Lab 4:

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2. We spent around 6+ hours programming this lab

3. Each pixel in the map is just 1m x 1m. So we multiplied it by 300 to convert it into a feasible size.

4.In the case of the red line, we have to multiply pose_x and pose_y by 300 to get the red line coordinates. If the odometry was incorrect, the generated line would not reflect the path the robot is taking. This applies to any calculations involving pose_x and pose_y.

5. If the resolution is too low, the coordinates of pixels will get rounded and they will be printed on top of eachother, making it harder to see what is going on in the map. If the resolution is too high, there will be gaps in objects displayed in the map as there aren't enough calculations to fill in those pixels also due to the rounding.

6. You can store the lidar sensor readings from the starting position in an array, and do checks at each timestep to see if they are equal to each other, indicating a return to the starting point. Although I dont think its possible to have a repeat of the exact sensor readings from all 21 sensors, I guess you could also store multiple iterations of the lidar readings for extra certainty.