Partition Loop Invariant

Write a loop invariant for the Partition function, and then prove that the partition procedure is correct by showing that the loop invariant holds for initialization, maintenance, and termination.

1. Loop invariant (write a statement that can be easily proven true or false, that references the purpose of the loop, and references variables that change each iteration):

2. Initialization (show that the loop invariant is true before the loop starts):

3. Maintenance (show that the loop invariant holds when executing any iteration):

4. Termination (show that the loop invariant holds once the loop ends):