

CS 6375 Assignment 5




Kaushik Nadimpalli

1) [Koala.jpg](#)

K Value	Size before compression (in KB)	Size – Compressed Image (in KB)
2	762.53	123.16
5	762.53	155.81
10	762.53	159.60
15	762.53	157.76
20	762.53	156.02

Input Image below



K Value	Compressed Koala Images
2	
5	
10	

15



20



2) Penguins.jpg

K Value	Size before compression (in KB)	Size – Compressed Image (in KB)
2	759.60	83.13
5	759.60	106.24
10	759.60	114.35
15	759.60	110.29
20	759.60	111.22

Input image below



K Value	Compressed Penguins Images
2	

5



10



15





Analysis

Is there a tradeoff between image quality and degree of compression?

There is a tradeoff between image quality and the degree of compression. In our program, the K argument represents the degree of compression. As such, larger values of K indicate more clusters thereby the number of colors needed to represent the image increases. Similarly, smaller values of K indicate less clusters and less colors are needed to represent the image. We can see from our data that when we have smaller values of K the image quality is lower. However, we also need to consider computational and runtime limitations, as large values of K can take a lot of time to compute and may require many iterations.

What would be a good value of K for each of the two images?

For the Koala image, $K = 15$ seems to be a good value as it showcases a good improvement in image quality similar to when $K = 15$ and $K = 20$. For the Penguins image, while $K = 15$ and $K = 20$ are decent values compared to lower ones, I think higher value is needed to improve the quality of the Penguins image to that of the original input image.