This writing assignment is about the two required readings thus far in *The Pattern on the Stone* by Daniel Hillis. These readings are:

- The Preface (pp. VII - XI)
- Nuts and Bolts (pp. 1 - 10)

Using the information from these readings, answer the following questions:

1) Hillis describes three themes which he feels describe the nature of computer science. Two of those themes were the concept of *functional abstraction* and the *universal computer*.

   a. Where have we seen the concept of functional abstraction in this course? Give an example of functional abstraction in computer science.

   b. What do you feel Hillis means when he describes the concept of the universal computer?

2) Hillis states: “Most of the changes we’ve seen in business, politics, science, and philosophy in that time have been caused by, or enabled by, developments in information technology. A lot of things are different in the world today, but the difference that has made the difference has been computers.” (pg. X)

   a. Do you agree with Hillis’ assessment of the impact of information technology? Be sure to give some reason in your explanation.

   b. Give an example of something that you feel has changed considerably due to the increasing advancement of information technology.

   c. Give a counter-example. (ie. something that has not changed)

3) Hillis states: “… the true power of the computer is that it is capable of manipulating not just the expression of ideas but also the ideas themselves”. (pg. XI)

   a. What does this sentence mean to you? Do you feel like the manipulation of an idea could occur without the aid of a computer?

   b. Can you think of any time in recent or past history where ideas themselves were manipulated (not necessarily by computers) for a particular purpose?
4) Think about the game of Tic-Tac-Toe. Each square has three possible states (X, O, and blank), leading to $3^9$ (19,683) ways to fill the 3x3 grid. Hillis states that most of these patterns will never occur in the course of the game. Can you think of some of the examples that he is referring to that will never occur in the course of the game?

a. As a bonus exercise, can you think another clever way to reduce the total number of board configurations in Tic-Tac-Toe? (Try to think of anything, it’s ok if this stumps you!)

5) To hand this assignment in, you will post it as a blog entry to your CSC101 Journal.

- If you are completing this writing assignment prior to Lab3 on Tuesday, you will post this assignment to the index.html page located in your csc101 folder.
- If you are completing this after Lab3 on Tuesday, you will post this assignment to the newly created page, entries.html, located in your csc101 folder. This is the page we will be using for our journal from now on.

Consult your past lab reports, or the information found at w3schools if you are unsure of how to do this. Add a horizontal line between your last entry and this one, and also include the date the assignment is due under the horizontal line. Use any of the formatting tags that you know (or even some new ones) to make your entry look good.

a. Here are some tips to help you out:

i. Remember what the tags <br> and <p> do. Which one needs to be paired?

ii. Make sure your edited page looks the way you want it before trying to upload it to the server.

iii. In order to upload your webpage, you need to be on the student network. You can copy your files from your computer, and paste it in the www-home/csc101 folder on the server.

6) I will check the following link to see if your entry exists:

a. http://www.wfu.edu/~user/csc101

b. Be sure to check this link to make sure your assignment appears online.