**Linus Torvalds**

**Overview:**

Linus Torvalds is a Finnish-American software developer. He created the Linux kernel and the version control software Git (2).

**Early Life:**

Linus was born in Helsinki on the 28th of December 1961 (2). He was named after the chemist and double Nobel prize winner Linus Pauling (10). Pauling is one of two people to win a Nobel prize in multiple fields the other being Marie Curie (5). Pauling won his prizes for his contributions to the field of quantum mechanics in particular regarding chemical bonding (5). Later in life he spearheaded campaigns for nuclear disarmament (5). His name was also inspired by Linus Van Pelt the best friend of Charlie Brown in the Peanut’s comic strip (1) (6). Torvalds says that his name was an intentional comment on the duality of man by his parents (1). If his parents had seen the film Full Metal Jacket I could be writing the biography of the man who invented Jokex Kernel.

Linus Torvalds’ parents naming of him after such a prominent political activist may stem from the fact that they were themselves both radicals while studying at the University of Helsinki (10). Nils Torvalds, Linus’ father was a communist who studied in Moscow for a year during the 1970’s before returning to Finland to work as a radio journalist (10). Anna Torvalds, his mother was a translator for a Finnish newspaper and a creator of infographics. Torvalds has said that he is the black sheep of his family, having been born into a family of journalists (1)

Linus has said that he had a happy childhood though he doesn’t remember much before the age of 10 (1). When he was quite young his parents divorced and he, his mother and his younger sister moved in with one of the few non-journalist members of his family his maternal grandfather Leo Toerngvist (1) (10). Toerngvist was a professor of statistics at the university of Helsinki and he bought the Commodore Vic 20 in order to help with his calculations (1) (10). From the age of 11 the young Linus would sit and copy across the code which his grandfather had written out into the computer (1) (10).As time went on Linus began to read computer magazines and would copy across their code too, in order to play simple games (1). By the time he was approximately 12 or 13, Linus became increasingly frustrated with the limitations of the programs he was copying across and began to make his own modifications.

This is when Torvalds began to get more into programming. He had, much to the chagrin of his father, little interest in sports or girls (10). Torvalds went to computer clubs for the Vic 20 but found them rudimentary and filled with people only interested in playing the games that they created (1). Torvalds did play games as well but it was more as a means for him to attempt to develop his coding, the game which he says he is most proud of was a game in which you controlled a small submarine and avoided shoals of fish (1). Torvalds said that the reason he was proud of this was that he was able to have the submarine travel sideways along the screen as opposed to vertically (1).

For his schooling Torvalds went to a Swedish speaking school as he is part of the minority in Finland who speak Swedish as opposed to Finnish (10).

**Undergraduate Studies:**

Linus graduated from high school and went on to follow in is parent’s footsteps and enrolled at the University of Helsinki (10). Linus chose to major in Computer Science and minored in maths (10). While at university Torvalds became disaffected with the academic lifestyle citing his hatred of writing papers (1).

While in university Torvalds began to speak Finnish for the first time outside of shops and began to socialise outside of the Swedish speaking minority (1). He also learned the higher level language C in college (10). One of his modules required him to code in a higher level language and after some poor experiences with pascal VMS he changed to using C with Unix (1). Torvalds describes this class as a revelation (1). Up until that class he hadn’t considered operating systems as Helsinki University seemed to view them as complete (1).

During his time at university Torvalds also completed his mandatory military service and as a result of his completion holds the title Second Lieutenant in the Reserve in the Finnish army (1).

**Birth of Linux:**

In 1991 Torvalds bought an IBM compatible personal computer (10). When he bought the computer he began to look into what operating software to install. He wanted to use Unix but after spending all of his money on the PC he did not have the $5000 dollars required to buy it (10) so he went to the bookstore and ordered a book by Andrew Tanenbaum with which you got a reduced version of Unix called MINIX (1).

Torvalds became annoyed as MINIX and Unix both created a level of separation between him and the CPU so he began to write programs which he could boot directly off the floppy disc (1). Torvalds used these programs to browse web for internet news. As he began to use his programs more he realised that in order to download articles and information from newsgroups online he would need to design a file system (1).

As Linus began to add functionality to his programs he realised that he was in fact designing his own OS out of necessity (1). University in Finland is free and because of this Linus was able to take time out to work on his the new OS. In August 1991 Torvalds posted a message on a newsgroup asking for feedback from people on MINIX and what functions they would like to see added to a new OS (10).

A month later in September Torvalds’ finished his first version of Linux, 0.01 and a month after that released a statement online announcing the availability of his new OS along with the GCC or GNU C Compiler (10) (3). Torvalds’ released Linux under GPL, GNU public license which meant that anyone could update download and distribute the Linux source code, which he estimated ran to approximately 10,000 lines (1). This code can be found on GitHub (12).

The performance of Linux continued to improve as more programmers worked to improve its functionality (10). As Linux began to grow in popularity the University of Helsinki decided to reward Torvalds by assigning him the post of instructor. In his first class he gave the assignment that his students all had to send him an email. One of his students, Tove Minni took this opportunity to ask Linus out. She later became his wife and they have three children together (10).

**Growth of Linux:**

In 1994 conservative estimates placed Linux with approximately 3 million users worldwide, this more than double over the three years and when in 1997 Torvalds decided to leave university he had no problem getting a job in Silicon valley (10). The language barrier of moving to America did not frighten Torvalds as throughout his youth he had been an avid reader of Sci-Fi and had learned English through them. His favourite authors were Isaac Asimov and Robert Heinlein (1).

As a reward for his work companies provided Linus with stock and as Linux was adopted by Oracle, Intel etc. the value of these shares rose leaving Linus a millionaire many times over (10). The biggest investment in Linux came from IBM who saw the opportunity for its improvement and invested $1 Billion in its development. IBM is now the world’s largest vendor of Linux products with over $2 Billion in annual sales (10).

**Birth of Git:**

In April 2005 Linus was working on developing of Linux in the company Kernel. They had been using the version control software (VCS) BitKeeper, BK (4). Due to differences between some of the software engineers at Kernel and the CEO of BitMover, Larry McVoy (4).

In an email to the staff at Kernel Torvalds announced that though he had enjoyed BK the company would need a new VCS moving forward (4). He said that he would take a break to consider their options (4).

During this vacation Linus created Git (11). He says that after many people had made the joke that he named all his creations after himself, he decided to use the British slang for a stupid person (3).

As with Linux Torvalds mad the software available under GPL and allowed the wider community to make changes and add features which they felt would improve functionality (3).

**Why Linus Torvalds:**

When I began researching various influential software developers for this project I came across all the names which have made it into the mainstream media, your Zuckerbergs and your Gateses. And they had all accomplished quite a lot and some of it was very interesting, but after using git and GitHub for this module and others I was most interested by the man behind them. When further research revealed that git was not even his most prominent contribution to the world of computers I knew I would pick him. There is something extremely interesting about people who see problems as opportunities to adapt rather than obstacles. If all that Torvalds had wanted was an operating system then he would have made do with MINIX. If all he had really wanted was VCS then he could have paid the licensing fee for BK but instead he created the most used version control software available today and an OS which was built to expand and improve. The ability to see the opportunity created by his troubles and his manner of overcoming them inspire me.

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