

Group -8

Assignment 2

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The Algorithm:

1. Create an array of size 9 and initialize it as follows.

1	2	3	4	5	6	7	8	9
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2. Take the cycles as input from the user. Let's say the cycles entered are: (1,5,7,8)(2,9)

for cycle in cycles:

 First_element = cycle[0]

 last_element = cycle[0]

 for element in cycle and element no is not 0:

 array[last_element] = element

 array[cycle[last_element]] = first_element

3. This gives a transformed array as below:

5	9	3	4	7	6	8	1	2
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Here, the value 5 at index 0 denotes that 1 -> 5. Similarly value 9 at index 1 denotes that 2 -> 9. And so on.

4. Similarly create an array for the second cycle, say array2

Say the second cycle is (1,2,6,8), (3,7,9)

The modified array becomes:

2	6	7	4	5	8	9	1	3
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5. Initialize a final array say arrayFinal.

6. For index of arrayFinal

 arrayFinal[index] = array2[array[index]]

This will give the arrayFinal as follows:

5	3	7	4	9	8	1	2	6
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This serves as the resulting permutation. Now the task in hand is to find the cycles from it.

7. Create a list and store arrayFinal[0] in it.
8. While arrayFinal[arrayFinal[previous]] no equal to arrayFinal[0]
 Insert arrayFinal[arrayfinal[previous]] to the list.
 previous= arrayFinal[arrayFinal[previous]]
9. Create a new list with the first element from the left which has not been already inserted in any of the previous list and repeat step 8.
10. The final permutation cycle obtained by above algorithm would be-
 (1,5,9,6,8,2,3,7)