**Abstraction in Algorithms & SCI**

**Algorithm’s main point:**

"*We can solve any problem by introducing an extra level of indirection (abstraction).*" (David Wheeler; British Computer Scientist)

In most algorithms we studied, we first introduced a high level design that solves the problem, then went to the details and saw how to implement that.

**SCI main point:**

By practicing the Transcendental Meditation technique, we reach the abstract pure intelligence. If we act from this abstract level, any problem can be solved and we will have infinite achievement and fulfilment.

**Connection between Algorithms and SCI:**

We used the abstraction concept in many aspects during the course. First, in the algorithms we’ve studied, we initially introduced the solution regardless of how we are going to implement it. For example, sorting with priority queue: the general abstract algorithm is inserting all items to the queue then removing them one by one. After that, we discussed the implementation which specifies priority queue (heap based or sequence based) and the way to insert/remove from the queue.   
Another aspect of the abstraction we used is the ADTs:which is the abstraction of each data structure we defined. The third aspect of the abstraction includes exam review, exam study, and the information we need to maintainin our mind after the course. We discussed a lot of details in the course, but the most important thing is to have the picture and the key information that will be used in the job and interview. For example, we don’t need to memorize the implementation or the details for each data structure, but all we need is to have the main picture in our mind. By this picture, we can easily remember where to use this data structure and the running time of each operation. Similarly for sorting algorithms, graphs, and others alike.

By practicing TM, we reach the source of thought: the infinite pure abstract awareness and intelligence for all people in world. All thoughts spring from that source, which means all problems in the world come from there. In order to solve these problems, we need to act from that level.

The abstraction theorem is the fundamental theorem in computer science, not only for algorithms but all fields of computer science. For example, in system design we speak in design pattern language and high level without speaking out exactly how the code will look. By the abstraction theorem, we solve any problem in computer science. Similarly in SCI: by practicing TM, we reach the abstract intelligence, and if we act from that level, we get more fulfillment in life.