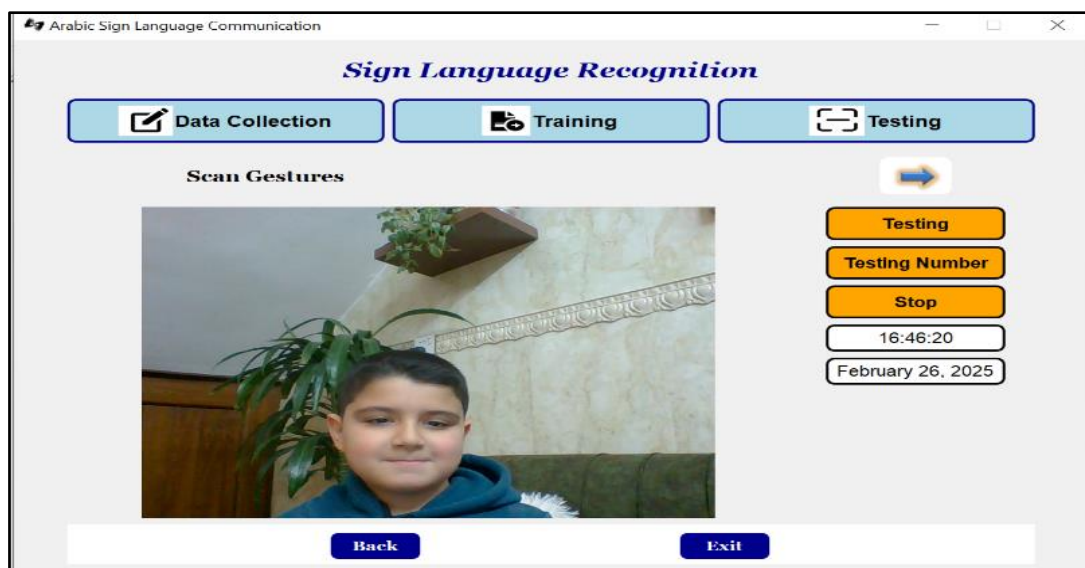
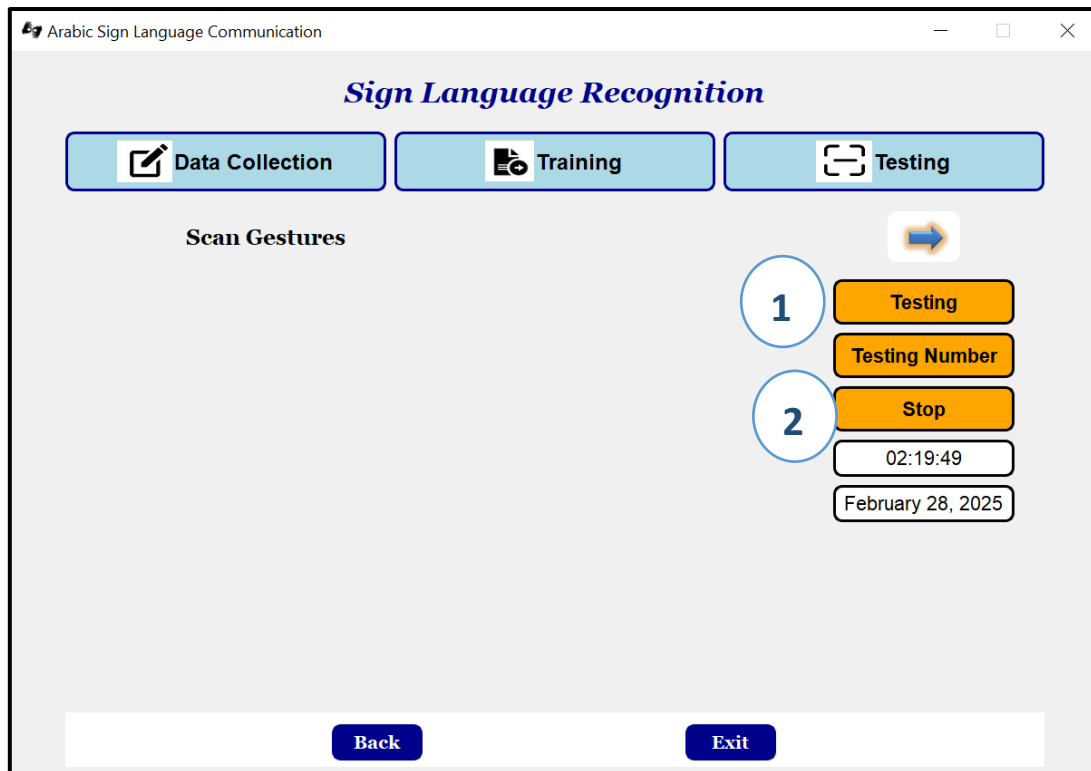
It opens a folder and makes sure that the dataset file exists

It performs the training start process and shows all the details of the total data number, training and examination data, and training time within 1 and 2.

Opens a text file to display the classification report.

Display confusion matrix as an image

Testing Option



This option '**Testing**' turns on the laptop camera and a window appears for us to perform the prediction process in real time, the result of the guess appears in the left corner with the accuracy value, and an Arabic sound is issued for the guessed value. As for the option '**Stop**', it turns off the camera.