Machine Learning

Assignment 3

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For this assignment, I have used the K-means clustering Algorithm for the Data Compression on Images.

Question 1 and 2:

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| K | Compression of Koala.jpg & Compressed Image of Koala.jpg | Compression of Penguins.jpg & Compressed Image of Penguins.jpg |
| 2 | 5.968424  C:\Users\Preethi\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Koala_test1.jpg | 9.147234  C:\Users\Preethi\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Penguins_test1.jpg |
| 5 | 4.439491  C:\Users\Preethi\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Koala_test2.jpg | 7.322592C:\Users\Preethi\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Penguins_test2.jpg |
| 10 | 4.7992954  C:\Users\Preethi\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Koala_test3.jpg | 6.505922  C:\Users\Preethi\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Penguins_test3.jpg |
| 15 | 4.8490987  C:\Users\Preethi\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Koala_test4.jpg | 6.7094073  C:\Users\Preethi\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Penguins_test4.jpg |
| 20 | 4.95983  C:\Users\Preethi\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Koala_test5.jpg | 6.67744  C:\Users\Preethi\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Penguins_test5.jpg |

Question 3:

Yes, there is a trade-off between Compression and image quality. If the Compression is higher the image quality is lower but if the compression is lower the image quality is higher. Given these set of k values, 10 would be ideal since the picture/image quality is maintained and a good compressed image is obtained.