

International MacGuffin

Photo Categorization Project

Background

At International MacGuffin we specialize in the manufacture and sale of MacGuffins. In preparation for the printing of our new quarterly product catalog we have sent our entire product line out to several studios around the country to be photographed. We have now received the photographs and need them organized into categories to be sent to print. It is the marketing department's responsibility to determine how this quarter's catalog will be arranged and the categories for the photos is derived from that. As such, *only the categories that are specified by the marketing department should be used for categorization.*

Marketing has now reviewed the photos, determined what this catalog's categories will be and needs the photos categorized and put into folders by category. A photo of a MacGuffin has 1-3 pieces of metadata associated with it: a product number, a color and a size. The product number is required while color and size are optional as they don't apply to every MacGuffin. When the MacGuffins were sent to the studios the studios were instructed to name each file according to the following format:

ProductNumber-{Size}-{Color}.jpg

The studios were pretty good about following this format but unfortunately the instructions were not specific as to letter-casing and so a mix of upper- and lower-case letters were used. All files are JPEGs and have the .jpg file extension. So, some example filenames might be:

- MacGuffin001.jpg
- macguffin002-Black.jpg
- Macguffin003-Large-red.jpg

In the project folder for this project you will find a sub-folder named Photos which contains a sample of the JPEGs we have received from the studios. You will also find another sub-folder called Categories. Inside the Categories folder you will find a sub-folder for each of the categories that marketing has decided to use for the new catalog. The category folder names are basically subsets of the photo file names. Some examples:

- MacGuffin001
- MacGuffin002
- MacGuffin002-Black
- MacGuffin002-Large-Red
- MacGuffin003-Small
- MacGuffin003-Large-Black
- MacGuffin003-Large-Red

The goal of this project is to write a program which will move all the JPEG files from the Photos directory to the most specific Category sub-directory possible. No new category folders should be created since the folders as provided are the only categories Marketing is interested in. So, using the above files and folders as an example here are the desired dispensations for the files:

- MacGuffin001.jpg file moves to MacGuffin001 folder
- macguffin002-Black.jpg file moves to MacGuffin002-Black folder
- Macguffin003-Large-red.jpg file moves to MacGuffin003-Large-Red folder

Deliverables

The main deliverable for this project is a C# console application that performs the following tasks:

- Find all JPEG files in the /MacGuffin-Project/Photos directory
- For each JPEG file found, find *the most specific* folder name match within the Categories directory and move the JPEG file to that directory

Please note that you have only been given a small subset of the total collection of photos. In production your application will need to process tens of thousands of files and therefore any optimizations that can be made regarding performance, memory usage, etc. will be evaluated as well as basic functionality.

When submitting your completed application for review, please also include a zip file that contains the result of running your program against the sample Photos directory (the Categories directory with the JPEGs all sorted into their respective sub-folders.)

Bonus

While not strictly necessary, it would be a bonus if the program could handle metadata in more variations than just *{Size}-{Color}*. A perfect solution would be able to handle multiple colors and arbitrary ordering, such as *{Size}-{Color}-{Color}* or *{Color}-{Size}*. If it is possible to do so without adding too much complexity (flexibility is not worth hundreds of extra lines of code), please add this capability into your program. This is a bonus and not part of the *must have* requirements outlined above.