

Answers_11510478

Question 1

(a)

S1 and S2 are not 4-adjacent, because the only pixel of S1 that belongs to V at the boundary is (4,4), and it's not 4-adjacent to any pixel in S2.

(b)

S1 and S2 are 8-adjacent, because (4,4) in S1 is 8-adjacent with (3,1) in S2.

(c)

S1 and S2 are m-adjacent, because (4,4) in S1 is m-adjacent with (3,1) in S2.

Question 2

(a) $V=\{0,1\}$

- 4-adjacent path does not exist, because p has no 4-adjacent pixel.
- 8-adjacent path: $p \rightarrow (4,2) \rightarrow (4,3) \rightarrow (3,3) \rightarrow (2,3) \rightarrow q$
- m-adjacent path: $p \rightarrow (4,2) \rightarrow (4,3) \rightarrow (3,3) \rightarrow (2,3) \rightarrow q$

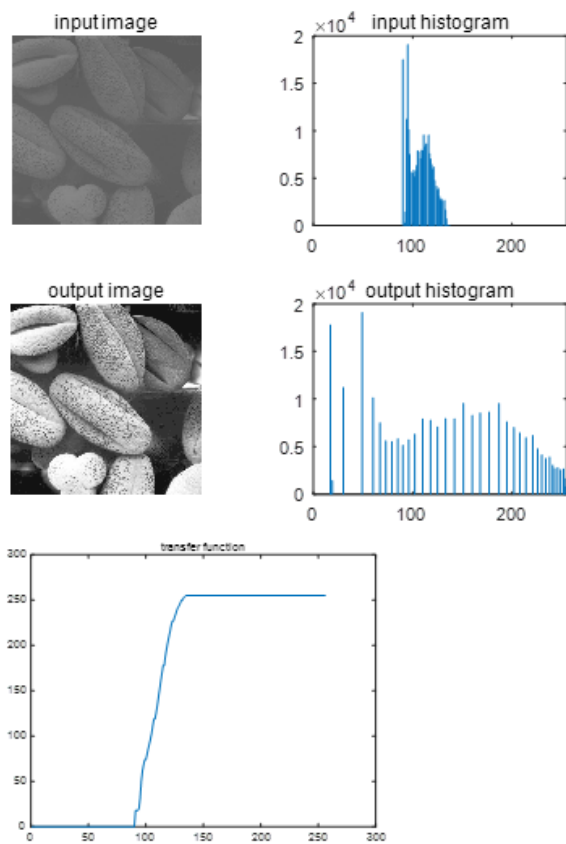
(b) $V=\{1,2\}$

- 4-adjacent path: $p \rightarrow (3,1) \rightarrow (3,2) \rightarrow (3,3) \rightarrow (3,4) \rightarrow (2,4) \rightarrow q$
 - 8-adjacent path: $p \rightarrow (3,2) \rightarrow (3,3) \rightarrow (3,4) \rightarrow (2,4) \rightarrow q$
 - m-adjacent path: $p \rightarrow (3,2) \rightarrow (3,3) \rightarrow (3,4) \rightarrow (2,4) \rightarrow q$
-

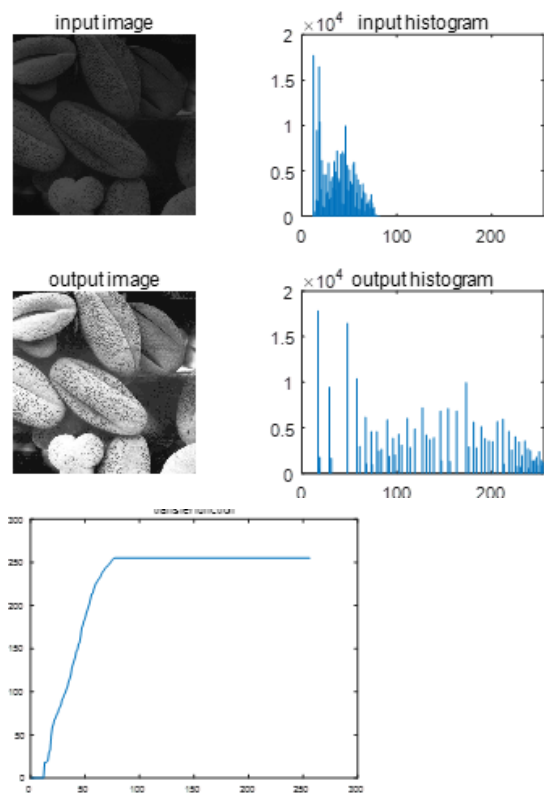
Question 3

3.1

```
HistEq_11510478('Q2_1_1.tif')
```



```
HistEq_11510478('Q2_1_2.tif')
```

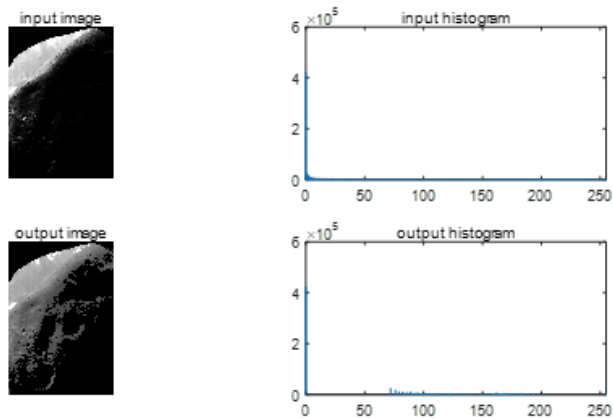


3.2

For this question, I take the screen shot of the ideal output image on the book, and first calculate its histogram, as the input histogram of my function.

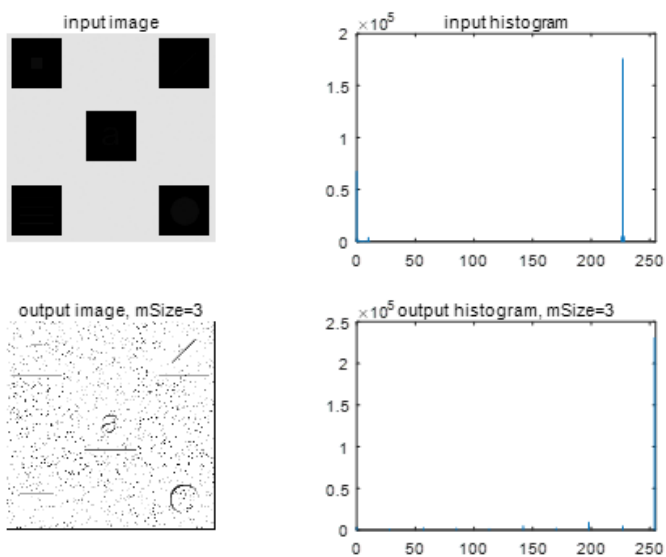
In my function `HistMatch_11510478`, I set the array `G_1` slightly different of the G^{-1} on the text book. my `G_1` takes r_k as the index, and z_q as the value, which means `G_1` can directly convert the input intensity value to the output intensity value.

```
[oim,oh,mySpecHist] = HistEq_11510478('Q2_spechist.tif');
HistMatch_11510478( 'Q2_2.tif', mySpecHist )
```



3.3

```
LocalHistEq_11510478( 'Q2_3.tif', 3 )
```



3.4

```
ReduceSAP_11510478( 'Q2_4.tif', 3 )
```

