

## Motivation

To define the technical design that is used for the implementation of the Mini Image Converter/Compressor Service as a requirement to apply for the position at Ubersnap.

## Product Requirement

- User should be able to convert image files from PNG to JPEG
- User should be able to resize an image according to specified dimensions.
  - This is regardless of whether or not the image will look squished.
- User should be able to compress images to reduce file size while maintaining reasonable quality.

## Solution Description

1. We will create three APIs to fulfill all the requirements:
  - a. /convert
  - b. /resize
  - c. /compress
2. All three of these APIs will accept a PNG file. The parameters of the request will be query params.
3. We will return JSONs for each of the APIs. If successful we will return the download link, if fail we will return the failure reason.
4. We will create an additional API for downloading images.

## Edge Cases

1. If the image is too large, REST API cannot limit the size of the image. I think the size limit feature could be added on the front end side.

## Architecture Decisions

1. Tech Stack
  - a. Golang 1.19
  - b. Echo
  - c. GoCV

# System Design

## API Design

API Name	Description	Endpoint	Authentication	Request Schema	Request Sample	Response Schema	Response Sample	Expected Caller	Expected QPS
Convert	Given a file, check if it is a valid PNG file. If it is a valid PNG file convert it to JPEG.	/convert POST	None	Form data	Form data:  File: file.png	File/JSON	File.jpg  Or  { "error": "missing file parameter" }	Front End	<=1
Resize	Given a file and some parameters, check if it is a valid PNG file. Resize according to the parameters if it is.	/resize	None	Form Data	height:200  width:300  Interpolation _flag:0  File: file.png	File/JSON	File_resized.png  Or  { "error": "missing file parameter" }	Front End	<=1
Compress	Given a file, check if it is a valid PNG file. Compress it with compression level if it is.	/compress/	None	Form Data	Form data:  File: file.png	File/JSON	File_compressed.png  Or  { "error": "missing file parameter" }	Front End	<=1