Syed Sirajuddin PROJECT NOTES:

Notes for IGN:

**Challenge 1**: For the first questions, I first thought about how the balls would be oriented in a bus. After thinking about it carefully, I realized that the balls could be oriented in 3 different ways to fit inside a rectangular box. The first way would be if you stacked the balls on top of each other so that they would stack one on top of other (pic 1). The second way would be if they were closely packed, meaning that the space available between each ball would be used to stack the row above (http://en.wikipedia.org/wiki/Close-packing\_of\_equal\_spheres). The third way would be some combination between the closely packed balls and the stacked balls. There would be tradeoffs between the closely packed balls and the stacked ones. For example, if the balls where relatively big compared to the container, then it would be more feasible to use the stacked orientation since the space saved by using the closely packed orientation could not be used to fit more balls in. However, if the container was much larger than the balls, then you could fit more balls in using a closely packed orientation. Regardless, I tried taking into the account both scenarios (forgoing any combination of closely packed and stacked balls for simplicity) and calculated the maximum of the two orientations for a given container and ball size. The program labeled IGNq1 shows the calculations used.

**Challenge 2**: For challenge two, I was unsure on what type of liquid layout I was to use, and since I didn't have much experience with CSS and HTML, I decided a simple digital 8 ball would be a good solution. The resulting webpage (labeled Welcome) uses a liquid background and text with some user interaction. The reason that one would use a liquid layout is because it allows the designer to not worry about re-designing websites for different screen-resolutions; thus web pages can conform to any browser on any resolution. Also, you can ensure that all the content you wish to be visible can be visible without the need for scroll bars.

**Challenge 3**: I was unsure about what this challenge was asking. Looking at the examples, I assumed that the question disregarded the ordering/arrangements of the letters and numbers (for example, an ordering [NUMBER][LETTER][NUMBER] was the same as [LETTER][NUMBER][NUMBER] and [NUMBER][NUMBER][LETTER]). However, if my assumption is wrong, just email me and I can do a simple edit to take ordering into account (I was assuming that you didn't expect the programmers to know about combinatorics).

**BONUS CHALLENGE**: I have finished the Connect-Four game using java applets. The player can choose to be player one or player two against a computer controlled opponent or another human if desired.