Darth Vader captures 23 rebels (including you) and brings them to the Death Star. You plead for the release, and Darth Vader decides to give you a riddle.

- All of you will be randomly placed into a holding cell numbered 1 thru 23. Everyone will be alone in the room, and will not be able to communicate with another.
- There is a special room, in which there are two buttons. Each button can display either blue or red. Buttons toggle color from red to blue or blue to red when pressed. They are not linked to each other, meaning that there are four possible states (red/red, red/blue, blue/red, blue/blue).
- Both of the buttons display blue currently.
- Darth Vader will escort ONE random prisoner at a time to the special room. While in the special room, the prisoner MUST press ONE and ONLY ONE button. The prisoner is then returned to his/her cell.
- At any time, one of you can tell Darth Vader that everyone has visited the special room. If correct, Darth Vader will let everyone go. If not, you will all be executed.

Darth Vader allows you to have a strategy meeting before taking all of you to your holding cells. Can you escape the Death Star safely with everyone? Or is Darth Vader just toying with you? Provide the details of your strategy or logic while it is impossible to escape.

This problem is brought to you by Prof. Choong-Soo Lee.

Submit your solutions to Prof. Choong-Soo Lee, clee@stlawu.edu. You may submit either a hard copy or an electronic copy via Sakai.

Good Luck!!