Announcing
UNIVAC MATH-MATIC
new coding shorthand
For Mathematicians • Engineers • Scientists

Fast, simplified programming of mathematical problems
High-speed expressway to faster, more simplified programming

UNIVAC Math-Matic Programming opens the way for programmers and non-programmers alike to a wide range of mathematical computer applications never before practical. It's easy to learn and eliminates the need to write detailed step-by-step coded computer instructions for UNIVAC I and UNIVAC II.

Now—with this shortcut programming—the problem is simply described in familiar English language sentences and algebraic equations. From this statement of the problem the system generates for itself the various subroutines required to process the problem. Subroutines are assembled into a running program which will produce the desired results without any further human intervention.

Programmers are relieved from the burdensome details of storage allocation—keeping track of addresses—and segmenting re-usable overlays of the running tape.
provides these major programming advantages

▶ frees skilled programmers from clerical drudgery
▶ simplifies and speeds training time
▶ increases program efficiency and accuracy
▶ assembles subroutines into a running program... automatically
▶ provides maximum programming flexibility

▶ reduces time needed to prepare and test a finished program
▶ concentrates the programming effort on the problem
▶ opens the way to many new computer applications
SAMPLE PROBLEM

Compare for yourself the tremendous programming savings of the UNIVAC Math-Matic Programming System for this typical sample problem.

Solve: \[ Y = \frac{X^2 (2 + X)}{3 \cos A} - \sqrt{P} \]

for \( P \) running from 0.2 to 0.8 in increments of 0.2, \( A \) running from 0.35 to 1.05 in increments of 0.175 and \( X \) running from 1.8 to 3.8 in increments of 0.5.

This problem coded in the conventional manner requires nearly a dozen sheets of instructions but with UNIVAC Math-Matic the same job can be programmed in six simple steps.

CONVENTIONAL PROGRAM

EFFICIENT, ACCURATE, ECONOMICAL

<table>
<thead>
<tr>
<th>Description</th>
<th>No. of Sentences</th>
<th>No. of Instructions Generated</th>
<th>MATH-MATIC</th>
<th>CONVENTIONAL</th>
<th>% SAVINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boyle's Law of Retail</td>
<td>5</td>
<td>1320</td>
<td>1 hour</td>
<td>5 days</td>
<td>98%</td>
</tr>
<tr>
<td>Gravitation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Least Squares Solution</td>
<td>572</td>
<td>7560</td>
<td>40 hours</td>
<td>42 days</td>
<td>88%</td>
</tr>
<tr>
<td>Analysis of Stress</td>
<td>35</td>
<td>3600</td>
<td>8 hours</td>
<td>20 days</td>
<td>95%</td>
</tr>
</tbody>
</table>

TYPICAL USER COMMENTS:

"Math-Matic programming system's remarkable simplicity from the programmer's point of view, makes it particularly useful for the mass of scientists and engineers of today who are faced with the evaluation of many complex problems—truly a significant achievement."
MATH-MATIC PROGRAM

MATH-MATIC PROGRAMMING CODE
(0) VARY P 0.0 (0.2) FOR SENTENCES 1 THRU 5
(0) VARY A. 0.0 (0.0) FOR SENTENCES 6 THRU 8
(0) VARY X. 1.0 (0.0) FOR SENTENCES 9 THRU 15
(0) WRITE AND EDIT Y X A
(0) STOP.

OMICAL SHORTHAND CODING

<table>
<thead>
<tr>
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<th>No. of Sentences</th>
<th>No. of Instructions Generated</th>
<th>MATH-MATIC</th>
<th>CONVENTIONAL</th>
<th>% SAVINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numerical Integration</td>
<td>18</td>
<td>1680</td>
<td>4 hours</td>
<td>12 days</td>
<td>96%</td>
</tr>
<tr>
<td>Frictional Resistance</td>
<td>73</td>
<td>3360</td>
<td>12 hours</td>
<td>18 days</td>
<td>92%</td>
</tr>
<tr>
<td>Light Scattering</td>
<td>24</td>
<td>2280</td>
<td>6 hours</td>
<td>16 days</td>
<td>95%</td>
</tr>
</tbody>
</table>

"Math-Matic Programming makes possible the use of our computer for many one-shot jobs, which up until now have been impractical to program."

"Program testing time on the computer has been drastically reduced with Math-Matic."

"Our programmers can now spend much more time on creative work—thanks to Math-Matic coding."
UNIVAC—first name in electronic computing
... a data-automation system for every need!

UNIVAC I & II System. For data-processing which involves large volume of input and output.

UNIVAC 60 & 120.
For speeding and simplifying punched-card system procedures.

UNIVAC File-Computer.
For instantaneous random access to large-scale storage.

UNIVAC 1105 System. For business applications and complex, intricate computations of engineering and research.

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