Big Computers, Small Memory

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The mid-1970s were an interesting time for computers. I don't know much about what was happening in the industry, but I can tell you what was available to a kid from central New Jersey.

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I don't know about your high school, but mine had computer language courses: Basic and Fortran. Our 'computer lab' was 3 keypunch machines. How to describe one if you have never had the experience? They used paper cards and punched holes in them. Square holes. You might have heard the term 'chad' in the news a few years ago. The cards had rows of numbers and letters. Each row had 80 columns. The keypunch machine had a real keyboard and when you pressed a key, it punched a hole in the card. The vertical column of holes coded for a single letter. The code was known as EBCDIC (Extended Binary Coded Decimal Interchange Code).

If you ever watch me type, you'll see I use my left pinky to hold down the shift key to type uppercase letters. That's because the keypunch had only 1 shift key (labeled 'Numeric') and it was on the left side. It was easier to hold it down to enter numbers and capital letters than to shift-lock the machine.

Keypunches could also be programmed: you'd set up a master card with specific codes and wrapped it around a metal drum in the machine. When the machine read the card, it could either: allow you type only specific things (numbers, letters), automatically print something, or skip over columns.

Each card was either a line from a program or a data card. There were also control cards at the front, middle (if you had data), and end. The control cards were a language of their own. JCL (Job Control Language) was popular as it controlled IBM computers. Thus your average 100 line Fortran program was a deck of 100 punched cards with some control cards and may be some data cards.

High school, for me, was the start of my career in computers. Not only did I take a class in Fortran (from Mrs. Linda Dyott and Mr. George Osif), but I also worked a couple of nights a week at the school district's "computer center".

After class I would take boxes of cards over to the school district's headquarters. In the basement was the computer - an NCR 150. I'll never forget it. The smell of the machines. The raised floor. The dehumidifier I had to empty. The card sorter machine. It was heaven.
The trusty NCR 150 had magnetic core memory! I kid you not. All 16K of it. I think my mouse has more memory than that now. The core memory took up as much room as two filing cabinets. And this was a state-of-the-art business machine, too. The '150 had two 300K large platter disk drives and an enormouse impact line printer (it would print a line at a time and sounded like a jack hammer).

My job was to take each students' program deck and place them into the card reader and run the job. The machine would read the cards like a poker dealer, pause for a few minutes, then the line printer would start up - either printing an error or the program's output.
Imagine having to wait hours to discover you made a typo! You had to punch a new card, insert it back into the deck, and have the job re-run. Hundreds of software writers and computer operators were doing that every day back then. And don't even think what happened if you dropped a box of cards. If you were clever and punched a number into each card, the card sorter was your life saver.

As I got more familiar with the work and the staff, they had me run other school-related jobs. I would have to use the card sorter sometimes, taking boxes of cards and having this machine mechanically sort them using the holes punched into them. What a trip!
Naturally of course, once my program was run, I would either correct it and re-run it, or embelish it. I remember finding a book on programming that showed how to make a

biorhythm (what that is, I don't remember, but it had 3 sine curves) on a line printer. So I worked on that and made them for all my friends. Keep in mind this was the age of mood rings.

Since I had time on my hands, I learned the NCR-150's native language: NEAT/3, a derivative of COBOL. I wound up using that during the summer between my junior and senior years to develop a computer-based class registration system. When summer came, I took all of the students' information and programmed the keypunch machines (to speed up the data entry process) and proceeded to enter all their information onto cards. By fall, each class room got a printed report of who was in the room for each period, each teacher got a list of the students in each of their classes, and each student got a list of their courses.

It was hot in the school, but I loved doing it. Sometimes I miss the keypunch machines. There's something gratifying about handling the cards and holding software in your hands.
This was also my first job in 'support'. After all, I did take everyone's programs over to the computer, run them, and study and write my own programs. So it seemed natural to help everyone else in the class.

I guess I got hooked on sharing knowledge, because I loved this stuff and knew a career lay ahead of me.