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<div align="center">Computer Innovation</div>

2A. Quantum Computing is a major breakthrough in computer engineering and software for many reasons. The qubit is the center of the innovation because it has allowed the computer to have input other than a 1 or a 0 it has allowed it to be both. With this scientists are able to find things that they were unable to before, such as calculating the length of the bond within a molecule. It also allows problems to be solved much faster than ever before. When the computer is trying to find the correct path to a solution any path that leads to an incorrect solution is destroyed and the computer forgets the path to focus on other ones that either is still trying to be figured out or have given a close result.

2B. I used Google drawings for my computer innovation because it was the simplest to use. I used images online to portray the innovation and I used information from my sources to support why it is an innovation.

2C. One beneficial use of quantum computing is that it can create some of the smallest units imaginable. The quantum computer is able to accurately measure the bond length between two molecules. The computer is also able to make precise predictions and solve calculations related to quantum physics.

One negative side effect is that cybersecurity is greatly at risk Currently the design quantum computing chips are able to hold a max of 75 qubits. While this number may not seem like a lot it is greatly beneficial. However, when the number reaches 2000 qubits, and according to Moore's Law is not very far away, the computer will be able to crack any password ever created. The reason is that since a qubit is neither a 1 or a 0 but both or anything in between at the exact same time, within a matter of seconds the computer can find the password. This is a huge threat to life today. All bank accounts, personal info, and private information will be able to be exposed.

2D. As said before a quantum computer is not limited to an on or off input so it is able to be anything at a single time. When data is fed through the computer only takes a couple of seconds to find the best path to the solution and return that data. With destructive interference of the multiple paths being calculated, it is able to narrow in on the right path to the solution. When a right path is found constructive interference reassures the computer that this is the right path.

2E. Sources:

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