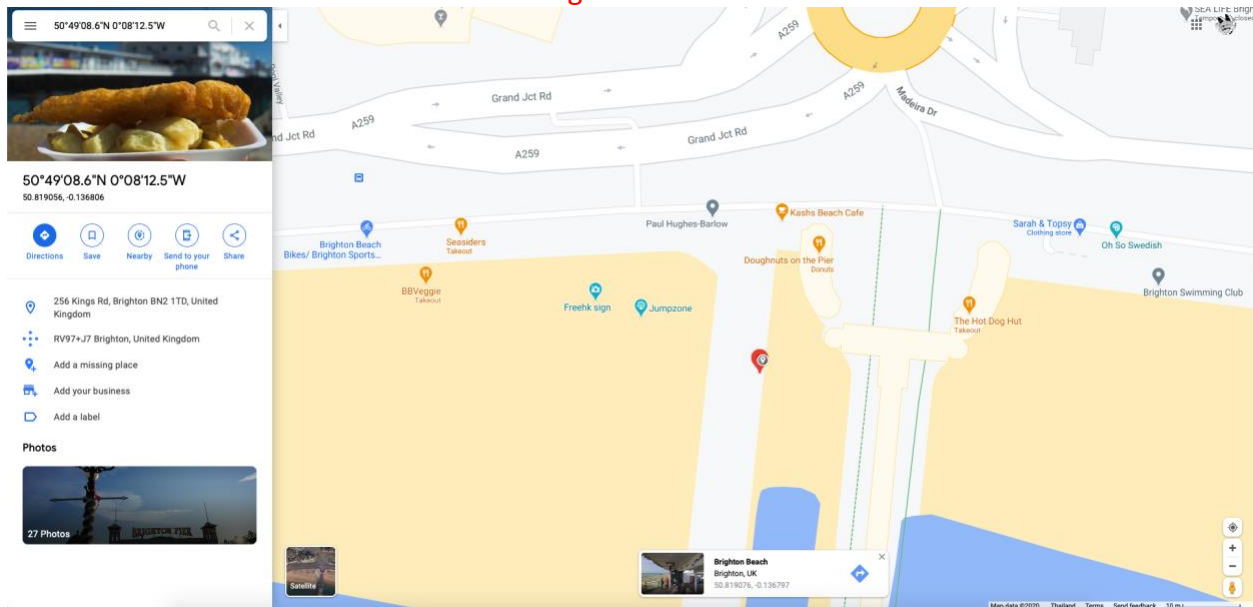


### Activity XIII – Privacy

#### 1. Where was the photo taken?

50 deg 49' 8.59" N, 0 deg 8' 12.45" W  
Brighton Beach



#### 2. What other meta-data information is included with the photo? Describe which meta-data information can be used for forensics, and how.

Below items are data included within meta data, highlighted ones are the potential ones that can be used in forensics

FileSize: 141 kB

FileModifyDate: 2020-11-20T11:27:17.000+00:00

FileAccessDate: 2020-11-20T11:27:17.000+00:00

FileInodeChangeDate: 2020-11-20T11:27:17.000+00:00

FileType: JPEG

FileTypeExtension: jpg

MIMEType: image/jpeg

JFIFVersion: 1.01

ExifByteOrder: Big-endian (Motorola, MM)

ImageDescription: OLYMPUS DIGITAL CAMERA

**Make: OLYMPUS IMAGING CORP.**

**Model: STYLUS1** Device model may help tracking back to the photo taker

Orientation: Horizontal (normal)

XResolution: 350

YResolution: 350

ResolutionUnit: inches  
Software: Version 1.0  
ModifyDate: 2014-01-23T14:57:18.000+00:00  
ExposureTime: 1/1000  
FNumber: 2.8  
ExposureProgram: Aperture-priority AE  
ISO: 100  
SensitivityType: Standard Output Sensitivity  
ExifVersion: 230  
DateTimeOriginal: 2014-01-23T14:57:18.000+00:00  
CreateDate: 2014-01-23T14:57:18.000+00:00 Time could lead to d-day time  
ComponentsConfiguration: Y, Cb, Cr, -  
ExposureCompensation: 0  
MaxApertureValue: 2.8  
MeteringMode: Multi-segment  
LightSource: Unknown  
Flash: Auto, Did not fire  
FocalLength: 16.1 mm  
FlashpixVersion: 100  
ColorSpace: sRGB  
ExifImageWidth: 726  
ExifImageHeight: 740  
FileSource: Digital Camera  
CustomRendered: Normal  
ExposureMode: Auto  
WhiteBalance: Auto  
DigitalZoomRatio: 1  
FocalLengthIn35mmFormat: 76 mm  
SceneCaptureType: Standard  
GainControl: None  
Contrast: Normal  
Saturation: Normal  
Sharpness: Normal  
LensInfo: 0mm f/0  
GPSVersionID: 2.3.0.0  
GPSLatitudeRef: North  
GPSLongitudeRef: West  
GPSAltitudeRef: Above Sea Level  
GPSStatus: Measurement Active  
XMPToolkit: XMP Core 5.4.0  
CreatorTool: Version 1.0  
FlashCompensation: 0  
SerialNumber: V5CF04729  
Description: OLYMPUS DIGITAL CAMERA

Creator:  
Rights:  
CurrentIPTCDigest: a2c66850408547cbbc8465fc5d14e8e0  
CodedCharacterSet: UTF8  
ApplicationRecordVersion: 2  
DigitalCreationDate: 2014:01:23  
DigitalCreationTime: 14:57:18  
Caption-Abstract: OLYMPUS DIGITAL CAMERA  
DateCreated: 2014:01:23  
TimeCreated: 14:57:18  
IPTCDigest: a2c66850408547cbbc8465fc5d14e8e0  
ImageWidth: 726  
ImageHeight: 740  
EncodingProcess: Baseline DCT, Huffman coding  
BitsPerSample: 8  
ColorComponents: 3  
YCbCrSubSampling: YCbCr4:2:2 (2 1)  
Aperture: 2.8  
DateTimeCreated: 2014-01-23T14:57:18.000+00:00  
DigitalCreationDateTime: 2014-01-23T14:57:18.000+00:00  
GPSAltitude: 0 m Above Sea Level  
GPSLatitude: 50 deg 49' 8.59" N  
GPSLongitude: 0 deg 8' 12.45" W  
GPSPosition: 50 deg 49' 8.59" N, 0 deg 8' 12.45" W  
ImageSize: 726x740  
Megapixels: 0.537  
ScaleFactor35efl: 4.7  
ShutterSpeed: 1/1000  
CircleOfConfusion: 0.006 mm  
FOV: 26.6 deg  
FocalLength35efl: 16.1 mm (35 mm equivalent: 76.0 mm)  
HyperfocalDistance: 14.54 m  
LightValue: 12.9

3. Upload the photo to facebook. Does facebook know where the picture was taken?

My Facebook seems to act innocent, but I've seen from other students' Facebook suggestion that it knows the exact location

4. If someone were to download it from facebook after your post above, would they know where it was taken? Why?

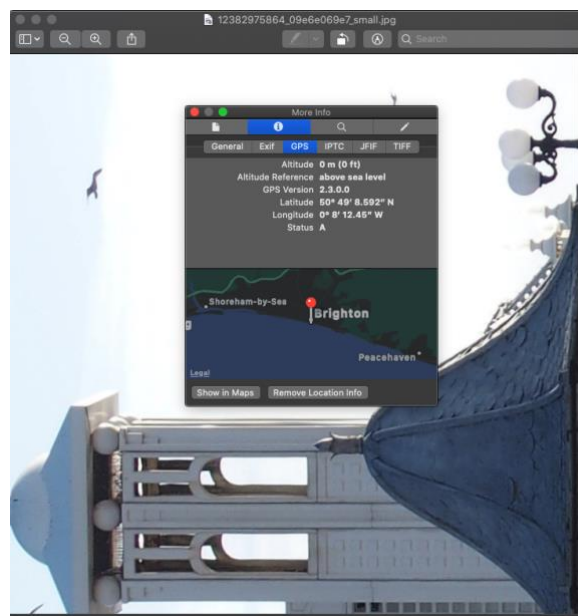
Apparently not. Meta data about the location was deleted when I tried to download from my Facebook post.

Extracted metadata:

```
FileSize: 37 kB
FileModifyDate: 2020-11-20T11:45:19.000+00:00
FileAccessDate: 2020-11-20T11:45:19.000+00:00
FileInodeChangeDate: 2020-11-20T11:45:19.000+00:00
FileType: JPEG
FileTypeExtension: jpg
MIMEType: image/jpeg
JFIFVersion: 1.01
ResolutionUnit: None
XResolution: 1
YResolution: 1
CurrentIPTCDigest: 0f48fae33f2b55e4ef0586ea0591d872
OriginalTransmissionReference: znM2zT-msEr7fldzSK_w
ImageWidth: 726
ImageHeight: 740
EncodingProcess: Progressive DCT, Huffman coding
BitsPerSample: 8
ColorComponents: 3
YCbCrSubSampling: YCbCr4:2:0 (2 2)
ImageSize: 726x740
Megapixels: 0.537
```

5. Modify the picture on your computer (crop, resize, etc.). Does the location information disappear? If not, find a way to remove the meta-data information from the photos. Describe how you removed it and upload it.

I tried rotate the picture, but the meta data is still the same as question number 2. I delete the location meta data from the image by simply just click the “Remove location info” with Preview app in MacOS



6. Is it a good idea to have location information in photos? Discuss the security/privacy implications.

It's good only if the photo will always be used within a trusted group. Which is unlikely to be the case because the photo files are made to distributed and there is no guarantee that people who receive the file will not leak the file to outer groups. Making the photo taker's location information exposed.

7. If you do not wish to have this information recorded in your photos in the first place, what do you need to do?

Do not share location data for your camera app in your phone. Or edit the settings in your camera to not save metadata in your photo.

8. Did you check your own mobile phone settings? What will you do from today onwards? Will you share your location information with any app?

I have never share my location data to suspicious apps. If I do then I only share when I use, once, and the app will have to request my permission again if it is going to use my location ever again.