

# Reading Mainframe Data

CDT060

Many non-programmers process massive amounts of data on a daily basis. Often these files come from sources outside of their company, and go to users who likewise are outside of the organization. In the meantime, records have been added or dropped and formats have been changed. *It has been our observation that when these employees do not understand data representation, quality suffers!* The purpose of this course is to familiarize the student with the various ways in which data can be stored. Topics include number systems, ASCII vs. EBCDIC, character data, numeric data (zoned decimal, packed decimal, binary, and stripped-packed), reading record layouts, and reading dumps.

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## Audience

- Production personnel
- Non-programmers
- Other mainframe users

## Prerequisites

- None, but bring a calculator. The math is relatively simple, but a calculator will likely ease some anxiety.

## Course Length

- One day

## Learning Objectives

- Understand base 2 and base 16 number systems.
- Describe and differentiate between ASCII and EBCDIC collating sequences.
- Understand and read character, zoned decimal, packed binary, and stripped packed numbers.
- Reconcile file dumps with record layouts

## Teaching Methods

- Lecture with examples
  - Supplemental written exercises
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## Course Outline QC1

### Number Systems

- Review of our decimal (base 10) number system
- The binary (base 2) number system
- The hexadecimal (base 16) number system
- Converting between base 10, base 2, and base 16

### ASCII vs. EBCDIC Collating Sequences

- Bits vs. bytes
- ASCII collating sequence
- EBCDIC collating sequence
- File Transfer (download) issues

### Character Data

- Character and hexadecimal representation
- Zone and numeric bits
- Reading and writing it horizontally and vertically

### Numeric Data

- Zoned decimal format
- Signed numbers
- Packed decimal format
- Binary format
- Stripped packed format

### Reading Record Layouts

- Qualities of a good record layout
- Examples

### Reading Dumps

- Reading IDCAMS dumps
- Reading FileAid dumps
- Reconciling the record layout to the dump