

Front End of our Application to detect the Disease

Importing the necessary libraries

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In [23]: 1 import streamlit as st # using streamlit to create the UI of our application
2 import cv2
3 import numpy as np
4 from PIL import Image
5 from tensorflow.keras.models import load_model
```

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In [24]: 1 model = load_model('diab_retin.h5') # Loading the trained model
```

```
In [25]: 1 # About Page of our application
2 about = 'Diabetic retinopathy is caused by damage to the blood vessels in the tissue at the back of the eye (retina).
3         Poorly controlled blood sugar is a risk factor. Early symptoms include floaters, blurriness, dark areas of vis
4         difficulty perceiving colours. Blindness can occur. Mild cases may be treated with careful diabetes managemen
5         Advanced cases may require laser treatment or surgery. Diagnosis of this disease can be done with the fundus
```

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In [26]: 1 # Defining sidebar for Navigation
2 sd = st.sidebar.radio('NAVIGATION', ['Home', 'Prediction'])
```


```

In [27]: 1 if sd=='Prediction': #If in the sidebar prediction is selected run the included script
2         st.title('Diabetic Retinopathy Detection.')
3         uploaded_image=st.file_uploader('Upload the fundus image of the eye.')
```

file uploader to upload and process the image

```

4         if uploaded_image:
5             # converting the uploaded image to array and resizing it to 224x224 which is the input of our trained model.
6             file_bytes = np.asarray(bytearray(uploaded_image.read()), dtype=np.uint8)
7             opencv_image = cv2.imdecode(file_bytes,cv2.IMREAD_COLOR)
8             image=cv2.resize(opencv_image,(224,224))
9             st.write('The fundus image.')
```



```

10            disp=Image.fromarray(image)
11            RGB_img = cv2.cvtColor(image, cv2.COLOR_BGR2RGB)
12            st.image(RGB_img) #Displaying the uploaded image in the application
13
14            image=np.array(image).reshape(-1,224,224,3)
15
16            CATEGORIES = ['No_Diabetic Retinopathy','Mild_Diabetic Retinopathy','Moderate_Diabetic Retinopathy',
17                          'Severe_Diabetic Retinopathy','Proliferate_Diabetic Retinopathy']
18            prediction=CATEGORIES[np.argmax(model.predict(image))] # predicting the results
19            st.write('The above image has',prediction) # displaying the predicted results
20 else: # Home page of the application
21     st.header('About Diabetic Retinopathy')
22     st.write(about)
23     st.write('In this application we can detect 5 levels of the disease ranging from NO_DR to Proliferate_DR. In between
24              we have Mild, Moderate and Severe.')
25     st.subheader('Fundus Image of an eye')
26     st.image('FUNDUS2.jpg')
```

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In [ ]: 1
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