Emily Simon
Computer Science

Assignment 0

1. I would tell the extraterrestrial to write the letter E on a piece of paper. When the E is facing normally, the 3 parallel lines that construct the E extend out in the direction that would be considered the right. If you were to rotate the E 180 degrees, the three parallel lines would be extending in the direction that would be considered left.

2. I would develop mapping technology through code (similar to Google maps software). I would then implement this technology in a set of towns with various populations and urban planning styles (a robust and heavily frequented public transportation system as opposed to a city that relies more on single user transport) and then generalize that data (using code) to the entire United States. I would then apply the same process to several different countries (as many have different practices when it comes to transport) in order to yield more accurate results as it applies to the entire world.

3.

Apple	Orange	Apple & Orange

So say that you have three baskets that are all mislabelled, you have to pick from the basket labelled "Apple & Orange" since whichever fruit you get will be the only fruit in the basket since the label needs to be incorrect. Say you were to be handed an orange once you chose the apple & orange basket. With this information, you now know that the apple & orange basket is now only oranges. So your options for the remaining baskets are as follows:

Original: Apple Choices Remaining: Orange Apple & Orange	Original: Orange Choices Remaining: Apple Apple & Orange	Original: Apple & Orange Correct Label: Orange

With this information, you then now that the originally labelled apple must be apple & orange as the orange label corresponded to the original apple & orange label.

Original: Apple Correct Label: Apple & Orange	Original: Orange Choices Remaining: Apple Apple & Orange	Original: Apple & Orange Correct Label: Orange

Because we know that the basket with the original label apple is apple & orange, the only remaining choice would be Apple for the basket originally labelled orange.

Original: Apple Correct Label:	Original: Orange Correct Label:	Original: Apple & Orange Correct Label:

| Apple & Orange | Apple | Orange |

4. The way I approached the problem is that the first quarter would serve as the center point and the rest of the quarters would continue to build around the first:

3	3	3	3	3
3	2	2	2	3
3	2	1	2	3
3	2	2	2	3
3	3	3	3	3

This would continue to build in odd numbers as each row increases by 2 across any given side of the figure (the top goes from 1 block to 3 blocks to 5 blocks). Because of the rate that it increases, there will always be an odd number of squares (places where the quarter can be placed). Therefore, if you are to go first, then you would not run out of places first because the second person would always be placing their quarter in an even number quadrant.

5. For this task, I would first find the multiples of 11 that are less than 1000 (11,22,33…). I would then divide these multiples by 12 to see which yield a remainder of 5 (77,209,341…). Lastly, I would divide these numbers by 13 to see which yields remainder 3 (341). In python, this could be done similar to the process we did in class when practicing pseudocode. You would use different mod sequences until the answer is yielded.

6. Computer science can be used in many fields. Artificial intelligence allows us to better specific fields like economic forecasting and data analysis. This is useful as entities like the Federal Reserve or several large corporations could use this data analysis software in order to predict what practices should be implemented in the economy or in their businesses (so it would be applicable to Macro and Microeconomics). Computer science can also be used to track stock prices and exchange rates faster and more efficiently which is useful because it allows those who monitor and work with this data to do so in a better fashion. Computer science can also be used in medicine and human physiology in order to implement better medicine like prosthethics.Computer science can also be used in cybersecurity, protecting classified information like in branches of government for example.

7. In order to develop good code, the code generated needs to work efficiently and accomplish the task it was developed to do. This is accomplished through debugging the code prior to its implementation so that it runs correctly. It also should be easy to apply to several different circumstances so that its uses can be maximized. It also needs to be easy to understand so that it is accessible to many and its uses can be maximized.

8. I have had no prior experience in computer science. I am hoping this class allows me to begin exposing myself to this important field so I am better able to understand the

science of it and its many applications, especially in fields that interest me like economics and public policy.