REXXoids

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• REXXoids Summary

REXXoids Summary .............................................. 39
This presentation is to be given at the second annual REXX Symposium held at Asilomar in California on May 8-9, 1991.

REXXoid is not an English word to be found in the dictionary. REXXoid is meant to be little bits of information I have collected about REXX.

If there were a Jeopardy category on REXX, this information would probably show up there. Most of this information will change as time passes. This presentation is meant to be a snapshot when I collected the information.
REXX History
In the beginning, there was

REX  \textit{(REformed eXecutor)}

which eventually became

REXX  \textit{(REstructured eXtended eXecutor)}
REXX Firsts

- 1979 - Mike Cowlishaw (MFC) starts work on REX
- 1981 - First SHARE presentation on REX by Mike
- 1982 - First non-IBM location to get REX is SLAC
- 1983 - First REXX interpreter shipped by IBM for VM
- 1985 - First non-IBM implementation of REXX shipped
- 1985 - First REXX trade press book published
- 1987 - IBM Selects REXX as the SAA Procedures Language
- 1989 - First REXX compiler shipped by IBM for VM
- 1990 - SHARE REXX committee becomes a project
- 1990 - First SHARE presentation on Object Oriented REXX
- 1990 - First Annual REXX symposium held (organized by SLACs Cathie Dager)
- 1991 - First REXX ANSI committee meeting held
Jeopardy: REXX for $1000

Answer is:

5

Question is:

How many programming languages has MFC designed? Note that REXX is his latest!!!!
Answer is:

350

Question is:

What is the peak amount of REXX electronic mail MFC received per working day?
Jeopardy: REXX for $600

Answer is:

4000

Question is:

What is the approximate number of hours MFC spent on REXX before the first product shipped?
Jeopardy: REXX for $400

Answer is:

500,000

Question is:

What are the approximate number of REXX related electronic mail MFC has read since REXX started?
Jeopardy: REXX for $200

Answer is:

over 6,000,000

Question is:

What is the largest known total number of lines of REXX code used in any one company?
Customer Created:

REXX Buttons

REXX is not BASIC

Became

REXX is not BASIC

* BEST LANGUAGE OF THE YEAR *

VM SHARE AWARD

VM/SF has ReXX APPEAL

THE BEGINNING /

OF THE END

©Copyright IBM Corporation 1991
REXX Buttons ...

Customer Created:

TSO/E IS REXX RATED

TYRANNOSAURUS

REXX

TSO/E

PUTTIN' ON THE REXX

IBM Created:

SAA Procedures
Language/REXX

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Text of the REXX Buttons

♦ General
  - REX is not BASIC
  - REXX is not BASIC
  - The beginning /* of the end

♦ VM
  - /* Best Language of the Year */   VM SHARE AWARD
  - VM/SP has REXX Appeal
  - RXSQL good medicine!

♦ SAA
  - SAA Procedures Language/REXX

♦ TSO/E
  - I practice safe REXX (TSO/E v2)
  - TSO/E is REXX rated!
  - Tyrannosaurus REXX TSO/E v2
  - TSO/E Puttin' on the REXX
REXX Excitements
REXX Excitement!

- ANSI committee started

- REXX Users start a yearly REXX Symposium in 1990

- SHARE elevated REXX to a Project

- Increasing number of books and articles on REXX

- Increasing number of REXX Implementations on different platforms by increasing number of companies
REXX is one of 15 languages to be worked on as an ANSI standardized language. Others are:

- APL
- APT
- BASIC
- C
- C++
- COBOL
- DATABUS
- DIBOL
- FORTH
- FORTRAN
- LISP
- PASCAL
- PL/I
- PROLOG

Note that the languages listed are at different levels of standardization.
**SHARE Interest in REXX**

<table>
<thead>
<tr>
<th>SHARE Meeting</th>
<th>Number of REXX Sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>72 (3/89)</td>
<td>9</td>
</tr>
<tr>
<td>73 (8/89)</td>
<td>13</td>
</tr>
<tr>
<td>74 (3/90)</td>
<td>23</td>
</tr>
<tr>
<td>74.5 (5/90)</td>
<td>REXX Project approved</td>
</tr>
<tr>
<td>75 (8/90)</td>
<td>25</td>
</tr>
<tr>
<td>76 (3/91)</td>
<td>20</td>
</tr>
</tbody>
</table>

Note that the sessions are in the REXX Project, MVS Project, and CMS Project.
As of 12/90, REXX has been the subject of:

◆ 4 books (plus 4 in the works)

◆ 40 User Group Presentations

◆ 40 product manuals

◆ 40 articles
Published:

- The REXX Language, A Practical Approach to Programming by Mike Cowlishaw (1985, 1990)
- REXX in the TSO Environment by Gabriel F. Gargiulo (1990)
- Practical Usage of REXX by Anthony Rudd (1990)

Planned:

- REXX Handbook edited by Gabe Goldberg and Phil Smith
- Amiga Programmers Guide to AREXX by Eric Giguere
- 2 others
REXX is International

REXX books and manuals have been translated into many languages, including:

- Chinese
- French
- German
- Japanese
- Portuguese
- Spanish
REXX presentations have been given in the following countries:

- Austria
- Australia
- Belgium
- Canada
- England
- France
- Germany
- Holland
- Japan
- Jersey
- Scotland
- Spain
- United States
- Wales

As of 1982, MFC had received mail from over 30 countries!
EXOTIC LANGUAGE
OF THE MONTH CLUB

REXX: A beginner’s alternative

All Hail REXX

or what you should know about IBM's soon to be ubiquitous procedural language

For Programmers

REXX: REXX—A Multifaceted Tool

WHY IS REXX SO POPULAR?

REXX—Portrait of a New Procedures Language

Capture cross-system capabilities with REXX

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Lotus Makes a Case for REXX To Foil Microsoft's BASIC Plan

Analysis / Powerful REXX vs. Popular BASIC

REXX in Charge

You're not really multitasking in OS/2 unless you're using REXX

HELLO, REXX—GOODBYE, .BAT

REXX is a powerful new shell language that's as easy to use as BASIC. It may replace the

REXX
A USER'S DREAM IN A
SYSTEM PROGRAMMER'S WORLD
Utilize The Power Of REXX/CP/CMS

The integrative language

A language adopted by IBM comes to the Amiga – and has started to change many other applications.

The system application architecture connection
## REXX Language Level

<table>
<thead>
<tr>
<th>REXX Level</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.20</td>
<td>CMS release 3</td>
</tr>
<tr>
<td>3.40</td>
<td>CMS release 4, 5, 5.5</td>
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<tr>
<td></td>
<td>MUSIC/SP version 2.2</td>
</tr>
<tr>
<td>3.45</td>
<td>CMS release 6</td>
</tr>
<tr>
<td></td>
<td>TSO/E version 2, release 1</td>
</tr>
<tr>
<td>3.46</td>
<td>CMS release 6 with SPE</td>
</tr>
<tr>
<td></td>
<td>TSO/E ver 2, rel 1 with APAR</td>
</tr>
<tr>
<td></td>
<td>CMS compiler</td>
</tr>
<tr>
<td></td>
<td>SAA Procedures Language level 1</td>
</tr>
<tr>
<td>3.48</td>
<td>OS/400 rel 1.3</td>
</tr>
<tr>
<td>3.50</td>
<td>Cowlishaw 1985 book</td>
</tr>
<tr>
<td></td>
<td>Portable REXX ver 1.05 (DOS)</td>
</tr>
<tr>
<td></td>
<td>uniREXX (UNIX, AIX, DEC/VMS)</td>
</tr>
<tr>
<td></td>
<td>Personal REXX version 2.0</td>
</tr>
<tr>
<td></td>
<td>(OS/2, DOS)</td>
</tr>
<tr>
<td></td>
<td>AREXX (Amiga)</td>
</tr>
<tr>
<td></td>
<td>TREXX (Tandem)</td>
</tr>
<tr>
<td>4.00</td>
<td>OS/2 release 1.3</td>
</tr>
<tr>
<td></td>
<td>Cowlishaw 1990 book</td>
</tr>
<tr>
<td></td>
<td>SAA Procedures Language level 2</td>
</tr>
<tr>
<td></td>
<td>Personal REXX version 3.0</td>
</tr>
<tr>
<td></td>
<td>(OS/2, DOS)</td>
</tr>
<tr>
<td></td>
<td>Portable REXX ver 1.10 (DOS)</td>
</tr>
</tbody>
</table>
There are REXX implementations for:

- AIX
- Amiga
- DOS
- OS/2
- OS/400
- Tandem
- TSO
- UNIX
- VM
- VMS

from 7 different sources.
## REXX Implementations by year First Available

<table>
<thead>
<tr>
<th>Year</th>
<th>New Platform</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983</td>
<td>VM (IBM)</td>
</tr>
<tr>
<td>1985</td>
<td>PC-DOS (Mansfield)</td>
</tr>
<tr>
<td>1987</td>
<td>Amiga (W. S. Hawes)</td>
</tr>
<tr>
<td>1988</td>
<td>PC-DOS (Kilowatt) TSO (IBM)</td>
</tr>
<tr>
<td>1989</td>
<td>OS/2 (Mansfield) VM Compiler (IBM)</td>
</tr>
<tr>
<td>1990</td>
<td>Amiga (Commodore) UNIX (Workstation Group) AIX (Workstation Group) Tandem (Kilowatt) OS/2 (IBM) AS/400 (IBM)</td>
</tr>
<tr>
<td>1991</td>
<td>DEC/VMS (Workstation Group)</td>
</tr>
<tr>
<td>future</td>
<td>VM Compiler (Systems Center) 370 Compiler (IBM) Windows (Quercus)</td>
</tr>
</tbody>
</table>
REXX Curiosities
Name of a REXX Entity

What is the name of a REXX entity?? Is it:

- Program
- Exec
- Macro
- Procedure
- Shell
- Script
Term definitions are:

Program: A sequence of instructions suitable for processing by a computer. Processing may include the use of an assembler, a compiler, an interpreter, or a translator to prepare the program for execution, as well as to execute it.

Exec procedure: In VM, a CMS function that allows users to create new commands by setting up frequently used sequences of CP commands, CMS commands, or both, together with conditional branching facilities, into special procedures to eliminate the repetitious rekeying of those command sequences.

Macro instruction: An instruction that when executed causes the execution of a predefined sequence of instructions in the same source language.

Procedure: A set of related control statements that cause one or more programs to be performed.
shell: A software interface between a user and the operating system of a computer. Shell programs interpret commands and user interactions on devices such as keyboards, pointing devices, and touch-sensitive screens and communicate them to the operating system.

script: In artificial intelligence, a data structure pertaining to a particular area of knowledge and consisting of slots which represent a set of events which can occur under a given situation.

Note: definitions come from the IBM "Dictionary of Computing".
Is REXX a....?

- Programming language
- Exec language
- Macro language
- Procedure language
- Command procedures language
- Extension language
- System Extension language
- Glue language
- Shell language
- Batch language
- Scripting language
The 1990 edition of the Cowlishaw book has a new cover which includes the following changes:

- King now matches the playing cards King of Spades meaning

  - King faces the opposite way

  - King holds the sword differently

King was chosen because REX is Latin for King!
IBM REXX Explanations
# Relationship of REXX/PL/IBM Implementations

<table>
<thead>
<tr>
<th>Box</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
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<tbody>
<tr>
<td>REXX language level 3.46</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>REXX language level 3.5</td>
<td>x</td>
<td>x</td>
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<tr>
<td>REXX language level 4.0</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
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<tr>
<td>SAA Procedures Language</td>
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<tr>
<td>Level 1 (PL1)</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
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<td>SAA Procedures Language</td>
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<tr>
<td>Level 2 (PL2)</td>
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<td>x</td>
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<tr>
<td>IBM VM interpreter</td>
<td>x</td>
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<td>x</td>
<td>x</td>
<td>x</td>
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<td></td>
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<tr>
<td>IBM TSO/E interpreter</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>IBM OS/2 interpreter</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>IBM AS/400 interpreter</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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# Relationship of REXX/PL/IBM Implementations

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<th></th>
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<th>3.5</th>
<th>4.0</th>
<th>PL1</th>
<th>PL2</th>
<th>VM</th>
<th>TSO</th>
<th>OS2</th>
<th>400</th>
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<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Level 3.46 adds</td>
<td>3</td>
<td></td>
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<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>eg. CONDITION</td>
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<tr>
<td>Level 3.5 adds</td>
<td>2</td>
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<td></td>
<td></td>
<td>x</td>
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<tr>
<td>eg. STREAM I/O</td>
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<tr>
<td>SAA PL1 adds</td>
<td>5</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<td>eg. DBCS support</td>
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<tr>
<td>Level 4.0 adds</td>
<td>4</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
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<tr>
<td>eg. binary data</td>
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<td>SAA PL2 adds</td>
<td>6</td>
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<td></td>
<td>x</td>
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<td>eg. REXX exits</td>
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<td>VM adds</td>
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<td>x</td>
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<td>eg. DIAG</td>
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<tr>
<td>TSO adds</td>
<td>8</td>
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<td>x</td>
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<td>eg. DELSTACK</td>
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<tr>
<td>370 adds</td>
<td>9</td>
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<td></td>
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<td></td>
<td>x</td>
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<tr>
<td>eg. UPPER</td>
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<td></td>
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<tr>
<td>OS/2 adds</td>
<td>11</td>
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<td></td>
<td></td>
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<td>x</td>
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<tr>
<td>eg. BEEP</td>
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<tr>
<td>AS/400 adds</td>
<td>10</td>
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<td>eg. SETMSGRC</td>
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</table>

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REXXoids Summary
REXXoids Summary

- REXX is an international language
- REXX is growing in numbers of
  - implementers
  - different platforms available
  - users
  - books/articles.
- REXX is in the process of being formally standardized.
- REXX usage is in the "eyes of the beholder"! 