Report of Assignment 4

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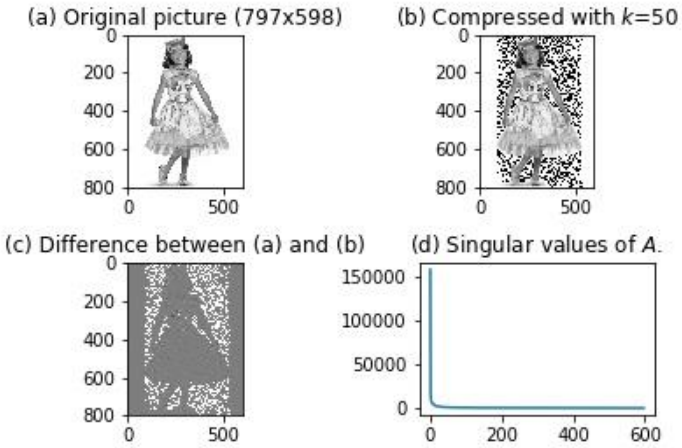
How do I differentiate styles and its effect due to the result of the experiments

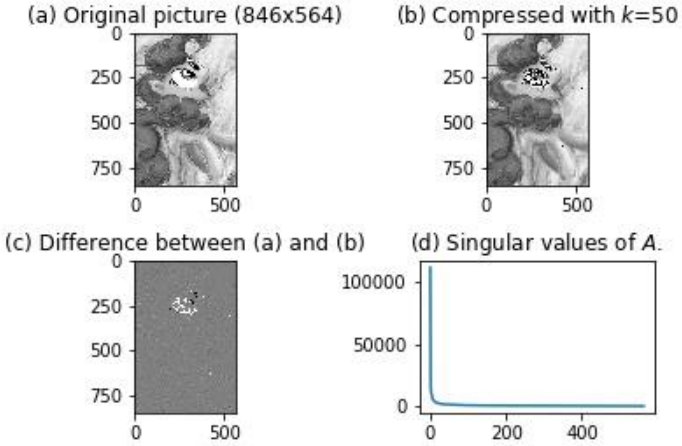
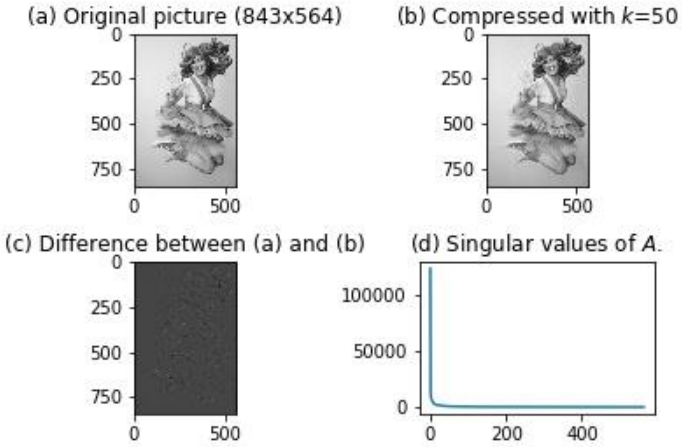
I use age of the character in the picture and the material to compose the picture to differentiate 5 styles.

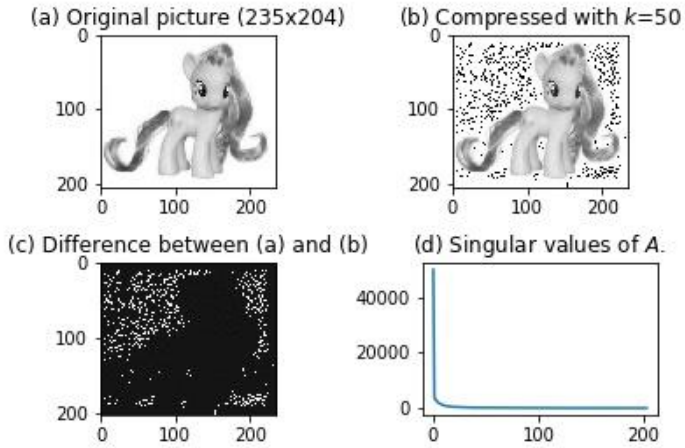
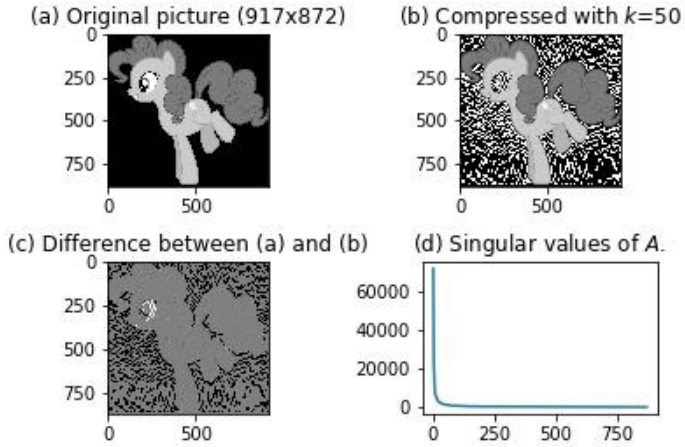
No.	Style	Discussion
1	Child	When compressing, the child itself is mostly well compressed, but the result of background really depends.
2	Oil painting	Expect of the eye of the pony, other places are well compressed.
3	Adult	The most well compressed picture of all 5, I assume it is because it doesn't have a huge background like other picture did.
4	Toy	Also, the only thing with much more variation through out the experiement is the background.
5	Animation	Same as above.

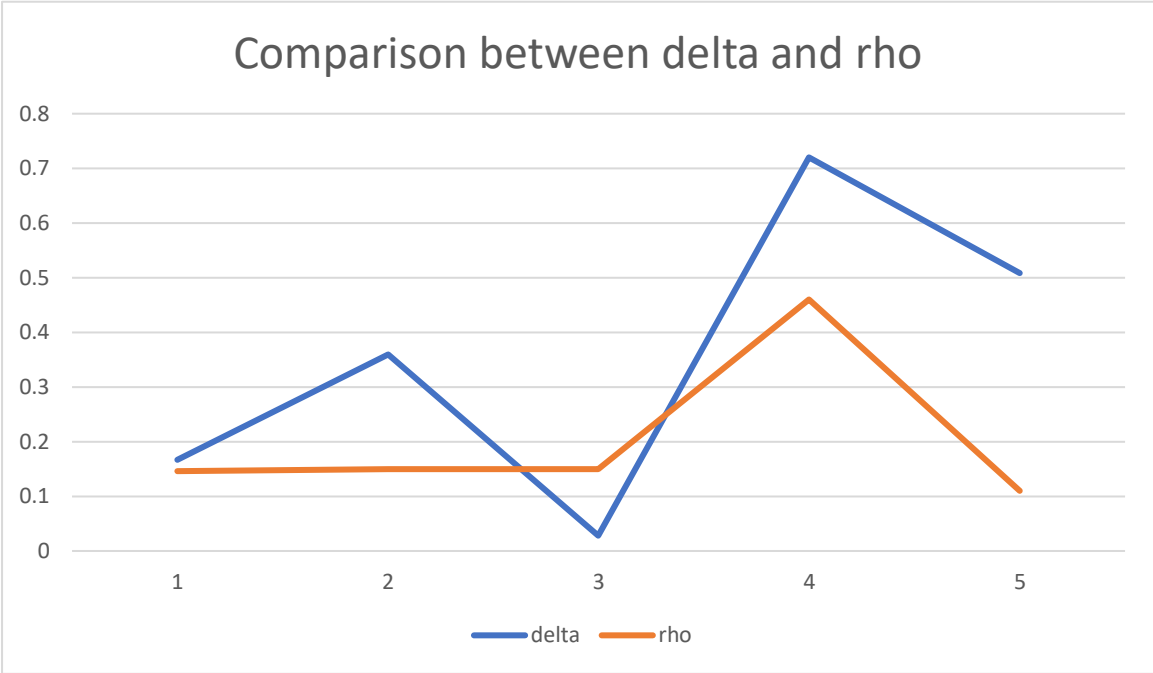
After the experiment, I think the thing effect the output isn't about the styles of the picture. It is about whether if there is a huge place with the same color. Through the compressing process, these places often go wrong.

Fix k at 50

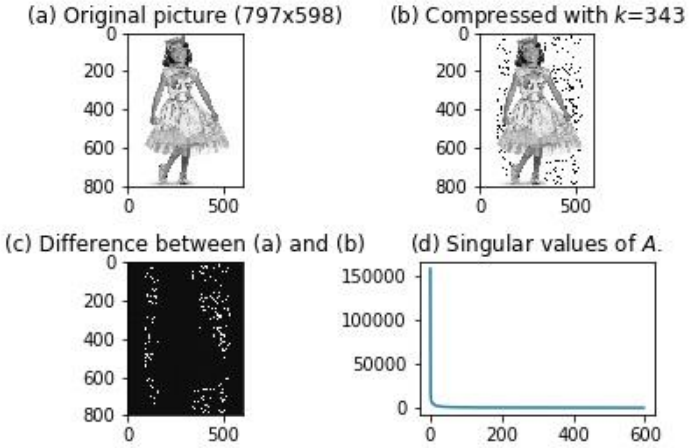
N	W	H	Delta	Rho	Picture	Explanation
1	598	797	0.167	0.146		The bigger k is, the worse the picture output. In this picture, the background is especially bad.

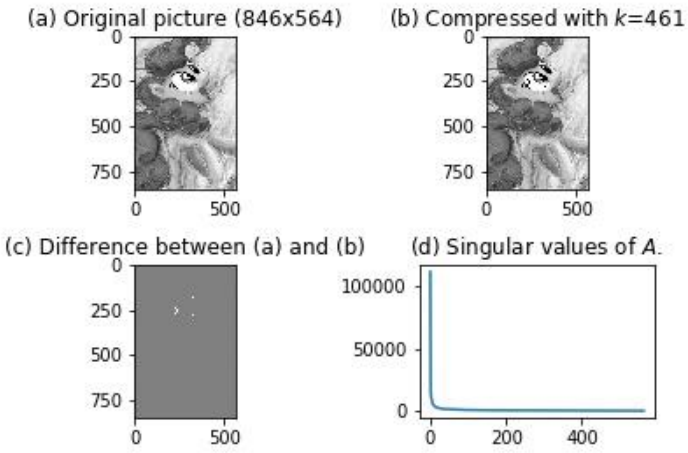
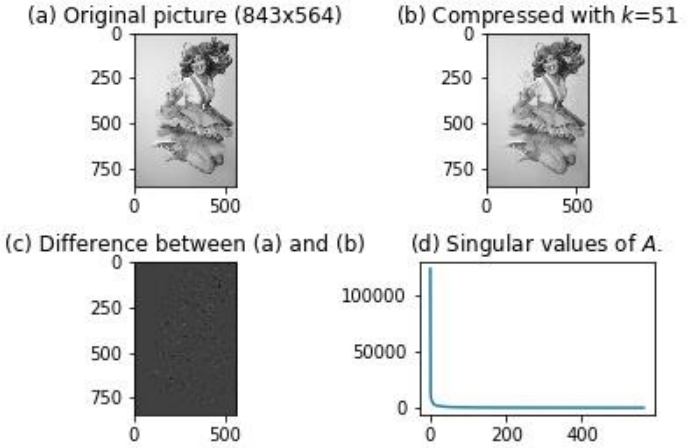
2	564	846	0.36	0.15		In this picture, except for the eyes part, other's seem to be fine.
3	564	843	0.028	0.15		The compress of this picture is surprisingly great, unlike other picture, the background will be bad, but this one is perfect.

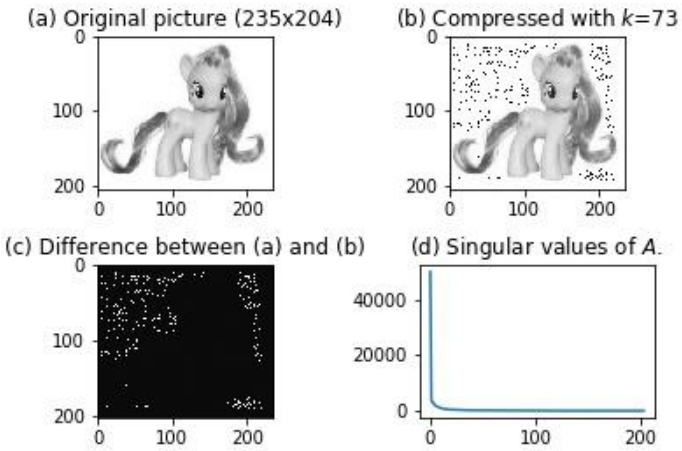
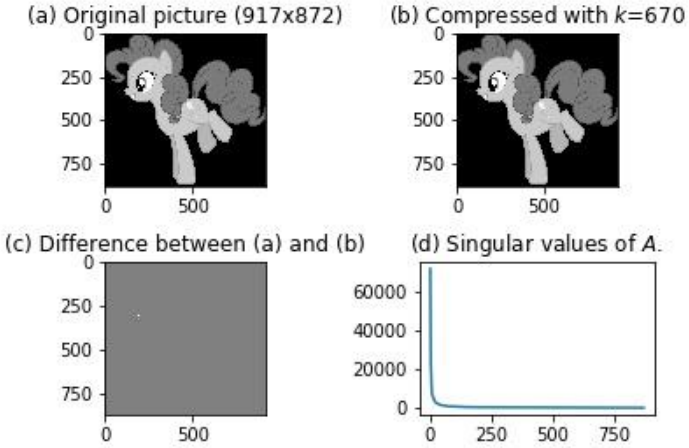
4	204	235	0.72	0.46		Like I said before, this one's background had been badly compressed.
5	917	872	50.8	0.11		This one is a total mess, and I have no idea about this result, I guess it is because the compress of a big part same color area is easily goes wrong.

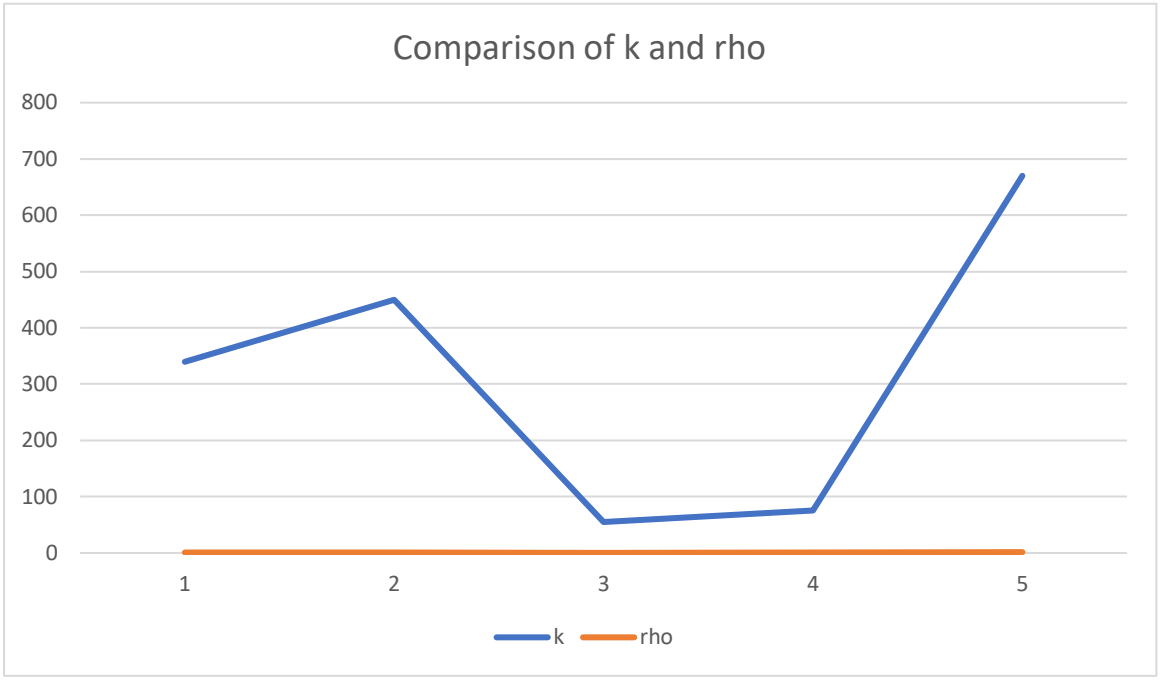

Comparison between delta and rho
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1
2
3
4
5
delta
rho

Fix delta at 3%

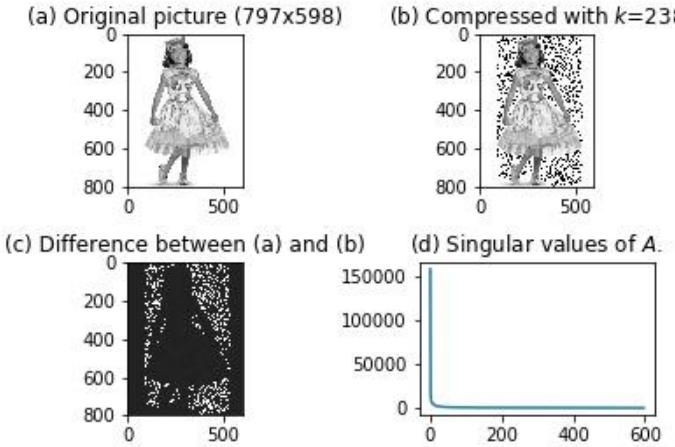
N	W	H	K	Delta	Picture	Explanation
1	598	797	340	0.995		When fix delta at 3%, it turned out to be a picture without much compress, the result turned out is kind of nice.

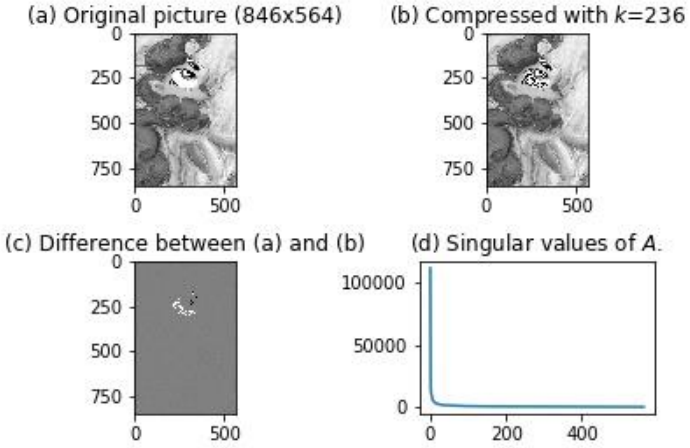
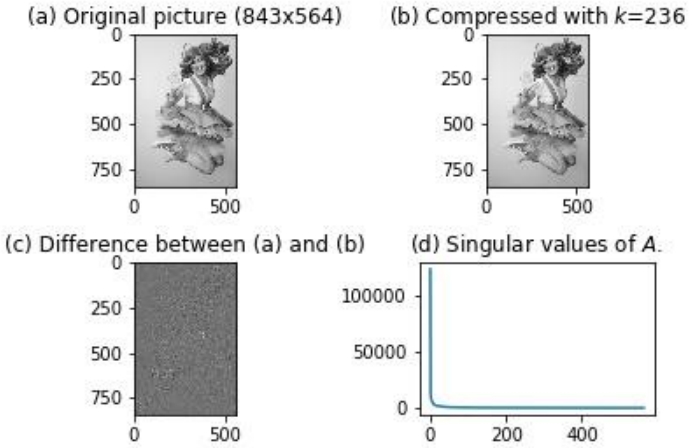
2	564	846	450	1.33		This is the best compressed obj3 result, we can tell that the eye is much more clear than other to experiement.
3	564	843	55	0.16		This is still compressed nicely.

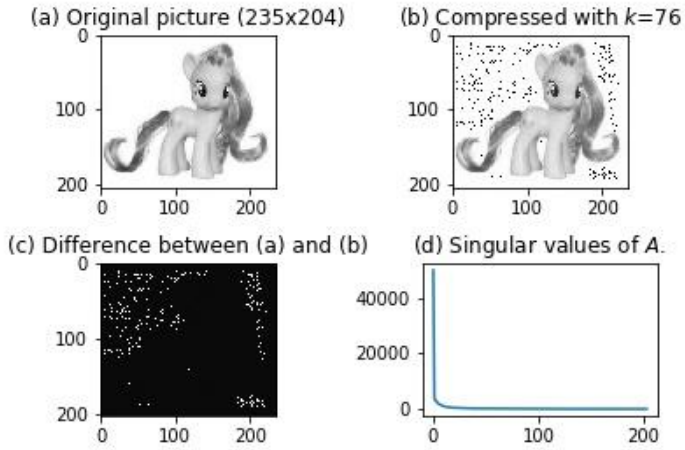
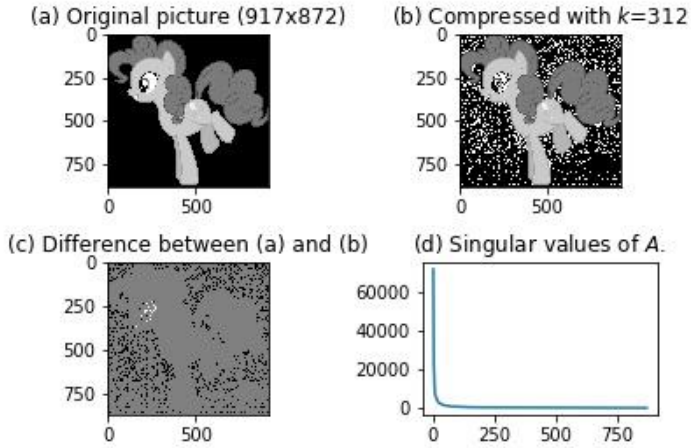
4	204	235	75	0.69		The black point of the backgrownd is also the least of the three.
5	917	872	670	1.5		This picture looks almost the same as the original one, which is really impresing.

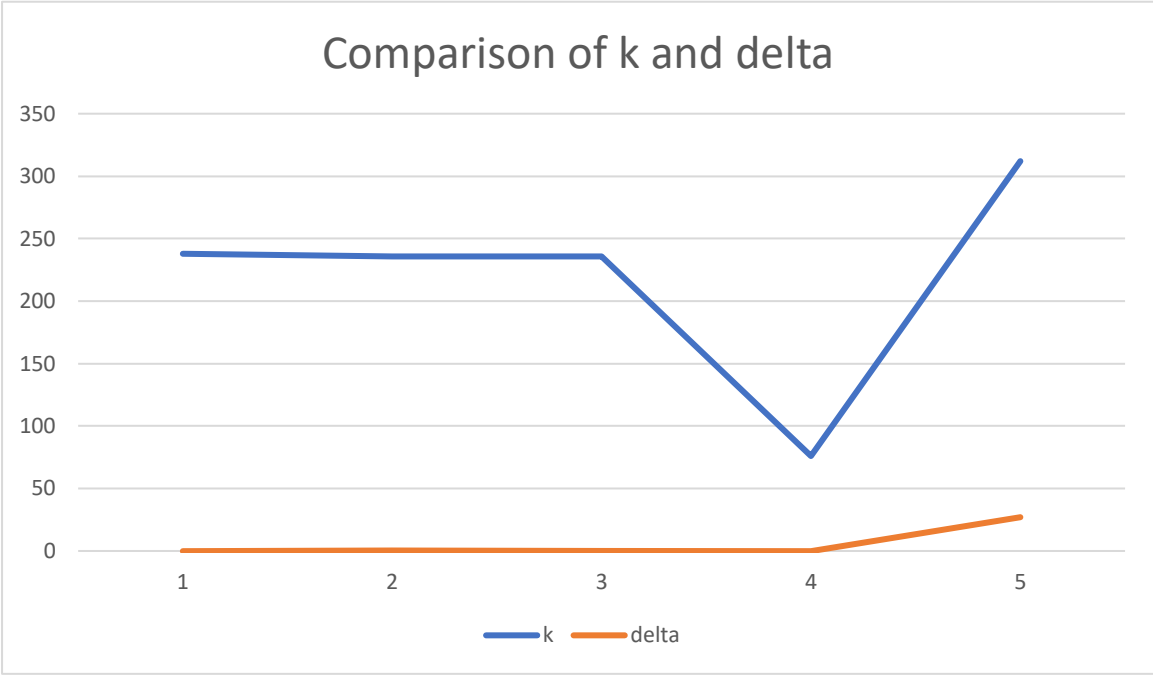

Comparison of k and rho
800
700
600
500
400
300
200
100
0
1
2
3
4
5
k
rho

Fix rho at 0.7

N	W	H	Delta	K	Picture	Explanation
1	598	797	0.1	238		The background is awful, other's are nice.

2	564	846	0.22	236		The eye of the pony is not better.
3	564	843	0.0045	236		No matter what method I use, the picture always compressed successfully.

4	204	235	0.0244	76		The black point of the background is less than fix k at 50.
5	917	872	27.07	312		The black points on the background is also less than when fixing k at 50.

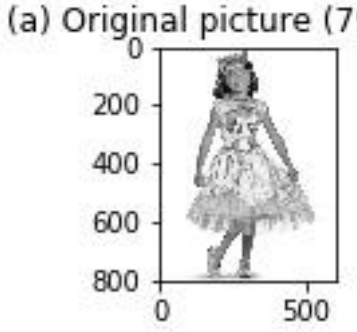
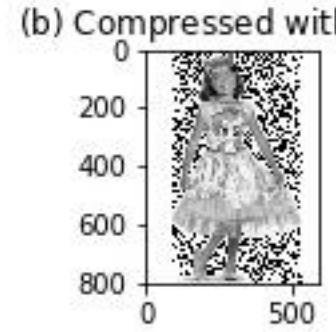
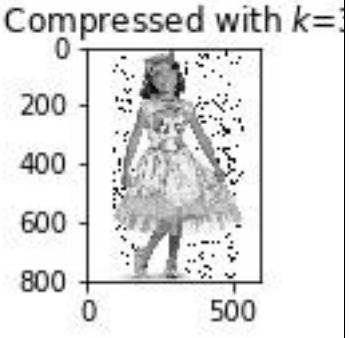
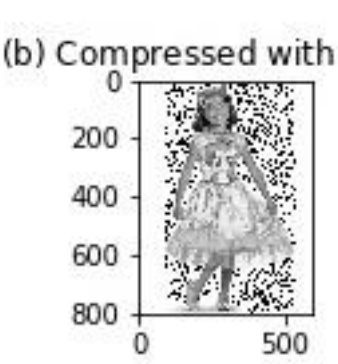
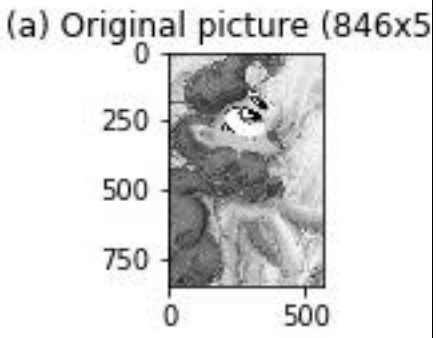
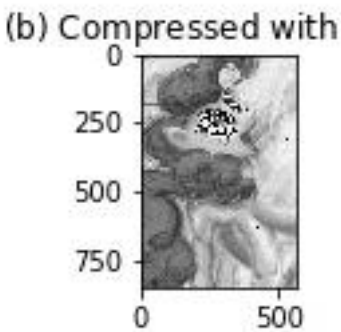
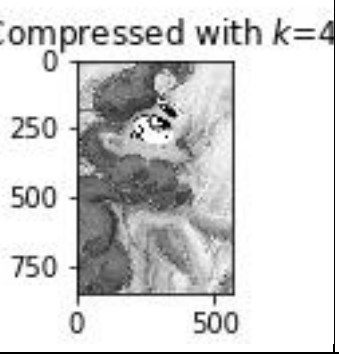
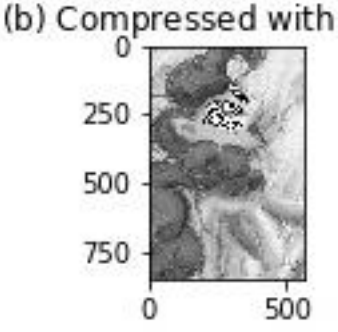


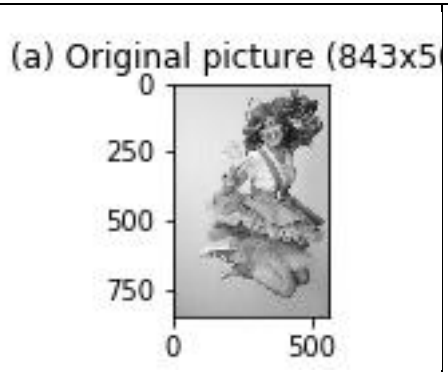
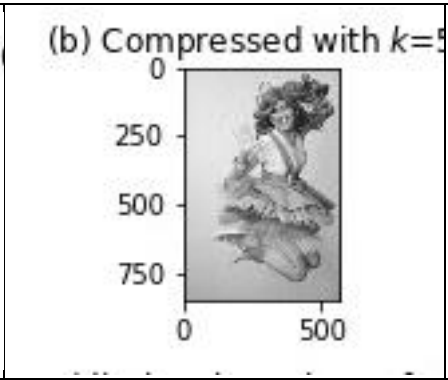
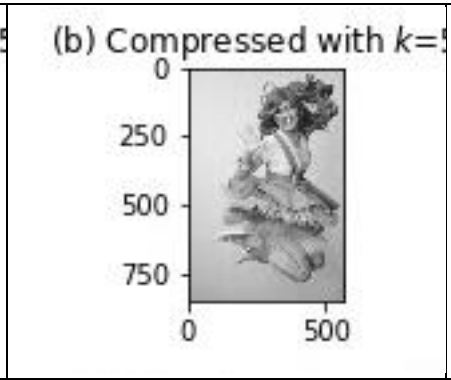
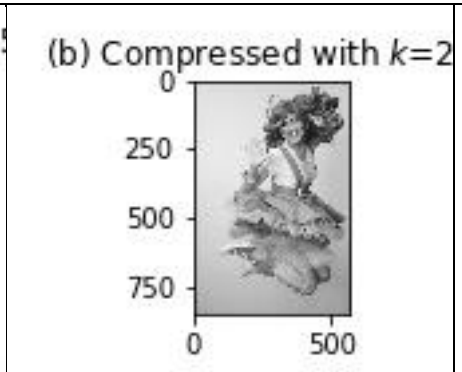
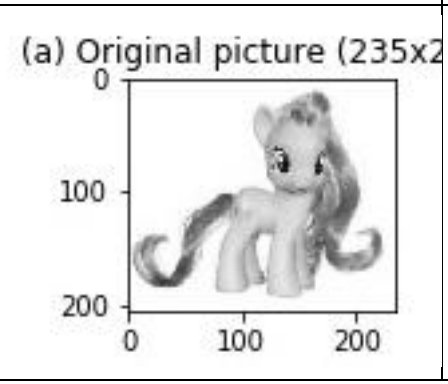
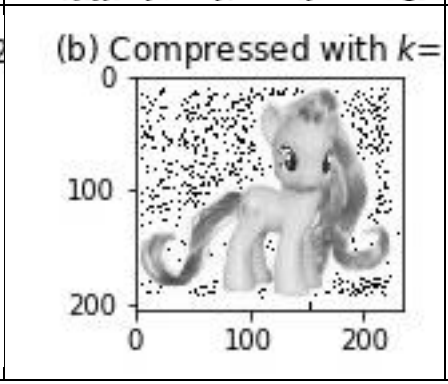
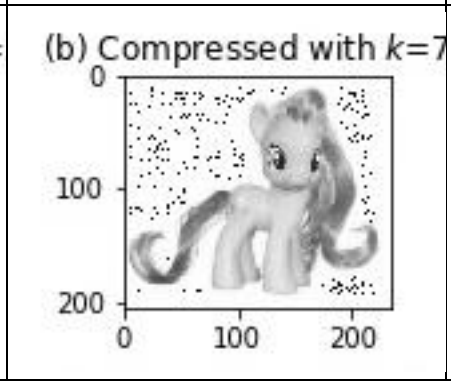
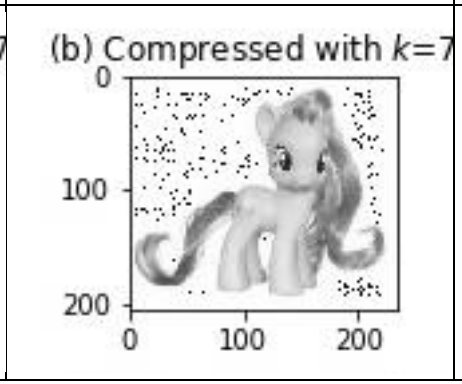
The meaning of delta

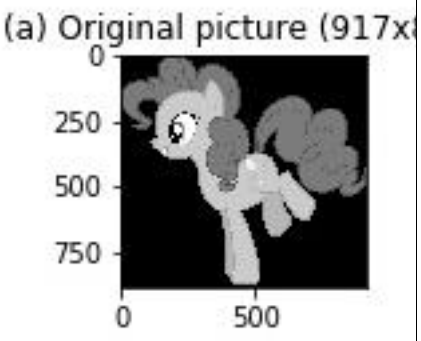
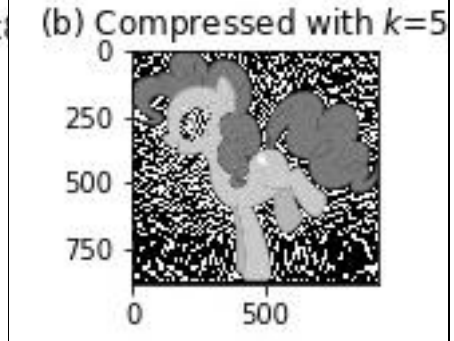
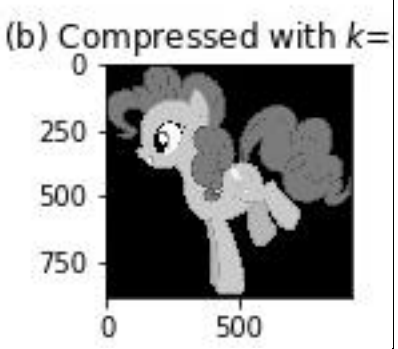
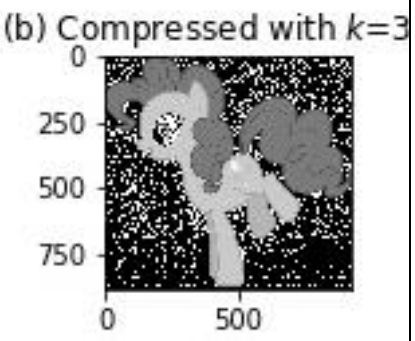
Delta is the average relative difference, which stands for the percentage of the pixel of the original picture.

The meaning of rho

Rho is the compression ratio, which means the percentage of the size of the original picture.

No.	original	K = 50	Delta = 3%	Rho = 0.7	Conclusion
1					Fixed delta generated the best result.
2					When compressing, the eye of the pony is mostly ruined.

3					The best well compressed picture of all 5.
4					The only difference of these result is black points at background.

5					The compressing time of this picture always took the longest time, it is because its size is the biggest of all 5.

Which of the five picture is the easiest to compress

Picture 3 is the most easiest to compress.