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Practical 1:

Implementation code for map

class Table { String[][] data; int rowCount;

Table() {

data = new String[10][10];

}

Table(String filename) {

String[] rows = loadStrings(filename); data = new String[rows.length][];

for (int i = 0; i < rows.length; i++) { if (trim(rows[i]).length() == 0) { continue; // skip empty rows

}

if (rows[i].startsWith("#")) { continue; // skip comment lines

}

// split the row on the tabs

String[] pieces = split(rows[i], TAB);

// copy to the table array data[rowCount] = pieces; rowCount++;

// this could be done in one fell swoop via:

//data[rowCount++] = split(rows[i], TAB);

}

// resize the 'data' array as necessary

data = (String[][]) subset(data, 0, rowCount);

}

int getRowCount() { return rowCount;

}

// find a row by its name, returns -1 if no row found int getRowIndex(String name) {

for (int i = 0; i < rowCount; i++) { if (data[i][0].equals(name)) { return i;

}

}

println("No row named '" + name + "' was found"); return -1;

}

String getRowName(int row) { return getString(row, 0);

}

String getString(int rowIndex, int column) { return data[rowIndex][column];

}

String getString(String rowName, int column) { return getString(getRowIndex(rowName), column);

}

int getInt(String rowName, int column) {

return parseInt(getString(rowName, column));

}

int getInt(int rowIndex, int column) {

return parseInt(getString(rowIndex, column));

}

ﬂoat getFloat(String rowName, int column) { return parseFloat(getString(rowName, column));

}

ﬂoat getFloat(int rowIndex, int column) {

return parseFloat(getString(rowIndex, column));

}

void setRowName(int row, String what) { data[row][0] = what;

}

void setString(int rowIndex, int column, String what) {

data[rowIndex][column] = what;

}

void setString(String rowName, int column, String what) { int rowIndex = getRowIndex(rowName); data[rowIndex][column] = what;

}

void setInt(int rowIndex, int column, int what) { data[rowIndex][column] = str(what);

}

void setInt(String rowName, int column, int what) { int rowIndex = getRowIndex(rowName); data[rowIndex][column] = str(what);

}

void setFloat(int rowIndex, int column, ﬂoat what) { data[rowIndex][column] = str(what);

}

void setFloat(String rowName, int column, ﬂoat what) { int rowIndex = getRowIndex(rowName); data[rowIndex][column] = str(what);

}

// Write this table as a TSV file void write(PrintWriter writer) { for (int i = 0; i < rowCount; i++) {

for (int j = 0; j < data[i].length; j++) { if (j != 0) {

writer.print(TAB);

}

if (data[i][j] != null) {

writer.print(data[i][j]);

}

}

writer.println();

}

writer.ﬂush();

}

}

PImage mapImage; Table locationTable; int rowCount;

void setup( ) { size(640, 400);

mapImage = loadImage("map.png");

// Make a data table from a file that contains

// the coordinates of each state. locationTable = new Table("locations.tsv");

// The row count will be used a lot, so store it globally. rowCount = locationTable.getRowCount( );

}

void draw( ) { background(255); image(mapImage, 0, 0);

// Drawing attributes for the ellipses.

//smooth( ); fill(192, 0, 0);

noStroke( );

// Loop through the rows of the locations file and draw the points. for (int row = 0; row < rowCount; row++) {

ﬂoat x = locationTable.getFloat(row, 1); // column 1 ﬂoat y = locationTable.getFloat(row, 2); // column 2 ellipse(x, y, 9, 9);

}

}

Output:

