HW1

1. A:

The reasons why the owner of Viaweb used Lisp as the main language is that, (1) it is the business purpose. When using Lisp, developers of Viaweb has a faster way to finish the software or add any new features than their competitors while those business rival tends to use C++. Even the competitor releases the new features Viaweb does not contain, with the fast development cycle, the developers of Viaweb can create a same one in just about one or two days. With that, they are always ahead of their competitors. The result is, those competitors ran out of business. (2) In addition, the developers of Viaweb did not even get a real job before, they did not have any experience of running a company. However, since Lisp is high level, they did not need to have a development team that cost software companies a lot.

B:

What the Blub paradox means is that we can’t actually justify a good object is better than the other similar one while performing the same type of work. For instance, just like the example that the article provided, LISP the most powerful language, but people might use other language the main language because of any reasons, such as, habit. In addition to the difference between programming language power and the Turing machine power, even if the latter is a good one, the programming language power can do everything programmers want, that implies it is better one.

C:

The number of innovative features in Lisp.

* 1. Garbage Collection which is the feature widely spread into the modern programming language such as, Java and Small talk. This technique would give the unused memory back to the system
  2. Recursion allows a function to call itself
  3. Conditionals are the truth statement to evaluate some condition by using if-then-else procedure
  4. Function type is function that has the data type like integer and string

All of them are widely used in modern languages, such as, C, C++, and Java.

D:

Reaction on Beating the Averages

Business men use various strategies to drive their competitors out of the business. Then they can corner the market and earn as much they can. The founders of Viaweb did the same thing. They used the language Lisp, which was relatively unknown compared to other, more popular languages at the time. It had a faster development cycle. That made their business successful.

On the other hand of the Blub parabox, I would say it is personal preference. For me, I would not permanently stick with any particular languages that I have now. In the future, I might learn something else that is more useful for the application I am building. There are two reasons for that. First, I tend to follow the trend of technology in the future. I am not saying that I am going to create the future. But at least, I would find out what would be most likely useful in the coming years. Second, the job requires me to use a particular language in order to stay in the company. For instance, I have no idea about the Objective C that Apple Company uses for its operating system. If I have a chance to work in Apple as a software developer, I am required to learn as much as learn about Objective C in order to collaborate with my colleagues.

I think Lisp is a good language to learn. There are least two reasons for that. First, the author states that learning Lisp can help us become a better programmer. It helps programmers understand more about the nature of programming language. In addition, the reason why programmers tend to program more is because we want to have more experience about writing software. The more experience of programming, the better we are as the software developers. Second, this language can help a programmer who wants to start business. With this language learned, a programmer can develop faster. A successful business sometimes just needs good timing. If one runs faster, then the other falls behind.

If anyone who really thinks of that he needs to learn Lisp, go forward as with the reason stated above. Lisp helped the owner of Viaweb a lot.

1. a:

Through the process of the KWIC system, any amount of lines that contains words would be nice formatted in alphabetical order as the lines to be outputted.

b:

Original Text: Computer languages are very hard

to understand and we hate it

Circular Shifted: are very hard Computer languages

and we hate it to understand

Computer languages are very hard

hard Computer languas are very

hate it to understand and we

it to understand and we hate

languages are very hard Computer

to understand and we hate it

understand and we hate it to

very hard Computer languages are

we hate it to understand and

c:

Decomposition one: 1. Get the line from input

2. Putting the first word at the end of the line

and shift every remaining word to toward the first word once

3. Order the line with by the first letter of the words (alphabetically)

4. Print them out

5. Handle errors and space allocation.

Decomposition two: 1. Provide the ability to find out the letter of a particular word

in the particular line; change the letter of a particular word

in the particular line; return particular words; delete a

particular line or word

2. Read a line and have the storage module stored the line

3. Shift the word by using the function CSCHAR

4. Using the functions ALPH and the ITH to alphabetically order the lines

5. Print them out

6. Handle errors and space allocation

d:

Advantages of the second Decomposition over the first one:

1. The change of the second module does not require the change of all modules. However, the change of the second module would change all modules in the first decomposition.
2. If changing to print the index not storing requires the change of the fourth module in the second decomposition. It needs to change the alphabetizer and the output routines of the first decomposition.
3. The second decomposition would be faster to alphabetize the list because it is no need to wait the index to be complete and then start.

Disadvantage of the second decomposition over the first one:

1. The second decomposition would suffer from not implementing as an order procedure that would cause the program to become less efficient.
2. a:

An identifier which is defined in a C file but not in any function of that file, and it is not a static type, is a global variable that is visible to the entire program. The name of this identifier will conflict with the same name in other files of the same program.

b:

Any static identifier declared inside a function is only initialized once and its value will remain when the function exits. For example, a function with the static variable inside of it gets the first call, the static variable would be initialized. Once the function exits, the value of that variable remains. Next time the same function gets called, that variable would not be reinitialized. It will use the value before the function exits whether there are any update to that value.

c:

There are two possible outcomes to the pointer identifier without static in the function. First, the pointer identifier does not use the function call malloc. Once the function exits, any update to that identifier would be lost. Second, if that pointer identifier is used with the function call malloc, the value would that pointer identifier would stay. However, if the same function gets called, it will reinitialized the pointer identifier.

A:

The scope of an identifier is based on where it is declared. For instance, if the variable is created inside of a block, this variable can only be seen where it is declare inside of the block and ends at the closing brace }. If the identifier is declared within a function, then, this identifier can only be accessed in this function. If a variable is created externally, then this variable can be accessed to any file in the same program.

B:

With a function call, the identifier’s referent would be created, and it would be deleted once this same function exits, if the identifier does not mark as static

C:

The allocation method of the identifier’s referent is to ask the computer system to give some memory to the identifier if there are available memory that can be granted by the request.