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Assignment 3

KMeans

Compression Ratio = Uncompressed Size / Compressed Size

(1) Koala.jpg

Size: 780.8 kB

k	Compressed Size(kB)	Compression Ratio
2	130.9	5.96
5	176.6	4.42
10	164.2	4.76
15	158.6	4.92
20	155.3	5.02

(2) Penguins.jpg

Size: 777.8 kB

k	Compressed Size(kB)	Compression Ratio
2	85.0	9.15
5	108.2	7.19
10	117.6	6.61
15	117.3	6.63
20	116.4	6.68

Observations:

Lower the k value, the more compressed the image is.

More compression leads to more information loss and reduced image quality.

For Koala.jpg, the compression ratios of k=10, 15 and 20 are similar. The image quality of k=15 and k=20 is almost similar.

For Penguins.jpg, the compression ratios of k=10, 15 and 20 are also similar. The image quality of k=15 and k=20 is also almost similar like in the case of Koala.jpg.

For both the images, k=15 and k=20 seem like a good value of k.

Koala.jpg



k=2



$k = 5$



k = 10



k = 15



k = 20



Penguins.jpg



$k = 2$



$k = 5$



k = 10



k = 15



k = 20

