JSDataSet

Nov 12, 2019 23:26

Supported Clients

SmartClient WebClient NGClient

Property Summary

Number rowIndex	Get or set the record index of the dataset.

Methods Summary

Boolean	addColumn(name)	adds a column with the specified name to the dataset.
Boolean	addColumn(name, index)	adds a column with the specified name to the dataset.
Boolean	addColumn(name, index, type)	adds a column with the specified name to the dataset.
void	addHTMLProperty(row, col, name, value)	Add an HTML property to an HTML tag produced in getAsHTML().
void	addRow(index, array)	Add a row to the dataset.
void	addRow(array)	Add a row to the dataset.
String	createDataSource(name)	Create a datasource from the data set with specified name and using specified types.
String	createDataSource(name, types)	Create a datasource from the data set with specified name and using specified types.
String	createDataSource(name, types, pkNames)	Create a datasource from the data set with specified name and using specified types.
String	getAsHTML()	Get the dataset as an html table, do not escape values or spaces, no multi_line_markup, do not add indentation, add column names.
String	getAsHTML(escape_values)	Get the dataset as an html table, do not escape spaces, no multi_line_markup, do not add indentation, add column names.
String	getAsHTML(escape_values, escape_spaces)	Get the dataset as an html table, no multi_line_markup, do not add indentation, add column names.
String	getAsHTML(escape_values, escape_spaces, multi_line_markup)	Get the dataset as an html table, do not add indentation, add column names.
String	getAsHTML(escape_values, escape_spaces, multi_line_markup, pretty_indent)	Get the dataset as an html table, add column names.
String	getAsHTML(escape_values, escape_spaces, multi_line_markup, pretty_indent, add_column_names)	Get the dataset as an html table.
String	getAsText(column_separator, row_separator, value_delimiter, add_column_names)	Get the dataset as formatted text.
Array	getColumnAsArray(index)	Get the column data of a dataset as an Array.
String	getColumnName(index)	Get a column name based on index.
Array	getColumnNames()	Get the column names of a dataset.
Number	getColumnType(index)	Get a column type based on index.
Exception	getException()	Get the database exception if an error occurred.
Number	getMaxColumnIndex()	Get the number of columns in the dataset.
Number	getMaxRowIndex()	Get the number of rows in the dataset.
Array	getRowAsArray(index)	Get the row data of a dataset as an Array.
Object	getValue(row, col)	Get the value specified by row and column position from the dataset.
Boolean	hadMoreData()	Return true if there is more data in the resultset then specified by maxReturnedRows at query time.
Boolean	removeColumn(index)	Remove a column by index from the dataset.
void	removeRow(row)	Remove a row from the dataset.
void	setColumnName(index, columnName)	Set a column name based on index.
void	setValue(row, col, obj)	Set the value specified by row and column position from the dataset.
void	sort(col, sort_direction)	Sort the dataset on the given column (1-based) in ascending or descending.
void	sort(comparator)	Sort the dataset using the function as comparator.

Property Details

rowIndex

```
Get or set the record index of the dataset.
```

Returns

Number

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//assuming the variable dataset contains a dataset
//to set the rowIndex:
dataset.rowIndex = 1 //sets the rowIndex to the first row (dataset is 1-based)
//to retrieve the rowIndex of the currently selected row
var currRow = dataset.rowIndex
```

Methods Details

addColumn(name)

adds a column with the specified name to the dataset.

Parameters

String name column name.

Returns

Boolean

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//assuming the variable dataset contains a dataset
var success = dataset.addColumn('columnName',1);
```

addColumn(name, index)

adds a column with the specified name to the dataset.

Parameters

String name column name.
Number index column index number between 1 and getMaxColumnIndex().

Returns

Boolean

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//assuming the variable dataset contains a dataset
var success = dataset.addColumn('columnName',1);
```

addColumn(name, index, type)

adds a column with the specified name to the dataset.

Parameters

String name column name.
Number index column index number between 1 and getMaxColumnIndex().
Number type the type of column, see JSColumn constants.

Returns

Boolean

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//assuming the variable dataset contains a dataset
var success = dataset.addColumn('columnName',1);
```

addHTMLProperty(row, col, name, value)

Add an HTML property to an HTML tag produced in getAsHTML().

For row and col parameters use:
1 = applies to the container
0 = applies to all
>0 = applies to specific cell

Parameters

Number row row number
Number col column number
String name String property name
String value String property value

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//adds a container property (to TABLE tag)
dataset.addHTMLProperty(-1,-1,'cellspacing','3');
dataset.addHTMLProperty(-1,-1,'style','border-collapse:collapse;'); //to have a single line border

//adds a row property to all rows (to TR tag)
dataset.addHTMLProperty(0,0,'class','text');

//adds a row property to second row (to TR tag)
dataset.addHTMLProperty(2,0,'class','text');

//adds a column property to all 3rd columns (to TD tag)
dataset.addHTMLProperty(0,3,'class','redcolumn') ;

//adds a specific cell property (to TD tag)
dataset.addHTMLProperty(2,4,'color','blue');

scopes.globals.html_field = '<html>'+dataset.getAsHTML()+'</html>';
```

addRow(index, array)

Add a row to the dataset.

Parameters

Number index index to add row (1-based)
Array array row data

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//assuming the variable dataset contains a dataset
dataset.addRow(new Array(1,2,3,4,5,6,7,7)); //adds a row with 8 columns
dataset.addRow(2, new Array(1,2,3,4,5,6,7,7)); //adds a row with 8 columns at row 2
```

addRow(array)

Add a row to the dataset. The row will be added as the last row.

Parameters

Array array row data

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//assuming the variable dataset contains a dataset
dataset.addRow(new Array(1,2,3,4,5,6,7,7)); //adds a row with 8 columns
dataset.addRow(2, new Array(1,2,3,4,5,6,7,7)); //adds a row with 8 columns at row 2
```

createDataSource(name)

Create a datasource from the data set with specified name and using specified types.
The types are inferred from the data if possible.

A temporary datasource cannot be removed because once created there may always be forms or relations that refer to it.
When the client exits, all datasources used by that client are removed automatically.

Most resources used by the datasource can be released by deleting all records:
  dataset.removeRow(-1) or databaseManager.getFoundSet(datasource).deleteAllRecords()

Parameters

String name datasource name

Returns

String

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
ds.addColumn('my_id'); // note: use regular javascript identifiers so they can be used in scripting
ds.addColumn('my_label');
var uri = ds.createDataSource('mydata', [JSColumn.INTEGER, JSColumn.TEXT]);
var jsform = solutionModel.newForm(fname, uri, null, true, 300, 300);

var query = 'select customerid, address, city, country  from customers';
var ds2 = databaseManager.getDataSetByQuery('example_data', query, null, 999);
var uri2 = ds2.createDataSource('mydata2'); // types are inferred from query result
```

createDataSource(name, types)

Create a datasource from the data set with specified name and using specified types.

A temporary datasource cannot be removed because once created there may always be forms or relations that refer to it.
When the client exits, all datasources used by that client are removed automatically.

Most resources used by the datasource can be released by deleting all records:
  dataset.removeRow(-1) or databaseManager.getFoundSet(datasource).deleteAllRecords()

A datasource can be reused if the data has the same signature (column names and types).
A new createDataSource() call will clear the datasource contents from a previous call and insert the current data.

Parameters

String name datasource name
Object types array of types as defined in JSColumn

Returns

String

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
ds.addColumn('my_id'); // note: use regular javascript identifiers so they can be used in scripting
ds.addColumn('my_label');
var uri = ds.createDataSource('mydata', [JSColumn.INTEGER, JSColumn.TEXT]);
var jsform = solutionModel.newForm(fname, uri, null, true, 300, 300);

var query = 'select customerid, address, city, country  from customers';
var ds2 = databaseManager.getDataSetByQuery('example_data', query, null, 999);
var uri2 = ds2.createDataSource('mydata2'); // types are inferred from query result
```

createDataSource(name, types, pkNames)

Create a datasource from the data set with specified name and using specified types.

A temporary datasource cannot be removed because once created there may always be forms or relations that refer to it.
When the client exits, all datasources used by that client are removed automatically.

Most resources used by the datasource can be released by deleting all records:
  dataset.removeRow(-1) or databaseManager.getFoundSet(datasource).deleteAllRecords()

Parameters

String name datasource name
Object types array of types as defined in JSColumn, when null types are inferred from the query result
Array pkNames array of pk names, when null a hidden pk-column will be added

Returns

String

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
ds.addColumn('my_id'); // note: use regular javascript identifiers so they can be used in scripting
ds.addColumn('my_label');
var uri = ds.createDataSource('mydata', [JSColumn.INTEGER, JSColumn.TEXT], ['my_id']);
var jsform = solutionModel.newForm(fname, uri, null, true, 300, 300);

var query = 'select customerid, address, city, country  from customers';
var ds2 = databaseManager.getDataSetByQuery('example_data', query, null, 999);
var uri2 = ds2.createDataSource('mydata2', null, ['customerid']); // types are inferred from query result, use
customerid as pk
```

getAsHTML()

Get the dataset as an html table, do not escape values or spaces, no multi_line_markup, do not add indentation, add column names.

Returns

String

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//gets a dataset based on a query
//useful to limit the number of rows
var maxReturnedRows = 10;
var query = 'select c1,c2,c3 from test_table where start_date = ?';

//to access data by name, do not use '.' or special characters in names or aliases
var args = new Array();
args[0] = order_date //or new Date();
var dataset = databaseManager.getDataSetByQuery(databaseManager.getDataSourceServerName(controller.
getDataSource()),query,args,maxReturnedRows);

// gets a dataset with escape values; escape spaces (lines will not wrap); no multi-line markup; with pretty
indentation; shows column names
var htmlTable = dataset.getAsHTML(true, true, false, true, true);

//assigns the dataset to a field and sets the display type to HTML_AREA
//assuming the html_field is a global text variable
scopes.globals.html_field = '<html>'+dataset.getAsHTML()+'</html>';

//Note: To display an HTML_AREA field as an HTML page, add HTML tags at the beginning '<html>' and at the end '<
/html>'.
```

getAsHTML(escape_values)

Get the dataset as an html table, do not escape spaces, no multi_line_markup, do not add indentation, add column names.

Parameters

Boolean escape_values if true, replaces illegal HTML characters with corresponding valid escape sequences.

Returns

String

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//gets a dataset based on a query
//useful to limit the number of rows
var maxReturnedRows = 10;
var query = 'select c1,c2,c3 from test_table where start_date = ?';

//to access data by name, do not use '.' or special characters in names or aliases
var args = new Array();
args[0] = order_date //or new Date();
var dataset = databaseManager.getDataSetByQuery(databaseManager.getDataSourceServerName(controller.
getDataSource()),query,args,maxReturnedRows);

// gets a dataset with escape values; escape spaces (lines will not wrap); no multi-line markup; with pretty
indentation; shows column names
var htmlTable = dataset.getAsHTML(true, true, false, true, true);

//assigns the dataset to a field and sets the display type to HTML_AREA
//assuming the html_field is a global text variable
scopes.globals.html_field = '<html>'+dataset.getAsHTML()+'</html>';

//Note: To display an HTML_AREA field as an HTML page, add HTML tags at the beginning '<html>' and at the end '<
/html>'.
```

getAsHTML(escape_values, escape_spaces)

Get the dataset as an html table, no multi_line_markup, do not add indentation, add column names.

Parameters

Boolean escape_values if true, replaces illegal HTML characters with corresponding valid escape sequences.
Boolean escape_spaces if true, replaces text spaces with non-breaking space tags ( ) and tabs by four non-breaking space tags.

Returns

String

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//gets a dataset based on a query
//useful to limit the number of rows
var maxReturnedRows = 10;
var query = 'select c1,c2,c3 from test_table where start_date = ?';

//to access data by name, do not use '.' or special characters in names or aliases
var args = new Array();
args[0] = order_date //or new Date();
var dataset = databaseManager.getDataSetByQuery(databaseManager.getDataSourceServerName(controller.
getDataSource()),query,args,maxReturnedRows);

// gets a dataset with escape values; escape spaces (lines will not wrap); no multi-line markup; with pretty
indentation; shows column names
var htmlTable = dataset.getAsHTML(true, true, false, true, true);

//assigns the dataset to a field and sets the display type to HTML_AREA
//assuming the html_field is a global text variable
scopes.globals.html_field = '<html>'+dataset.getAsHTML()+'</html>';

//Note: To display an HTML_AREA field as an HTML page, add HTML tags at the beginning '<html>' and at the end '<
/html>'.
```

getAsHTML(escape_values, escape_spaces, multi_line_markup)

Get the dataset as an html table, do not add indentation, add column names.

Parameters

Boolean	escape_values	if true, replaces illegal HTML characters with corresponding valid escape sequences.
Boolean	escape_spaces	if true, replaces text spaces with non-breaking space tags ( ) and tabs by four non-breaking space tags.
Boolean	multi_line_markup	if true, multiLineMarkup will enforce new lines that are in the text; single new lines will be replaced by , multiple new lines will be replaced by <p>

Returns

String

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//gets a dataset based on a query
//useful to limit the number of rows
var maxReturnedRows = 10;
var query = 'select c1,c2,c3 from test_table where start_date = ?';

//to access data by name, do not use '.' or special characters in names or aliases
var args = new Array();
args[0] = order_date //or new Date();
var dataset = databaseManager.getDataSetByQuery(databaseManager.getDataSourceServerName(controller.
getDataSource()),query,args,maxReturnedRows);

// gets a dataset with escape values; escape spaces (lines will not wrap); no multi-line markup; with pretty
indentation; shows column names
var htmlTable = dataset.getAsHTML(true, true, false, true, true);

//assigns the dataset to a field and sets the display type to HTML_AREA
//assuming the html_field is a global text variable
scopes.globals.html_field = '<html>'+dataset.getAsHTML()+'</html>';

//Note: To display an HTML_AREA field as an HTML page, add HTML tags at the beginning '<html>' and at the end '<
/html>'.
```

getAsHTML(escape_values, escape_spaces, multi_line_markup, pretty_indent)

Get the dataset as an html table, add column names.

Parameters

Boolean	escape_values	if true, replaces illegal HTML characters with corresponding valid escape sequences.
Boolean	escape_spaces	if true, replaces text spaces with non-breaking space tags ( ) and tabs by four non-breaking space tags.
Boolean	multi_line_markup	if true, multiLineMarkup will enforce new lines that are in the text; single new lines will be replaced by , multiple new lines will be replaced by <p>
Boolean	pretty_indent	if true, adds indentation for more readable HTML code.

Returns

String

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//gets a dataset based on a query
//useful to limit the number of rows
var maxReturnedRows = 10;
var query = 'select c1,c2,c3 from test_table where start_date = ?';

//to access data by name, do not use '.' or special characters in names or aliases
var args = new Array();
args[0] = order_date //or new Date();
var dataset = databaseManager.getDataSetByQuery(databaseManager.getDataSourceServerName(controller.
getDataSource()),query,args,maxReturnedRows);

// gets a dataset with escape values; escape spaces (lines will not wrap); no multi-line markup; with pretty
indentation; shows column names
var htmlTable = dataset.getAsHTML(true, true, false, true, true);

//assigns the dataset to a field and sets the display type to HTML_AREA
//assuming the html_field is a global text variable
scopes.globals.html_field = '<html>'+dataset.getAsHTML()+'</html>';

//Note: To display an HTML_AREA field as an HTML page, add HTML tags at the beginning '<html>' and at the end '<
/html>'.
```

getAsHTML(escape_values, escape_spaces, multi_line_markup, pretty_indent, add_column_names)

Get the dataset as an html table.

Parameters

Boolean	escape_values	if true, replaces illegal HTML characters with corresponding valid escape sequences.
Boolean	escape_spaces	if true, replaces text spaces with non-breaking space tags ( ) and tabs by four non-breaking space tags.
Boolean	multi_line_markup	if true, multiLineMarkup will enforce new lines that are in the text; single new lines will be replaced by , multiple new lines will be replaced by <p>
Boolean	pretty_indent	if true, adds indentation for more readable HTML code.
Boolean	add_column_names	if false, column headers will not be added to the table.

Returns

String

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//gets a dataset based on a query
//useful to limit the number of rows
var maxReturnedRows = 10;
var query = 'select c1,c2,c3 from test_table where start_date = ?';

//to access data by name, do not use '.' or special characters in names or aliases
var args = new Array();
args[0] = order_date //or new Date();
var dataset = databaseManager.getDataSetByQuery(databaseManager.getDataSourceServerName(controller.
getDataSource()),query,args,maxReturnedRows);

// gets a dataset with escape values; escape spaces (lines will not wrap); no multi-line markup; with pretty
indentation; shows column names
var htmlTable = dataset.getAsHTML(true, true, false, true, true);

//assigns the dataset to a field and sets the display type to HTML_AREA
//assuming the html_field is a global text variable
scopes.globals.html_field = '<html>'+dataset.getAsHTML()+'</html>';

//Note: To display an HTML_AREA field as an HTML page, add HTML tags at the beginning '<html>' and at the end '<
/html>'.
```

getAsText(column_separator, row_separator, value_delimiter, add_column_names)

Get the dataset as formatted text.

Parameters

String	column_separator	any specified column separator; examples: tab '\t'; comma ','; semicolon ';'; space ' ' .
String	row_separator	the specified row separator; examples: new line '\n'.
String	value_delimiter	the specified value delimiter; null means empty string; example: double quote '"'.
Boolean	add_column_names	if true column names will be added as a first row.

Returns

String

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//assuming the variable dataset contains a dataset
//you can create csv or tab delimited results
var csv = dataset.getAsText(',','\n','"',true)
var tab = dataset.getAsText('\t','\n','"',true)
```

getColumnAsArray(index)

Get the column data of a dataset as an Array.

Parameters

Number	index	index of column (1-based).

Returns

Array

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//assuming the variable dataset contains a dataset
var dataArray = dataset.getColumnAsArray(1); //puts the contents from the first column of the dataset into an
array
//once you have it as an array you can loop through it or feed it to a custom valuelist for example
```

getColumnName(index)

Get a column name based on index.

Parameters

Number index index of column (1-based).

Returns

String

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//assuming the variable dataset contains a dataset
var firstColumName = dataset.getColumnName(1) //retrieves the first columnname into the variable firstColumName
//using a loop you can get all columnames in an array:
var query = 'select * from customers';
var dataset = databaseManager.getDataSetByQuery(databaseManager.getDataSourceServerName(controller.
getDataSource()), query, null, 100);
var colArray = new Array()
for (var i = 1; i <= dataset.getMaxColumnIndex(); i++)
{
        colArray[i-1] = dataset.getColumnName(i)
        //note the -1, because an array is zero based and dataset is 1 based.
}
```

getColumnNames()

Get the column names of a dataset.

Returns

Array

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
var query = 'select * from customers';
var dataset = databaseManager.getDataSetByQuery(databaseManager.getDataSourceServerName(controller.
getDataSource()), query, null, 100);
var columnNames = dataset.getColumnNames();
```

getColumnType(index)

Get a column type based on index.

Parameters

Number index index of column (1-based).

Returns

Number

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//assuming the variable dataset contains a dataset
var firstColumnType = dataset.getColumnType(1) //retrieves the first column's type into the variable
firstColumnType
if (firstColumnType == JSColumn.NUMBER) { }
```

getException()

Get the database exception if an error occurred.

Returns

Exception

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//assuming the variable dataset contains a dataset
var dbException = dataset.getException();
```

getMaxColumnIndex()

Get the number of columns in the dataset.

Returns

Number

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//assuming the variable dataset contains a dataset
for (var i = 1; i <= dataset.getMaxColumnIndex(); i++)
{
        colArray[i-1] = dataset.getColumnName(i)
        //have to subtract 1, because an array is zero based and a dataset is 1 based.
}
```

getMaxRowIndex()

Get the number of rows in the dataset.

Returns

Number

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//assuming the variable dataset contains a dataset
var totalRows = dataset.getMaxRowIndex();
```

getRowAsArray(index)

Get the row data of a dataset as an Array.

Parameters

Number index index of row (1-based).

Returns

Array

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//assuming the variable dataset contains a dataset
var dataArray = dataset.getRowAsArray(1); //puts the contents from the first row of the dataset into an array
//once you have it as an array you can loop through it
```

getValue(row, col)

Get the value specified by row and column position from the dataset.

Parameters

Number row row number, 1-based
Number col column number, 1-based

Returns

Object

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//assuming the variable dataset contains a dataset
var dataAtRow2Col1 = dataset.getValue(2, 1);
```

hadMoreData()

Return true if there is more data in the resultset then specified by maxReturnedRows at query time.

Returns

Boolean

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
var ds = databaseManager.getDataSetByQuery('example_data', 'select order_id from orders', null, 10000)
if (ds.hadMoreData())
{
        // handle large result
}
```

removeColumn(index)

Remove a column by index from the dataset.

Parameters

Number index index of column to remove (1-based)

Returns

Boolean

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//assuming the variable dataset contains a dataset
var success = dataset.removeColumn(1); // removes first column
```

removeRow(row)

Remove a row from the dataset.

Parameters

Number row row index to remove, -1 for all rows

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//assuming the variable dataset contains a dataset
dataset.removeRow(1); //removes the first row
dataset.removeRow(-1); //removes all rows
```

setColumnName(index, columnName)

Set a column name based on index.

Parameters

Number index index of column (1-based).
String columnName new column name.

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
var query = 'select customerid, customername from customers';
var dataset = databaseManager.getDataSetByQuery(databaseManager.getDataSourceServerName(controller.
getDataSource()), query, null, -1);
dataset.setColumnName(2, 'name_of_customer') // change the column name for second column.
```

setValue(row, col, obj)

Set the value specified by row and column position from the dataset.
Use row = -1, to set columnnames.

Parameters

Number row row number, 1-based
Number col column number, 1-based
Object obj the value to be stored at the given row and column.

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//assuming the variable dataset contains a dataset
dataset.setValue(2, 1,'data');
```

sort(col, sort_direction)

Sort the dataset on the given column (1-based) in ascending or descending.

Parameters

Number col column number, 1-based
Boolean sort_direction ascending (true) or descending (false)

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
// sort using column number
//assuming the variable dataset contains a dataset
dataset.sort(1, false)
```

sort(comparator)

Sort the dataset using the function as comparator.
The comparator function is called to compare two rows, that are passed as arguments, and
it will return -1/0/1 if the first row is less/equal/greater then the second row.

NOTE: starting with 7.2 release, when called on datasource(foundset) dataset, this function doesn't save the
data anymore

Parameters

Function comparator comparator function

Supported Clients

SmartClient,WebClient,NGClient

Sample

```
//sort using comparator
dataset.sort(mySortFunction);

function mySortFunction(r1, r2)
{
        var o = 0;
        if(r1[0] < r2[0])
        {
                o = -1;
        }
        else if(r1[0] > r2[0])
        {
                o = 1;
        }
        return o;
}
```