Aman 2019014

Q1. The encryption algorithms we use today are very advanced; it is almost impossible to break some of them hence for the attacker it is almost impossible to get some information from the beached data, so in this we can simply ignore and not give any notice regarding the breach. However it can be a case that the encryption key has also been stolen or the encryption algorithm used is very weak so it is always good to notify about the breach.

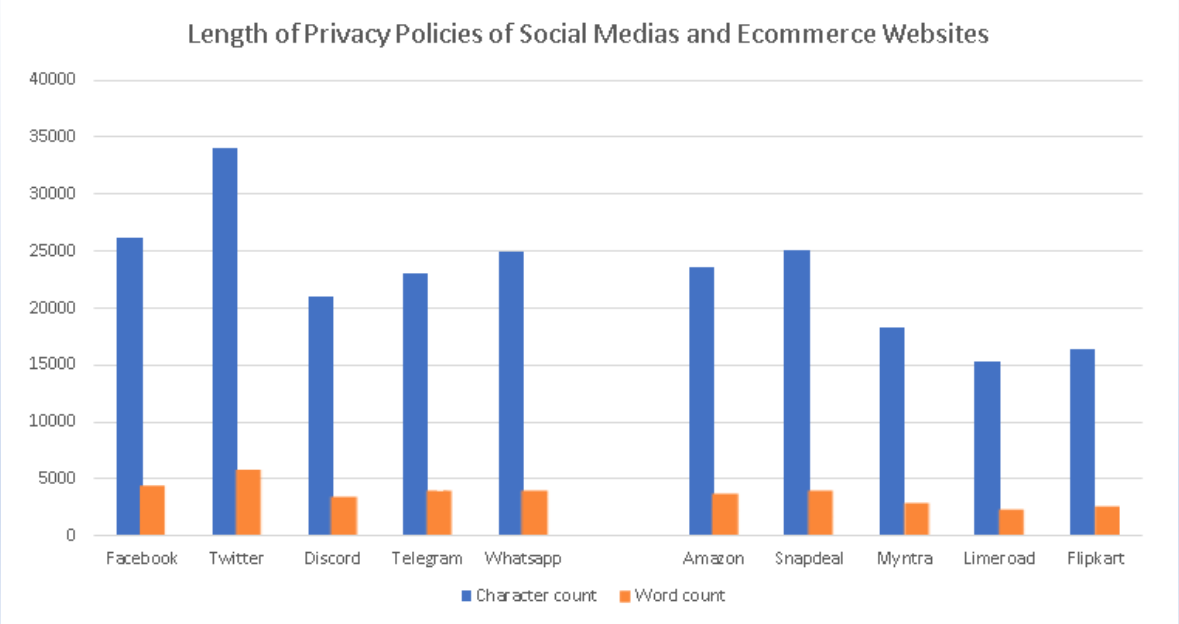
Data breaches:

1. Yahoo!: The Internet service company Yahoo! was subject to the largest data breach on record. Two major data breaches of user account data to hackers were revealed during the second half of 2016. The first announced breach, reported in September 2016, had occurred sometime in late 2014, and affected over 500 million Yahoo! user accounts. A separate data breach, occurring earlier around August 2013, was reported in December 2016. Initially believed to have affected over 1 billion user accounts, Yahoo! later affirmed in October 2017 that all 3 billion of its user accounts were impacted. Yahoo! has been criticized for their late disclosure of the breaches and their security measures, and is currently facing several lawsuits as well as investigation by members of the United States Congress.
2. Adobe: The basic customer details of nearly 7.5 million Adobe Creative Cloud users were exposed on the internet inside an Elasticsearch database that was left connected online without a password. This leak is nowhere as severe as the infamous 2013 Adobe breach, where hackers obtained full records, including encrypted payment details, for nearly 38 million Adobe users. At the time, the Adobe breach was one of the biggest hacks ever

Q2. The main difference between Anonymization and Pseudonymization is that in anonymization the data is scrubbed for any information that may serve as an identifier of a data subject and we can not re-identify the information again but in pseudonymization the scrubbed data is replaced by using some method such that it can be identified again.
Anonymization techniques: k-anonymization
Pseudonymization techniques Hash functions and Tokenization.
Anonymization:
Patient * has a gamma-GT value of 83U/L.

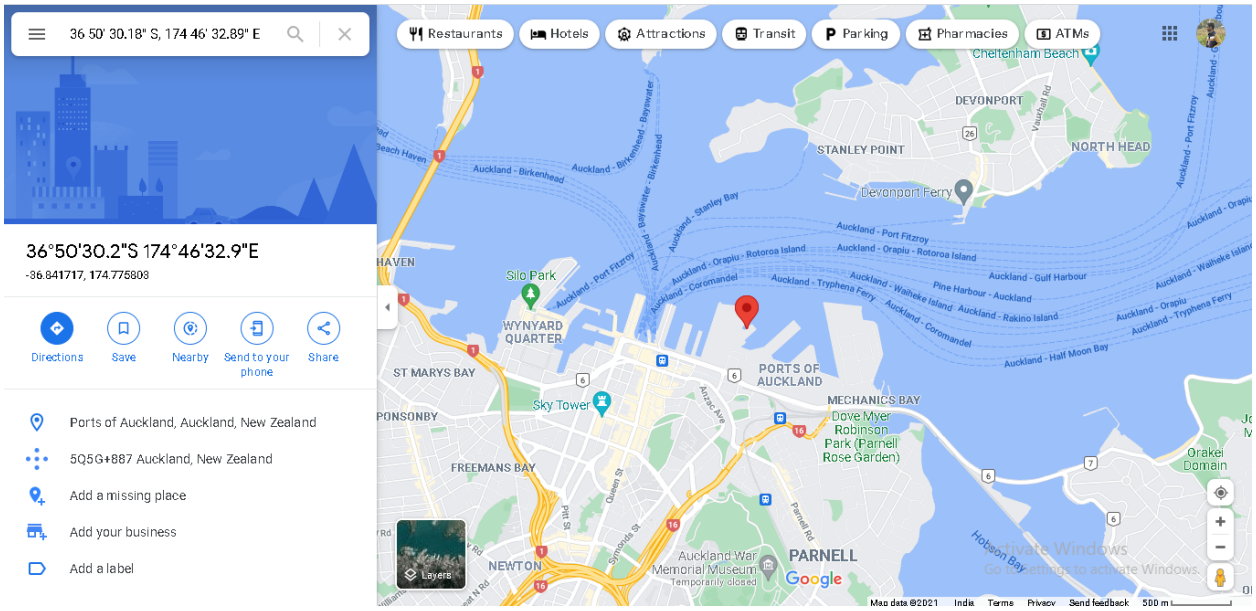
Pseudonymization:
Patient chiiiiklu has a gamma-GT value of 83U/L.

Q3.
(a):



Q4.

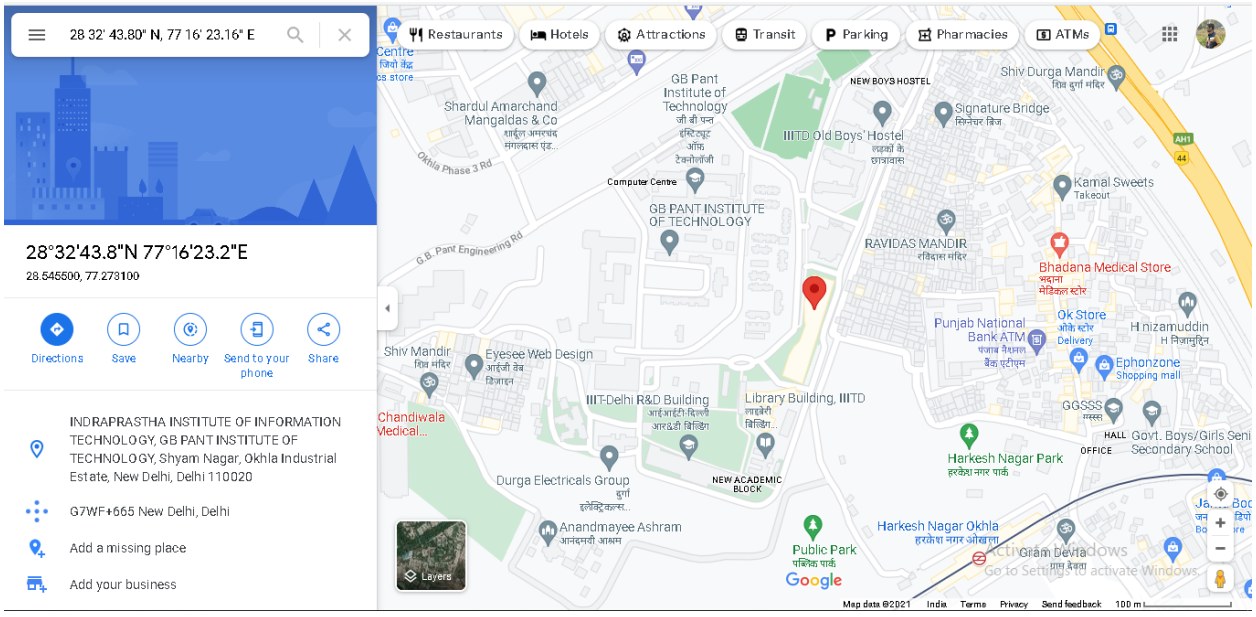
```
File Type Extension             : jpg
MIME Type                       : image/jpeg
JFIF Version                    : 1.01
Exif Byte Order                 : Big-endian (Motorola, MM)
Image Description               : Malana
X Resolution                    : 1
Y Resolution                    : 1
Resolution Unit                 : None
Y Cb Cr Positioning             : Centered
GPS Version ID                  : 2.3.0.0
GPS Latitude Ref                : South
GPS Longitude Ref               : East
Image Width                     : 719
Image Height                    : 496
Encoding Process                : Progressive DCT, Huffman coding
Bits Per Sample                 : 8
Color Components                : 3
Y Cb Cr Sub Sampling            : YCbCr4:2:0 (2 2)
Image Size                      : 719x496
Megapixels                      : 0.357
GPS Latitude                    : 36 deg 50' 30.18" S
GPS Longitude                   : 174 deg 46' 32.89" E
GPS Position                    : 36 deg 50' 30.18" S, 174 deg 46' 32.89" E
aman@aman:~/Desktop/FCSHW2$
```



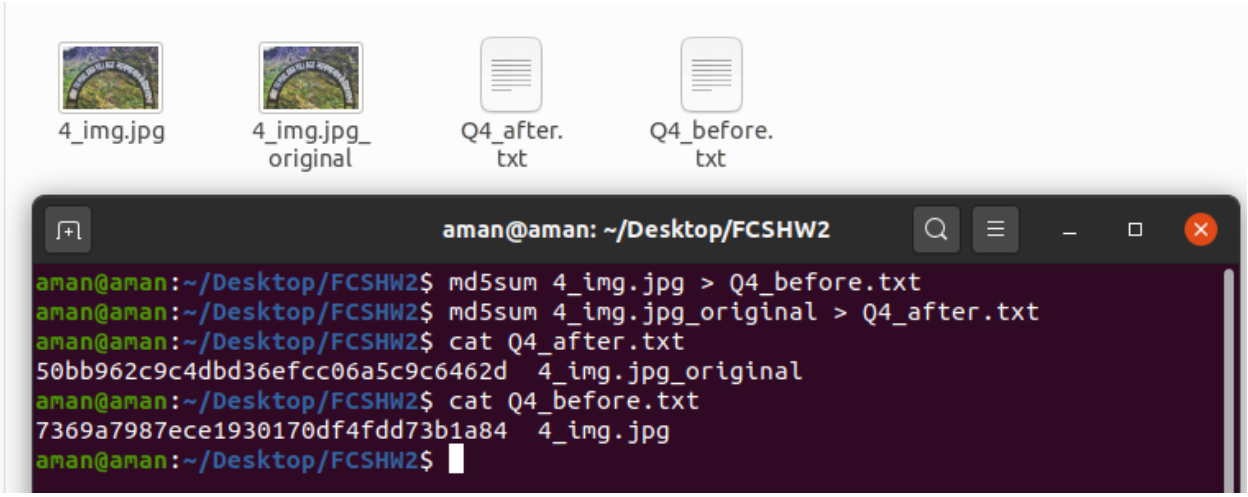
City: Auckland
Country: Zealand

Command used:
exiftool -GPSLatitudeRef="North" -GPSLatitude="28 deg 32' 43.8'' N"
-GPSLongitude="77 deg 16' 23.16'' E" 4_img.jpg
1 image files updated

```
Megapixels                      : 0.357
GPS Latitude                    : 28 deg 32' 43.80" N
GPS Longitude                   : 77 deg 16' 23.16" E
GPS Position                    : 28 deg 32' 43.80" N, 77 deg 16' 23.16" E
aman@aman:~/Desktop/FCSHW2$
```



C.



References:

https://en.wikipedia.org/wiki/Yahoo!_data_breaches
https://www.zdnet.com/article/adobe-left-7-5-million-creative-cloud-user-records-exposed-online/