A P L 2

The Added Dimension

APL2

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When you need flexibility, fast feedback, easy prototyping, and dynamic access to a relational data base, you need the added dimension of APL2

Whether you are solving problems or writing applications, APL2 gives you a large set of powerful functions, a versatile set of data structures, and an interactive environment. Whether your tasks are designing, modeling, simulating, or analyzing, APL2 offers you a language, a system, and a set of application development tools which are highly effective for finding solutions.

Application Prototyping

Extended Architecture

Common Dialogs

Relational Data Bases

Graphics

Decision Support Systems

Info Center/1

Info Center/1 combines the best of three APL-based products, while adding business graphics. The three programs are APLDI (APL Data Interface), FPS (Financial Planning System), and ADRS (A Departmental Reporting System). Info Center/1 allows an end user to design a series of screens for entering data, to generate personal data bases, and to do analysis and financial modeling. Under APL2, Info Center/1 allows the query of relational data bases through DB2 or SQL/DS.

Reports

Application Prototype Environment

Application Prototype Environment is a tool for developing screen-based APL applications. The program lowers the "skill threshold" necessary for non-programmers to code their own applications, and helps programmers create prototype applications. It is particularly suited to application development in Information Centers where its use reduces the programming burden by allowing end users to create their own applications. It is useful in development centers where its use reduces the backlog of applications and minimizes resources required for maintenance.

Panel Design

Chart Design

File Design

Object Library

Cover Functions

Power of APL
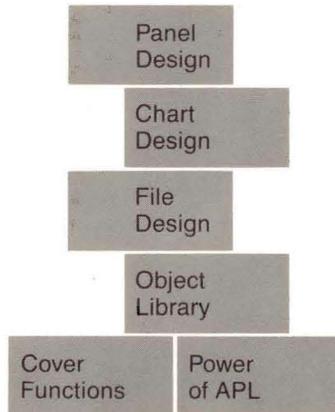
Common Dialogs

APL2 gives access to IBM's Interactive System Productivity Facility (ISPF) for building flexible dialog management into your applications. ISPF allows the construction of user interface panels and screens that interact directly with APL2 data structures in the APL2 environment.

Menus
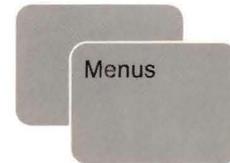
Tool Building

APL2 is the added dimension needed for building software tools. The APL2 language, a major advance in interactive languages, gives you:

- General arrays for constructing a variety of data structures
- New primitive functions for text processing and data analysis
- Complex numbers for graphics and engineering applications
- Application prototyping capabilities
- Event handling and error processing for better program control

The APL2 system, providing access to a group of very effective tools, gives you:

- Relational data base access through DB2 on MVS or SQL/DS on VM
- Graphics capabilities with GDDM, including the Interactive Chart Utility
- Access to FORTRAN and Assembler Language routines and libraries

The APL2 application development tools, extending the use of the language and the system, give you:

- Application Prototype Environment for development
- Info Center/1, for decision support

Relational Data Bases

Through APL2, you can readily build interactive applications based on relational tables and easily share relational data created by other applications. Relational tables and structures brought into the APL2 environment can be processed dynamically with the full power of APL2.

APL2 uses IBM's relational data base management systems Structured Query Language/Data System (SQL/DS), under VM, and Data Base 2 (DB2), under MVS, for organizing, storing, and accessing data.
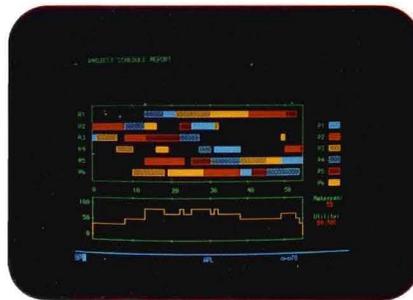

A project scheduling problem. Project data, stored in a relational table, is brought into APL2 and processed with a program that produces this graphic representation.

Graphics

Both simple charts and complex graphics can be constructed with APL2 and the Graphic Data Display Manager (GDDM). With the Interactive Chart Utility of GDDM, menus are used to develop business or presentation graphics, including bar charts, pie charts, histograms, and line graphs. With the computational power of the APL2 language, functions can be built to develop advanced graphics applications.

*The SQL statement selects data from this relational data base sales table.*
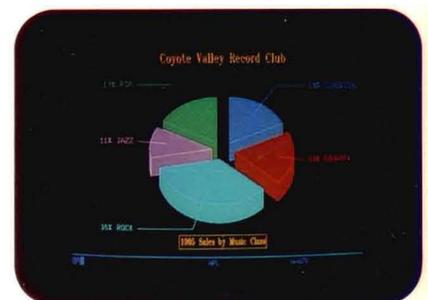
The selected data is displayed in this graphic, which was generated by the Interactive Chart Utility from APL2.

Engineering and Science

APL2 simplifies mathematical and scientific computing. You, the experimenter, can focus on the details of your problem, rather than the details of your program. Complex numbers in APL2 have useful application in engineering analysis and design problems. Graphics and data base facilities can enhance the development of scientific models. Feedback is fast; modification is simple.

APL2 gives you high performance computing by allowing access to FORTRAN and Assembler Language routines and libraries. You can add a new dimension of versatility to your existing compiled code applications by using them in the interactive APL2 environment. Designing and developing new FORTRAN and Assembler applications is simpler and faster using the prototyping tools of APL2
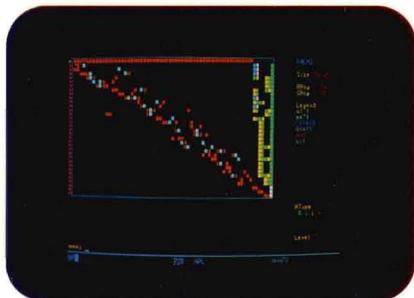
An APL2 application for analyzing linear programming problems uses GDDM graphics to display the structure of a sparse matrix.

Data Structures

The general arrays of APL2 give you a means for conceptualizing, designing, and implementing computer solutions. Arrays can be used to model a variety of data structures, including LISP-like lists, relational tables, graphs, and trees. This representational choice allows the rapid design and implementation of applications.
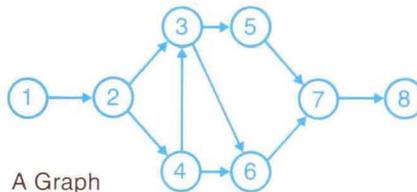
A Graph

$$(A\uparrow B)\rho(C\phi D)\in E$$

A List

A Sparse Matrix
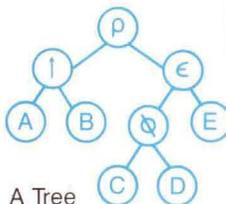
A Tree

General arrays in APL2 allow the construction of a variety of data structures.

Expert Systems

APL2 is effective in the design and development of complex rule-based systems. Using general arrays and the computational power of APL2, you can choose a knowledge representation and inference method that make optimal use of both parallel and recursive algorithms. Relational data bases can be used as knowledge bases.
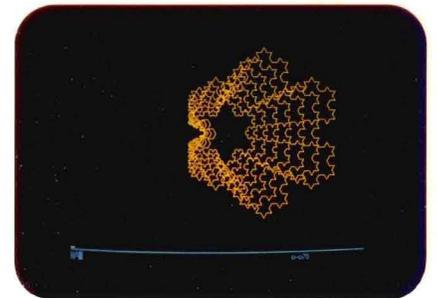
This geometric pattern, a fractal, was constructed using a simple APL2 recursive program and GDDM.

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