COSC 4355/6355 – Introduction to Ubiquitous Computing

Exercise - 8

November 10, 2022

Objective

Create an app that classifies images using ML model and performs text analysis operations: tokenize, lemmatize and sentiment analysis.

Motivation

You will learn how to use ML models and NLP operations.

Must Follow

You must follow the rules below. Otherwise, you will get **50% of your actual score.**

1. Start your XCode project "**Exercise8_LastName_FirstName**" (replace **LastName** with your last name and **FirstName** with your first name).
a. **DON'T DO** the following:
   i. Start with any other project name and change the zip file name later.
   ii. This will not be accepted at all.

2. You must have to do the exercise compatible with **XCode version 14.1**.

Tips

- **Read the question carefully, then start coding!**
- **Build, Build, and Build**
    - If you add anything on storyboard -> **Build**
    - If you make a reference from storyboard -> **Build**
    - Do not wait until finishing all parts and build.
    - It is easier to debug after each single feature added.

Details

Create a multiple view iPhone application using Swift as a programming language. Start your XCode project "**Exercise8_LastName_FirstName**" (replace **LastName** with your last name and **FirstName** with your first name).
[2 pts] Design your interface to look like the screenshots [Figures 1-6]
• Design your UI for **all iPhone devices (starting from iPhone 8)** in **Portrait** and **Landscape** mode
• Pay attention to images, icons (buttons!), colors, fonts, and font sizes

Image Classification:

The FirstViewController will have the operations of the first tab named "Image Classification". Design the page as with a default image, label and buttons for shuffling image [Fig 1-2].
[2 pt.] By clicking the first button, images will be selected randomly. For the images, you need to classify the image by using **resnet50.mlmodel**
• In the classification result, you can use the **confidence** value as a percentage (%) and the **identifier** to show as the classification text under the image as [Fig 1]
[2 pt.] By clicking the second button, you application should try to recognize any text from the image [Fig 2]. For the images, where you are not able to recognize text show proper message [Fig 3].

Text Analysis:

The SecondViewController will have all the operations of the second tab named "Text Analysis". Design the page with an input text field, a segmented control with two options (Text, Lemma) and a label to show the output as [Fig 4-6].

Text field is filled with the result from the previous screen [Fig 2, 4]. Also user may input custom text in the input text field [Fig 6]. When the segmented button is changed, the respective task will be done stated following:
[1 pt.] "Text" will show empty output [Fig 4]
[1 pt.] "Lemma" will show the lemma/root/raw words of the input text as [Fig 5-6]

Submission

Zip XCode project and submit to the blackboard. The name of your zip file will be automatically "**Exercise8_LastName_FirstName.zip**" (**Last Name** is your last name and **FirstName** is your first name). One submission per person.

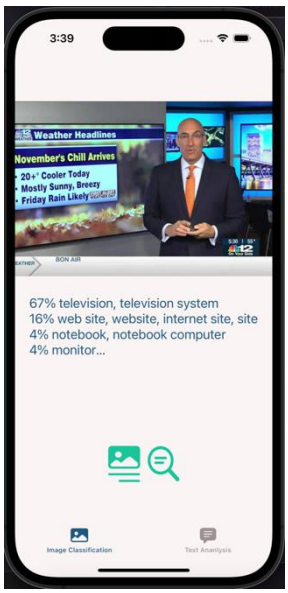

Figure 1

Figure 2

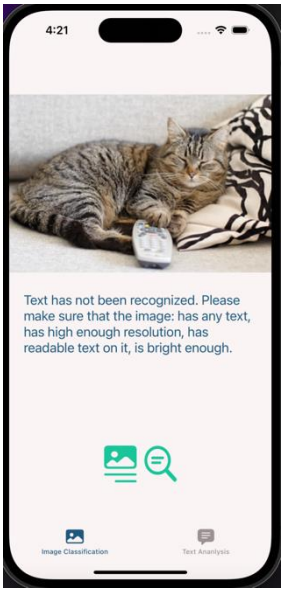

Figure 3

Figure 4

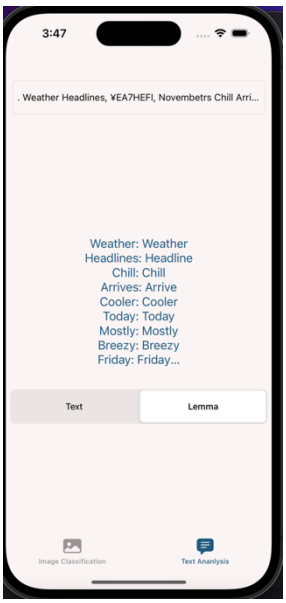

Figure 5

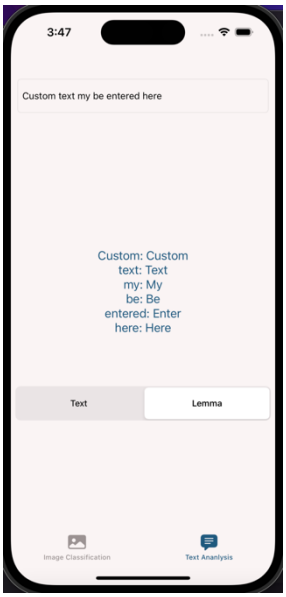

Figure 6