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It is quite clear that a quantum computer is more superior than a classical computer. There are certain tasks that a classical computer cannot execute without the need of absolute force. Factoring being one of them. A classical computer can only factorize small numbers, but it still requires a huge amount of force to execute this calculation. Thanks to Shor’s factoring algorithm for quantum computers larger numbers can now be factorized and do not require force in order to be executed. No one really knows what aspect of computing allows Shor’s algorithm to work faster than any possible algorithm for factoring. One aspect considered is entanglement, which was explained earlier. Classical computers are local and therefore require some time to resolve contingencies, this is not the case with quantum mechanics and so quantum computers have no need to resolve these problems and waste no time in doing so. Therefore, algorithms are executed twice as fast and larger numbers in large quantities can be factorized. Inside a classical computer, atoms move around slowly and so tasks are performed at a slow rate. That is not the case with a quantum computer. Atoms move and change much quicker inside a quantum computer allowing each task that a classical computer executes to be performed faster. Atoms don’t follow the rules of physics as they can move forwards or backwards in time. They can be in two places at the same time and even have a chance of teleportation. This provides a huge advantage for quantum physics and future computing. Qubits are used in a quantum computer which causes exponential speedup and a larger number of calculations to be performed with ease. The outcomes of measurement of a qubit contains a value of either 0,1 or any value in-between. A bit can only have one of the two outcomes, 0 or 1, but a qubit can have both and hence store twice as much information. This in turn allows a quantum computer to handle greater amounts of calculations and solve parallel problems at the same time.

There are so many pros with quantum computing, but what about the cons? There are pieces of technological equipment required for a quantum computer to be fully functional that is not yet available. Electrons are an essential element in quantum computing. Although there are some setbacks when working with electrons. When affected by the atmosphere they become damage and can no longer be used. We need a device that can prevent the damage caused to the electron in order to work with it. Scientists are working on that now, but no breakthrough yet. It suddenly becomes clear about the amount of technological equipment required to produce a quantum computer, not to mention running it. With all this equipment cost is an obvious factor to consider. A large business could have the funds to use and run these computers and will have great benefits in the long run, but what about the small businesses? Even if they did have the funds to buy this product, they would have nothing to run it or even their own business. Quantum computers are just too expensive and could ruin the income a business produces. Above the cost and the equipment that we require, what about the people who will possess this machine? A quantum computer would have the ability to hack any network system in the entire world, and in the wrong hands, damage will be done. A classical computer does not possess the security required for the government or any large association. For example, if a terrorist had possession of this machine, they will have access to every network known to man. They could get access to nuclear codes, and no-one would know. They would be untraceable and cause mass destruction.

Quantum computing will be part of our future and will forever be changing the way in which we live. As well as providing ways to improve the development of drugs and helping to preserve our agriculture, it will provide a strong income for our economy. It may take time for this process to begin but once it does there will be changes unlike no other. Financial, pharmaceutical and security industries will be the first ones to witness most of these changes in a short space of time. Once these sectors begin to change so will everything else. Products will be produced faster, and customers will have access to these goods as soon as possible. Hence forth more money will be spent on goods and businesses will begin to make a larger profit than before. This in turn will boost the economy and we will begin to see a decrease in the number of local and global businesses closing. Every government will have the funds, through taxes, to build essential facilities like schools, hospitals and economical factories along with essential services like paramedics, firefighters and the gardai. More and more children will have the chance to go to school and hospitals will no longer be over-crowded. We will be able to save more lives on the roads with an ambulance station set up in every town and village. Quantum computing is the way to go and will be one of the greatest discoveries ever made. It will change our perspective on life and change the way in which we live our lives. The only way is up.