HW9 Question 1 Documentation and Testing

To get the output in q1_out.txt, I compiled and ran the q1_trace_simulator.c program 4 times (one for each of the cache models). The only two lines that needed to be changed with each successive run are lines 40 and 50.

In general, the C program creates instances of a virtual cache and trace simulator from the virtual_cache.h header file. Then it goes through each memory value in the trace file (using input based on the io.c file provided with us, but modified slightly).

Documentation:
For direct mapped:
line 40: *vcp = make_cache(1, 64);*
line 50: *printf("mode = direct mapped\n");*

For 2-way set associative:
line 40: *vcp = make_cache(2, 32);*
line 50: *printf("mode = 2-way set associative\n");*

For 4-way set associative:
line 40: *vcp = make_cache(4, 16);*
line 50: *printf("mode = 4-way set associative\n");*

For fully associative:
line 40: *vcp = make_cache(64, 1);*
line 50: *printf("mode = fully associative\n");*

For each change (in order), I ran the following commands from the terminal to compile and generate the output:

```
gcc -m32 -Wall -o Q1 q1_trace_simulator.c
./Q1 ../sample.txt >> q1_out.txt
```

Testing:
I compared my output to the sample output provided and it matched perfectly.