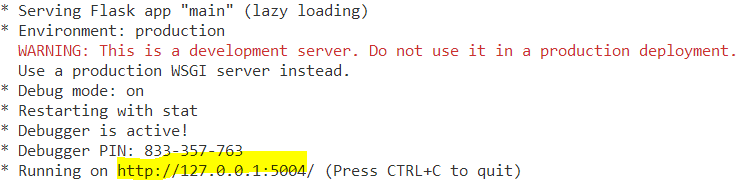
**Web Application (Week 7)**

In this exercise, you will be implementing some functions to help fix a web application, which is a picture gallery.

Download and unzip the **WebApplication.zip** file from eLearn. Open the folder in VS Code and execute “main.py" to start the web application. You’ll see something like the following:



Copy and paste the URL “http://127.0.0.1:5004” to your web browser. You should then see a page called “Gallery” that displays a single picture of a cat.

Supposedly, this application should allow you to view all the image files stored inside “WebApplication/static/images”. The application also allows you to view the images separated into three groups (square images, portrait images and landscape images), and to search the images by keywords.

However, right now the application is faulty. Let’s fix the problems.

**Q1: File Extensions**

Right now not all the image files are displayed. Only those whose file extensions are “jpeg” are displayed.

Modify the function is\_image\_file() inside util.py so that other types of image files are also included.

You may want to first implement the get\_file\_extension() function in util.py to help you.

After you successfully implement is\_image\_file(), you should see all the image files inside “WebApplication/static/images” to be displayed.

Note:

* After you modify util.py, you should refresh your browser to observe the changes made to the “Gallery” application. Sometimes your browser may not display the “Gallery” page. Check your terminal window to see if there has been any error running your Python code. If so, after fixing your code, you’ll need to re-run "main.py".
* To debug, you can still insert print() statements in util.py, but you’ll need to remember to check the terminal window for outputs of print() statements.

**Q2: Portrait vs. Landscape**

On the page “Grouped by Orientation” page, the images are supposed to be grouped into three categories: square images (i.e., width is equal to height), portrait images (i.e., height is larger than width), and landscape images (i.e., width is larger than height). However, right now all images are categorized as square images.

Fix this problem by modify the following functions in util.py:

* get\_square\_image\_details()
* get\_portrait\_image\_details()
* get\_landscape\_image\_details()

You should consider first implementing the following functions in util.py to help you:

* is\_square()
* is\_portrait()
* is\_landscape()

After you successfully implement these functions, you should see the images correctly grouped on the “Grouped by Orientation” page.

**Q3: Keyword Search**

On the “Search” page, after the user enters a keyword such as “cat”, all those image files whose names contain the keyword as a substring should be displayed. Right now nothing is displayed.

Fix this problem by implementing the get\_matching\_files() function in util.py.

**Feel free to add more images to the folder “WebApplication/static/images” to build your own gallery!**