CS3012 Software Engineer Biography

Linus Torvalds is a Finnish Software Engineer whose contributions to the world of computing and software include Git, arguably the premier source control system, and the Linux kernel, the centrepiece of the most widely used operating system in the world.

Torvalds' first forays into computers were at the age of 11 programming initially in BASIC on a Commodore VIC-20 but then progressing onto direct CPU access using machine code. Torvalds first dabbled with operating systems on a Sinclair QL writing software for it because "it was so hard to get software for it in Finland". This could be viewed as shaping Torvalds ethos of using the best tool for the job and if none are available creating your own.

Torvalds graduated University of Helsinki on 1996 with a master's degree in computer science. During his University years Torvalds encountered UNIX systems during University after buying Andrew Tanenbaum's book "Operating Systems: Design and Implementation" which detailed MINIX, an education intended stripped down version of UNIX. He first interacted with a UNIX system through a DEC MicroVAX. In 1991 he got his own Intel 80386 based machine and a copy of MINIX which allowed him to begin work on Linux.

Torvalds Master's Thesis was titled "Linux: A Portable Operating System". The first Prototypes of Linux were released in 1991 with the full version 1.0 being released in March 1994. Torvalds holds the belief that "open source is the only way to do software". The Linux kernel which Torvalds wrote and is still in charge of maintaining is the centrepiece of all operating systems within the Linux family. These operating systems are present in all types of systems for super-computers, servers, and desktop PCs down to embedded devices like routers, television boxes, smart televisions etc. The Android Operating System which is the largest mobile operating system is based on the Linux kernel. The popularity of the Linux system was due in part to its Unix based ethos, its wide availability freeing users of being constrained by proprietary software, and by being open source and thus free for modification it could be highly refined and customised to fit the exact use case it is required for. The way Linux was adopted is exactly according to Torvalds aforementioned philosophy of only using the best tool for the job or, as can be seen by the many systems built on top of his kernel, creating your own to do exactly what you want.

This policy of using the right tool for the job saw Torvalds using the proprietary software BitKeeper as the source control system for the Linux kernel. Because this was a proprietary system Torvalds found himself facing criticism from open source supporters who were unhappy with his use and therefore, they considered endorsement of this closed

system. As a response to this he wrote the free git system which is one of, if not the, most popular Version control systems in the software world. This can be seen through the incredible popularity of the GitHub hosting service.

From his early days of tinkering with operating systems and desiring to find more suitable variations of the software he had available to him at the time Linus Torvalds spurred on a revolution in open source projects encouraging the software engineering world to always be seeking better alternatives to that available. The Linux kernels open ended nature and inherent portability means it can be the foundation upon which anything can be built to accomplish any task from the ultra-lightweight menial tasks like embedded systems where light weight is of utmost importance to the largest of super computers where the ability to make efficient use of every small bit of resources available is the priority the versatility of the Linux ecosystem is testament to an incredible system.