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Project 2

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Algorithm:

1. Use the class Random to randomly choose which door the prize will be in using the formula (int) (Math.random()\*3) + 1
2. Prompt the user which door they would like to open (1, 2, or 3) and use the Scanner class to store the answer into an int called door
3. Use the formula (int) (Math.random()\*2) + 1 (stored in the int aNewRandomNumber) to select between 2 doors instead of 3
4. If door equals prize and door equals 1 and the formula above selects number 1, then the other empty door will be 2; if aNewRandomNumber selects 2, then the other empty door will be 3.
5. Else if the door and prize equal 2, then aNewRandomNumber will select either empty door 1 or 3 as the remaining empty doors.
6. Else (implying the door and prize equal 3), then aNewRandomNumber will select either empty door 1 or 2.
7. If the prize doesn’t equal the door the user selected, then if the user chose door 1 and the prize is in door 2, the other empty door will be 3. Also, if the prize is in door 3, the other empty door will be 2.
8. Else if the prize doesn’t equal the door the user selected, then if the user chose door 2 and the prize is in door 1, the other empty door will be 3. Also, if the prize is in door 3, the other empty door will be 1.
9. Else (meaning if the prize doesn’t equal the door the user selected and if the user chose door 3), if the prize is in door 1, the other empty door will be 2. Also, if the prize is in door 2, the other empty door will be 1.
10. Tell the reader either the random empty door or the other empty door (based on whether the door the user chose contains the prize or not) and ask them if they would like to switch the third door or not.
11. Store the answer in a String called answer.
12. If answer equals “yes” or “y” (ignoring case), and the empty door is 1, if the door the user chose was 2, then the door they will choose is 3; if the door the user chose was 3, then the door they will choose to open is 2.
13. If answer equals “yes” or “y” (ignoring case), and the empty door is 2, if the door the user chose was 1, then the door they will choose is 3; if the door the user chose was 3, then the door they will choose to open is 1.
14. If answer equals “yes” or “y” (ignoring case), and the empty door is 3, if the door the user chose was 1, then the door they will choose is 2; if the door the user chose was 2, then the door they will choose to open is 1.
15. If answer equals “no” or “n” (ignoring case), then the door the user will open is their originally chosen door.
16. If the door the user opens contains the prize (equals prize), then the computer will display which door has the prize and that they won.
17. If the door the user opens does not contain the prize, then the computer will display that the door they chose to open is empty, which door contains the prize, and that they lose.