DAY 8

Applications: Dot Products and Simultaneous Equations

Where are We?

In class on Day 7, we had enough time to go through Dot Products.

Simultaneous Equations

Prepare for Day 8 by reading the introductory material on simultaneous equations, keying in the associated program, and doing an example.

HP History — Basics

We have pp. 264-282 from *Bill & Dave* to read. Your previous reading covered the development of the HP-9100A released in 1968. This reading covers the development of the HP-35, released in 1972. We are trying to understand the origin of the HP-25 released in 1975 (or the HP-25C, released in 1976). There is a critical stepping stone between the HP-35 and the HP-25. It is the HP-65 released in 1974. So that this doesn't just become a blur of product releases, try to keep in mind what differentiated the HP-9100A, the HP-35, the HP-65, and the HP-25 from each other. It is somewhat analogous to the generations of the iPod and iPhone (the iPod, the iPhone, the iPhone 3G, and the iPhone 3GS, introduced 2001, 2007, 2008, and 2009 respectively).

HP History — Big Questions

The reading closes by saying that HP now outsells Apple, and therefore HP missing the boat on the Apple computer that the Woz designed while he was working for them is not that big a deal. However, the book was written in 2007, when Apple was still struggling and the first iPhone was just about to come out. Today, the market capitalization of Apple is \$2.5 trillion and HP is \$26 billion. In other words, Apple is almost 100x times as valuable a company as HP, and HP is now a truly sad shadow of its former self. The Carly Fiorina era at HP was the last straw, just as the John Sculley, Michael Spindler, and Gil Amelio eras at Apple almost finished Apple off.

My questions for you are why do all big companies decline (severely) a few decades (or at most a century) after their founding? Are there counter-examples? Most importantly is there evidence of the problems emerging at HP in this reading? If you have a different and better opening question to discuss in the wake of the reading, feel free to bring it.

Looking Ahead

Your next problem set will involve dot products, simultaneous equations, and finance applications. That problem set will be your fourth and it will be in the Day 9 handout.

Computing Genie: Powerful \$4900

READY, WILLING AND ABLE.

Ready—to relieve you of waiting to get on the big computer.
Constantly available. At your fingerfibs whenever you need it.
Ready to aboilsh tedium from scientific and engineering computation.
Ready to slash through long routines
and come up with answers in milliscends.
The new Hewlett-Packard 9100A personal computer.

Willing—to perform log and trig functions, even hyperbolics and coordinate transformations, at the touch of a key. Willing to work with extremely large and small numbers simultaneously. Willing to take your programming commands in mathematical language. The computer language or programming specialist required. Willing to communicate with you on your terms. The new Hewlett-Packard 9100A computing marvel.

Able—to take on the most complex problems: roots of a fifth-degree polynomial volutions to three simultaneous equations... Bessel functions... Fourier analysis... elliptic integrals... real and complex polynomial evaluation... coordinate geometry... regression nalysis... numerical integration... vector analysis... and many, many more!... and more any, many more!... Able to be your fast, responsive mathematical servant. The new Hewlett-Packard 9100A electronic genie.

Dynamic range 10 **to

THERM 2 removement

10** Regard 200 dec.

THERM 3 removement

According a dec. Observation of math operations on 3 displayed registers.

Up to 16 more registers for data storage.

Complex and vector arithmetic simplified with coordinate transformation keys, rectangular-to-polar and vice-versa, in milliseconds.

This major computing capability is compressed into one 40 pound package. Its only moving parts are the keys, the switches and one decimal wheel. No noise.

The 9100A computing genie is being delivered NOW, with an extensive—and growing—program library that puts you in control.

Examine the keyboard, question every key and switch. Then decide to command the computing genie.

A telephone call or purchase order directed to any HP Sales and Service Office.

In principal cities throughout the world) will start the executive process.

If you are still skeptical, or of faint heart ask for a demonstration.

It will affirm, assure
(and only slightly delay)
your entry into the solid-state of personal computing power.

Hewlett-Packard, Box 301, Loveland, Colorado, 80537; Europe: 54 Route des Acacias, Geneva.

9100A puts answers just a touch away!





Trig functions covering all quadrants and any size angle in degrees or radians.