

CenTable – Requirements Specification

CenTable is a system for creating tabular reports from county-level U.S. Census Data. It is appropriate for batch processing (both off-line and in support of an on-line system). The inputs to the system are the ASCII county data file (and associated data dictionary) and an ASCII file that describes the tabular report to be created. The output is a table in either HTML or ASCII text format.

1. Command-Line Parameters
 - 1.1. The first command-line parameter must be the name of the county-level data file to use.
 - 1.2. The second parameter must be either `-h` (to indicate that the output should be in HTML) or `-t` (to indicate that the output should be in ASCII text).
2. Location of “Files”
 - 2.1. All census data files must be in the same directory as the executable.
 - 2.2. The report description file must be read from standard in.
3. Report Description File
 - 3.1. The format of the report description file has not been specified.
 - 3.2. Contents of the Report Description File
 - 3.2.1. It must include a list of all of the counties to include in the report.
 - 3.2.1.1. The default must be all of the counties.
 - 3.2.2. It must contain the field identifiers for the columns to include in the report (in order).
 - 3.2.3. It must contain a title for each field in the report.
 - 3.2.3.1. It must contain a format descriptor for the title that includes: the horizontal positioning of the title (left, center, or right) and the appropriate way to handle titles that are too long (truncate, break at word boundaries).
 - 3.2.4. It must contain a format descriptor for each field in the report that includes the width of the field, the number of digits to the right of the decimal place (for floating-point fields), the padding character to use, and an indication of whether or not the sign should always be included.
 - 3.2.5. It must contain a specifier for each field that indicates what information (total, mean, nothing) should be displayed in the last row of the output.
4. Output
 - 4.1. Output must be sent to standard out.
 - 4.2. When the `-h` switch is used, the output must be an appropriately formatted HTML table containing the required information.
 - 4.2.1. The text must be displayed in a fixed-width font.
 - 4.2.2. The output need not handle page breaks (i.e., the report can have an arbitrary number of rows).
 - 4.3. When the `-t` flag is used, the output must be an appropriately formatted ASCII text file (that will look correct when displayed in a fixed with font).
 - 4.3.1. The output need not handle page breaks (i.e., the report can have an arbitrary number of rows).

5. Security Considerations

- 5.1. The report description file may be generated by an untrusted source.
- 5.2. Command-line parameters may be provided by an untrusted source.
- 5.3. CenTable must only be able to read from the directory it is installed in and standard in.
- 5.4. CenTable must only be able to write to standard out.