For this Monty Hall problem

Let’s analyze this problem with two separated situations. 1. Always swapping 2. Never Swapping

In the first situation, originally the chance of picking a dud is 2/3, the chance of picking a car is 1/3. Let’s say if a car is behind the door that you pick, after the host reveal one dud, after swapping the door, the chance of winning a dud is at least 1/3. And if there is a dud behind the door that you already picked. Then, after the host reveal a dud, then you swap, the chance of winning the car is 100%. So, if your strategy is always swapping, the chance of winning the car = the chance of picking a door that has dud behind it = 2/3.

In the second situation, originally the chance of picking a dud is 2/3, the chance of picking a car is 1/3. If there it is a dud behind the door you already picked, and you stick to your choice, then the probability of winning a dud is still 2/3. If there is a car behind the door that you already picked, and you stick to your choice, then the probability of winning the car is still 1/3.

Therefore, we should always swap.