

BASIC, Woz and How GE's Mainframe Midwifed Modern Computing

GE



Fifty years ago, on May 1, 1964, two Dartmouth professors and their students developed the BASIC programming language and supercharged the information age.

BASIC revolutionized personal computing and helped launch icons like Apple and Microsoft. "Back then people really didn't have an idea of what a computer was," says Tom Cormen, chair of Dartmouth's [computer science department](#) [1]. "They would see a movie or a TV [show] where there would be a big computer in a room with lots of flashing lights....The idea that a person could just go and program one was completely foreign."

The Dartmouth team first used the language to write instructions for a GE-225 mainframe computer located in the basement of Dartmouth's College Hall. BASIC allowed students to use it simultaneously from terminals located around the campus.

The team was led by professors John Kemeny and Tom Kurtz, and included a group of Dartmouth undergraduates like John McGeachie, who graduated in 1965.

"There were a lot of all-nighters," McGeachie told [Dartmouth Now](#) [2]. "Afterwards, we went to bed; John Kemeny went to teach. He'd have to go to some freshman math class." It was McGeachie who together with fellow student Mike Busch figured out how to make different GE terminals talk to each other.

At the time, programmers just started using time-sharing, which allowed them to use computer time better and run programs faster, rather than one after another.

But Kemeny [wanted to develop](#) [3] a language people could use to speak to the computer to have their ideas processed. "What BASIC did, it really democratized computing along with time-sharing," Cormen said. "Now people had access to computers because of time-sharing and they could write their own computer programs because of BASIC."

On May 1 at 4 a.m., in the basement of College Hall, Kemeny and one of his students [typed](#) [1] the command RUN from two separate terminals at the same time and received correct answers. "That marriage of simultaneity and simple language is the birth of BASIC," says Prof. [Dan Rockmore](#) [1] from Dartmouth's mathematics and computer science department.

(After their breakthrough, GE [got a permission](#) [4] to use BASIC on its own time-sharing system. Incidentally, Jeff Immelt, GE chairman and CEO, graduated from Dartmouth with a degree in applied mathematics in 1978.)

BASIC was first used by Dartmouth students and faculty, but it quickly spread to high schools around the U.S. That's where Apple co-founder Steve Wozniak first experienced it. "We didn't have a computer in the school but GE, I think, brought in a terminal with modem to promote their time-sharing business," Wozniak [wrote in Gizmodo](#) [5]. "A very few of we bright math students were given some pages of instruction and we wrote some very simple programs in BASIC."

Wozniak later developed his own version of BASIC, which he used to code early computer games in color. He shared it with Steve Jobs and the rest is history. "Steve and I both realized how important it was going to be now that animated (arcade style) games could be software," Wozniak wrote in Gizmodo. "More than that, being in BASIC meant that anyone of any age could program it."

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<http://www.scientificcomputing.com/blogs/2014/05/basic-woz-and-how-ges-mainframe-midwifed-modern-computing>

Links:

[1] <http://www.dartmouth.edu/basicfifty/>

[2] <http://now.dartmouth.edu/2014/04/dartmouth-celebrates-basic-in-past-present-and-future/>

[3] <https://www.youtube.com/watch?v=gxo9LVIgOil#t=91>

[4] http://books.google.com/books?id=DT4EAAAAMBAJ&pg=PA7&lpg=PA7&dq=Dartmouth+BASIC+GE-225&source=bl&ots=_6kHS0vcCf&sig=ieQQpl256BQedwzp_k5v_d27WcQ&hl=en&sa=X&ei=LsdjU8miDIjjsASlr4HoDw&ved=0CF4Q6AEwCg#v=onepage&q=Dartmouth%20BASIC%20GE-225&f=false

[5] <http://gizmodo.com/how-steve-wozniak-wrote-basic-for-the-original-apple-fr-1570573636>