Phys/Chem/CS C191 section

Info

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Office hours: Monday 11:30am-12:30pm / Tuesday 9-10am
Course webpage: http://inst.eecs.berkeley.edu/~cs191/

Purpose and policies of the section

- To help you with the big questions of life, the universe and everything...
- ...more specifically, to help you with any questions regarding the course material...
- ...to gain a more in depth understanding of the concepts that are being thrown around in the lectures...
- ...and, of course, to help you with key sticking points in the problem sets (but remember that office hours are also there to be used)
- Please don't be afraid to ask unspecific questions, or questions that you are not quite sure how to formulate, those are often the ones that are most helpful when I try to figure out what it is I most need to help you understand (and in quantum mechanics, nobody really knows what the most important questions are anyway). Take a plunge and *start* asking the question, and we'll all try to figure out how best to finish it.
- Be equally unafraid to tell me when you think I should be doing something differently or if you have any comments about how I conduct sections or office hours.
- If you think of questions or suggestions or want to schedule a meeting outside section or office hours, my e-mail does not have restricted opening hours (barring server crashes and blue screens of death)

Discussion questions to get you thinking

Get together in small groups and voice your opinions on whether each of the following multiple-choice statements are right, wrong or some fuzzy superposition of the two.

1. Which slit does the photon go through in the double-slit experiment?
   (a) The left one
   (b) The right one
   (c) Both of them (possibly going round in a circle a couple of times, doing a funny figure-eight like dance, or other baroque patterns)
   (d) God knows!
2. The quantum state of a single quantum system (e.g. a single photon, electron, etc.) is
   (a) an objective and physical but not directly observable property of the system itself
   (b) a glorified kind of probability distribution for the outcomes of some fancy experiment you perform with the system
   (c) a funny mathematical object that contains all information it is possible to have about the system
   (d) a function that lets you calculate and predict anything you would ever want to about the system
3. A qubit contains
   (a) one bit of information (it's called a qu*bit* after all, and if you read it out, the result is always just 0 or 1)
   (b) an infinite amount of information (hey, you need *continuous* complex-valued coefficients to describe its state!)
   (c) secret messages from God
   (d) the answer to the great question of life the universe and everything (i.e. 6 bits, the minimum required to store the number 42)
4. A quantum computer is
   (a) a hell of a lot more powerful than any classical computer
   (b) an error-prone piece of hardware that's no threat to *my* online banking security
   (c) something that can calculate anything it is possible to calculate, as fast and efficiently as it is possible to calculate it (practical engineering matters aside, of course)
   (d) not something Microsoft would be interested in