Given an array traverse the array once and keep track of the count of the number of elements in the first bucket (bucket1), second bucket (bucket2) and third bucket (bucket3).
Once we get the count then we can initialise three pointers at the beginning of each bucket.
Lets call these pointers to be first ,second and third.

Compare the elements pointed by these pointers with each other.
If the elements pointed by these pointers belongs to that respective bucket then increment that pointer
Cases possible are as follows :

1) Element pointed by first pointer belongs to bucket2 and element pointed by second pointer belongs to bucket1, then simply exchange the elements and increment both the pointers.
(Similarly do the same if such case arises for bucket2 and bucket3 or bucket1 and bucket3)

 2) Element pointed by first pointer belongs to bucket2, Element pointed by second pointer belongs to bucket3 and Element pointed by third pointer belongs to bucket1. So move the elements such that all elements go to their respective buckets and increment all the pointers.
(Similarly do the same for all such cases in which cyclic movement of elements is required)