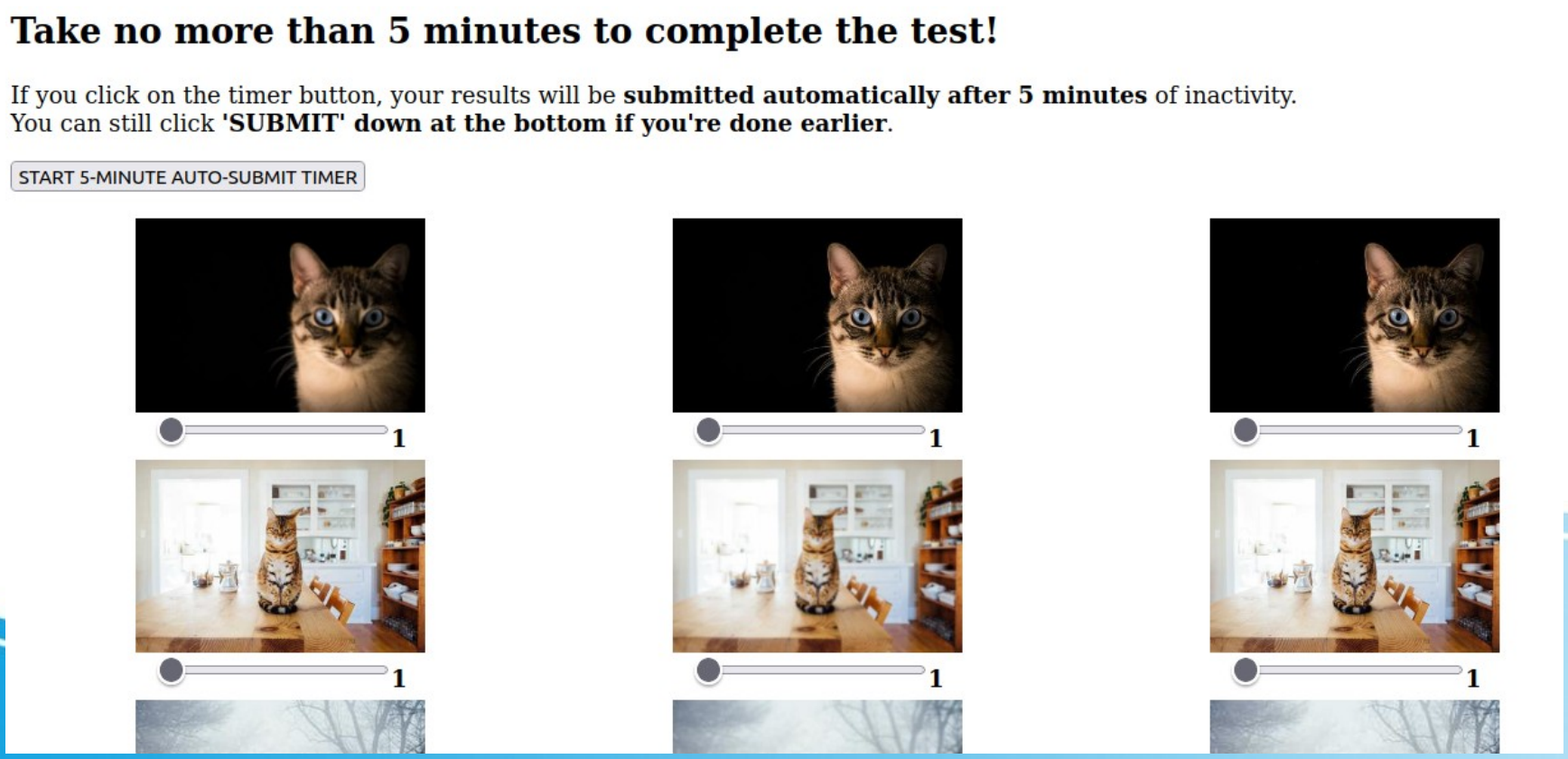
Image Quality Assessment Project

Data Collection Stage

The subjects of the experiment were directed to this website:

https://awesomehungrykitty.pythonanywhere.com/

(11 subjects partook to the experiment).



The images

cat_blue_eyes

cat_kitchen

fog

horizon

jungle

kitten

maze

sunrise

tigers

wavy_pavement

Source:
https://unsplash.com/

Applied Distortions:

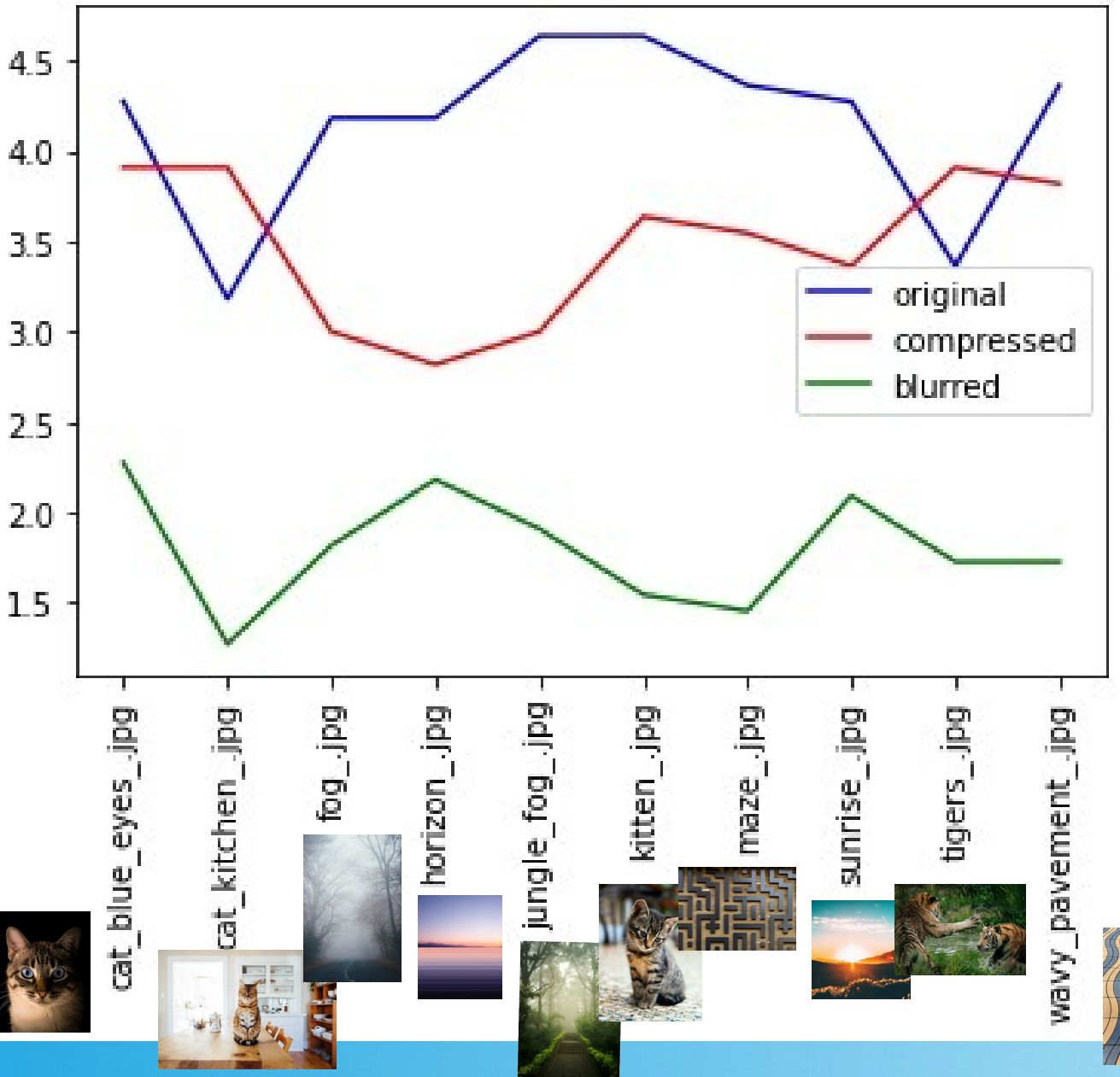
→ Slight Distortion: JPG quality = 50

→ Significant Distortion: Gaussian blur with radius = 1

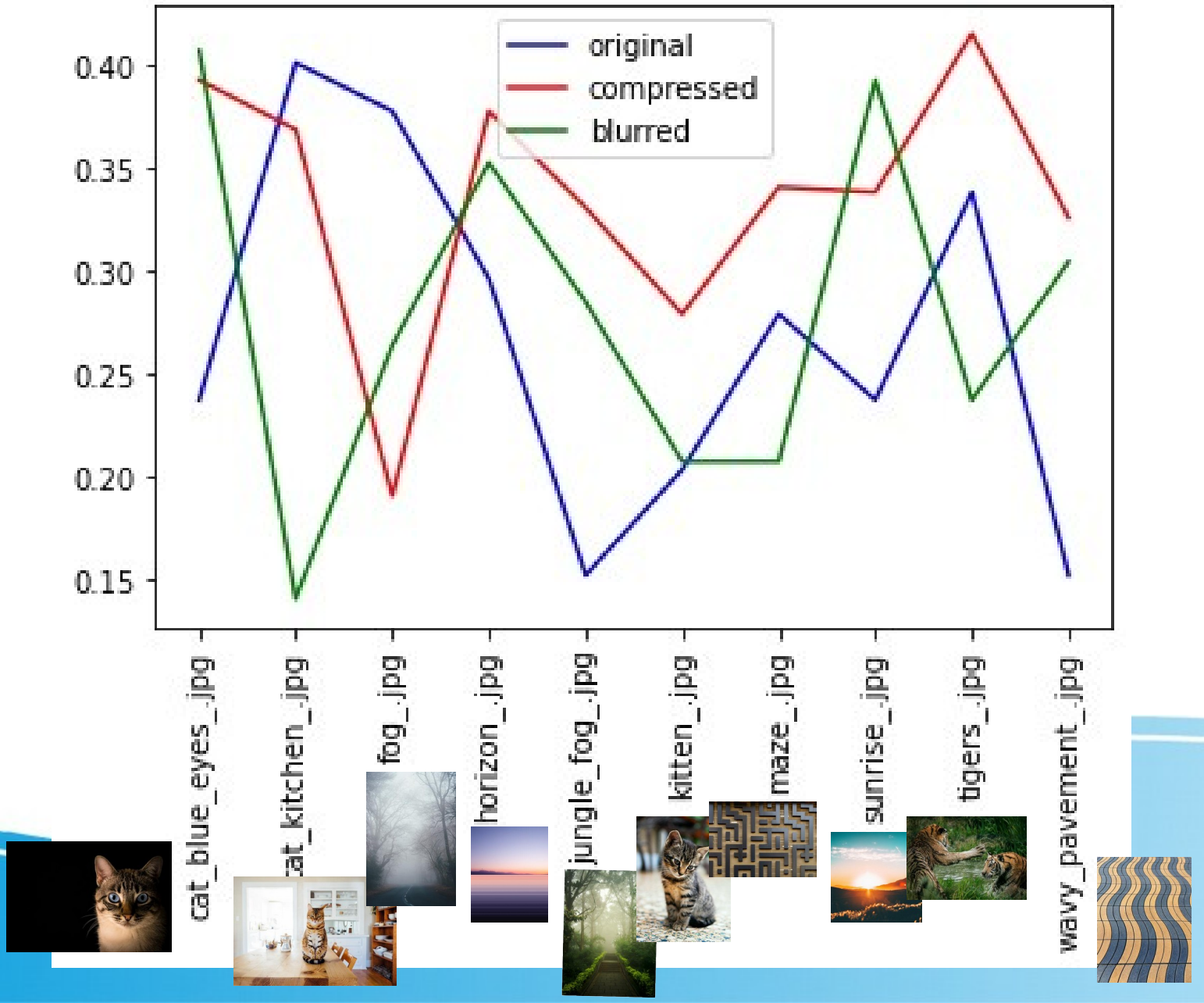
```
def worsen_quality(sourcepath, quality, destpath):
    im  = Image.open(sourcepath)
    im.thumbnail((400, 400), Image.ANTIALIAS)
    im.save(destpath,quality=quality)

def blur(sourcepath, radius, destpath):
    im  = Image.open(sourcepath)
    im.thumbnail((400, 400), Image.ANTIALIAS)
    im.filter(ImageFilter.GaussianBlur(radius = radius)).save(destpath)

def shrink(sourcepath, newsize, destpath):
    im  = Image.open(sourcepath)
    im.thumbnail((newsize, newsize), Image.ANTIALIAS)
    im.save(destpath)
```

```
# %%
# first impairment:
for file in files:
    worsen_quality(file, 50, "/home/aiman/fourth_year/dig_cont_ret/progetto_1/processed_imgs_one/"+rename(file, "qual50"))
# %%
# second impairment
for file in files:
    blur(file, 1, "/home/aiman/fourth_year/dig_cont_ret/progetto_1/processed_imgs_two/"+rename(file, "blurred"))
# %%
# just shrink
for file in files:
    shrink(file, 400, "/home/aiman/fourth_year/dig_cont_ret/progetto_1/shrinked_originals/"+rename(file, ""))
```

Mean Scores


4.5
4.0
3.5
3.0
2.5
2.0
1.5
original
compressed
blurred
cat_blue_eyes_.jpg
cat_kitchen_.jpg
fog_.jpg
horizon_.jpg
jungle_fog_.jpg
kitten_.jpg
maze_.jpg
sunrise_.jpg
tigers_.jpg
wavy_pavement_.jpg

Variances of Mean Scores



MOS and variance of each image

Sorted by mos:

Higher mos = higher appreciation of the image.

picture_group	mos	mos_variance
cat_blue_eyes	3.484848	0.345230
wavy_pavement	3.303030	0.260535
kitten	3.272727	0.229769
sunrise	3.242424	0.322281
jungle_fog	3.181818	0.255667
maze	3.121212	0.275392
horizon	3.060606	0.341698
fog	3.000000	0.277066
tigers	3.000000	0.329794
cat_kitchen	2.787879	0.303134

Sorted by mos_variance:

Higher mos_variance = the image is more “controversial”, people disagreed more on its rating.

picture_group	mos	mos_variance
cat_blue_eyes	3.484848	0.345230
horizon	3.060606	0.341698
tigers	3.000000	0.329794
sunrise	3.242424	0.322281
cat_kitchen	2.787879	0.303134
fog	3.000000	0.277066
maze	3.121212	0.275392
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kitten	3.272727	0.229769

Distortion vs MOS & Variance

	distr_type	mos	mos_variance
0	originals	4.145455	0.267149
1	jpg_qual_50	3.490909	0.335467
2	gauss_blur_rad_1	1.800000	0.279553

Disagreement higher for JPG quality = 50, which means it’s the more ambiguous and confusing distortion of the two.

That’s all, thanks!