“It’s fine to celebrate success, but it is more important to heed the lessons of failure.”

In 1968 Bill Gates wrote his first software program, a game of tic-tac-toe, while attending Lakeside Prep School in his birthplace of Seattle Washington. In 1975 together with his long-time friend and colleague Paul Allen he launched a Software Company called they called “Micro-soft” which stood for microprocessor software. Today Microsoft is one of the world’s most successful Software Companies and Bill Gates the world’s wealthiest man.

Brief Biography

Gates was first introduced to Computers and Software at the age of thirteen while attending Lakeside Prep School. He soon founded the Lakeside Programmer’s Club and took an interest in programming in BASIC. Gates first began working with computers by finding bugs in software in exchange for computer time for a company called Computer Center Corporation. In 1970 he, along with four other students, were hired to write a payroll program in COBOL. From these humble beginnings Bill’s fascination and obsession with programming software took off.

In November 1975 Gate’s took a leave of absence from his studies at Harvard to work with Paul Allen at Micro Instrumentation and Telemetry Systems(MITS) in order to develop a BASIC interpreter for the MITS’ Altair 8800 platform. Allen and Gates named their partnership “Micro-soft” which soon was shortened to “Microsoft”. Over forty years Microsoft is the world’s most successful software companies in the world.

Gates held the position of CEO and Chief Software Engineer at Microsoft until 2014.Currently his net worth is valued at 105.3 Billion US Dollars. He is an Investor, Author, Business Magnet, Software Engineer, Philanthropist and Humanitarian and is the co-founder of the world’s largest private charity, The Bill and Melinda Gates Foundation. Gates is well known for his extreme philanthropic efforts including such efforts as the attempt to extinguish Polio, major investments in improving sanitary conditions in third world countries and also investment in clean energy projects to reduce carbon emissions in the Earth’s atmosphere.

I personally find Gates an incredibly inspiring software engineer. I believe in many regards his principle values embody the soul of a great software engineer. Gates is a fearless, relentless and a smart strategic engineer and I firmly believe that he has left a titanic footprint on the software industry.

Work Strategy

One ideology of a software engineer that Stephen has always reiterated in lectures is that they do not intend on inventing the wheel; a great software engineer is someone who can take something and turn it into a piece of great work.
Throughout his entire career there is evidence that Gates is a master reinventor. From the very beginning of microsoft he has embodied this value. IBM, the leading supplier of computer equipment to commercial enterprises at the time, approached Microsoft in July 1980 concerning an operating system for its upcoming personal computer; the IBM PC.

Gates approached Seattle Computer Products(SCP) and obtained the licensing rights from SCP for their 86-DOS. Gates continued to build upon that and adapt the operating system for the IBM PC and delivered it to IBM as the PC DOS.

Gates did not build the first OS that IBM used, he bought the licensing rights for an existing product and improved it. This launched Microsoft into a major transformation from a small business to the World's leading software Company. The idea Stephen has always put forward to us that a software engineer doesn't have to create something new, that you can take a product and improve upon it so that it is excellent. That is the true genius of a software engineer and essentially this was what Gates did and continued to do for many years.

When I first began programming I was under the impression that a programmer was supposed to develop every single tool or program that he used. Only this year have I been truly introduced to the idea of innovation from a running start. Using tools and programs developed by other world class engineers and taking this work and using it to improve my own projects has really refocused my view on software engineering and reading about Gates' use of this method of programming has really inspired me to continue practicing it.

Relentless

Another attribute that I believe is part of being a great software engineer is relentlessness. A great software engineer never gives up, they continue to push until their best possible effort is at the table. A part of Bill Gates' makeup is relentlessness and I think this can be seen from his career as a software engineer and even as a philanthropist.

Gate is infamously renowned for his borderline insane work effort. Few anecdotes can illustrate the relentless force of Gate's better than his initial overnighters when the company was in its natal years "I worked weekends, I didn't really believe in vacations" Gates said "I had to be a little careful not to try and apply my standards to how hard [others] worked. I knew everybody's licence plate so I could look at the parking lot and see when people come in." While this is extreme I truly think that a 10x Software Engineer is someone who goes beyond the norm to achieve the best possible results, and these anecdotes about Gates' pure enthusiasm and dedication at the beginning of his career really inspire me. I have experienced quite a few nights spent in the sccs labs in Trinity with a couple of friends determined to get an assignment finished before the deadline and the feeling of following the work ethic of an extremely successful entrepreneur and engineer is very aspirational .

Gates' relentlessness is further highlighted in his ability to push co-workers further and further. Paul Allen described the early days of the company as a "high-stress environment" where Gates "drove other as hard as he drove himself". For me, a truly inspirational figure is not just someone who drives themselves to further heights, but someone who motivates the people around him to push themselves. A high tide raises all ships and Gates' relentless work effort evidently had this effect. When working on projects with other I always found that the ability of the group never solely relied on our mixed abilities, but rather the ability of one or two individuals who would push the button and make all of us create something we may have thought otherwise impossible. This is an ability I aspire to possess and to learn and read stories about Gates' embodiment of these virtues is enjoyable and interesting.

Fearless

From my studying of Gates' history and achievements one thing became quite apparent; his fearlessness. Bill has never been afraid of taking risks, famously saying "To win big, you sometimes have to take big risks". In 1975 Bill Gates took a risk when he left Harvard to start MIcrosoft. In 2008 he took a huge risk and halted working full-time at Microsoft to continue his work with the Bill and Melinda Gates Foundation. I know this essay is supposed to focus on Software Engineering but I truly believe that the attributes and motivations of a software engineer should always transcend just their work. For me a truly inspirational software engineer tackles problems in life as they would if they were sitting at a desk in front of a software program. Gates has done this within and beyond the realm of computing with his attempt to eradicate Polio in third world countries. Only one disease has ever been truly eradicated from the earth and many believe Gates' crazy to believe that he could do so. In 2007 the Bill and Melinda Gates Foundation joined other major health organizations and contributed nearly $3 billion toward eradicating polio by 2020. At first the effort began slowly and it was seen that cases of polio would resprout in areas which had already been vaccinated. The project realised that this was because in certain regions mapping was so badly done (in some cases like Nigeria the only maps they had were hand drawn by British colonists) and it seemed that vaccinating teams believed that other teams had covered areas that they had not. Gates' set about employing his software engineering mind and solved the problems with two solutions; They used extremely sophisticated data analytics algorithms to create information databases which held data that reflected the areas that were worst affected by polio and hence where the vaccination teams should target. They also employed the use of satellites to render high quality maps of areas unmapped before. This has resulted in polio being close to eradication by using software programming ability and employing it towards truly massive problems faced by the human race. In 2019 only few cases of polio have been reported in Pakistan and Afghanistan. This entire situation alludes to Gates' ability as a software engineer to apply his problem solving abilities to world problems. I as a software engineer wish to transcend just the programming part of being a software engineer and use it in my everyday life to improve myself and even perhaps the world just like Gates has done.

Impact and Legacy

As I said before, Gates' footprint on the software and entire computing industry is titanic. He is a household name and he has created an incredibly strong legacy. Bill Gates' legacy is one of incredible achievements and incredible inspiration. He co-founded microsoft and helped create the information age. Many people believed it was not possible to create a large business without assistance from mega-rich investors but he started one of the biggest companies in the world from his garage. He developed the most user friendly operating system for computers and created some of the most affordable computers available. Currently 1.5 billion people use

Windows. Another legacy of Gates' is the Bill and Melinda Gates Foundation, the possibilities are endless with this foundation. Gates took risks and in my opinion he is a true testament to what a software engineer should aspire to be.