Class Activity

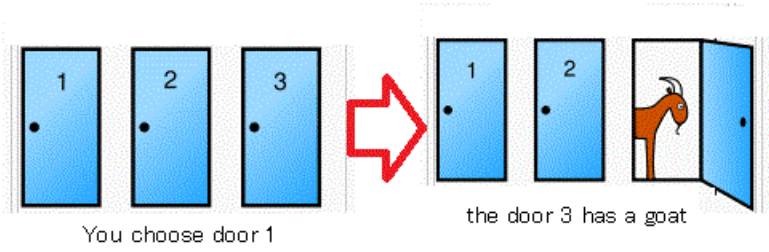
The Monty Hall problem is a famous probability puzzle named after the host of the television game show "Let's Make a Deal," Monty Hall. The problem can be described as follows:

I. A contestant is presented with three doors. Behind one of the doors is a valuable prize (a flashy red car), and behind each of the other two doors is a less desirable prize (a goat).

II. The contestant is asked to choose one of the doors, but the door is not immediately opened.

III. Monty knows what is behind each door, and he then opens one of the two unselected doors, revealing a goat. Importantly, Monty will always reveal a goat and will never open the door that the contestant initially chose.

IV. Now, the contestant is given a choice: stick with their original door or switch to the other unopened door.



Let's suppose you are the contestant. Monty asks you what door you believe the car is behind, and you choose Door 1. Monty then opens Door 3 and reveals there is a goat. Would you switch to Door 2 or stick with Door 1?

Based on the class discussion, what would be the optimal choice to make on the classic Monty Hall problem? Explain with proper reasoning.