

FrovedisCRSMatrix

NAME

FrovedisCRSMatrix - A data structure used in modeling the in-memory crs matrix data of frovedis server side at client python side.

SYNOPSIS

```
class frovedis.matrix.sparse.FrovedisCRSMatrix(mat=None)
```

Public Member Functions

```
load (mat)
load_scipy_matrix (mat)
load_text (filename)
load_binary (dirname)
save_text (filename)
save_binary (dirname)
debug_print()
release()
```

DESCRIPTION

FrovedisCRSMatrix is a pseudo matrix structure at client python side which aims to model the frovedis server side `crs_matrix<double>` (see manual of frovedis `crs_matrix` for details).

Note that the actual matrix data is created at frovedis server side only. Python side FrovedisCRSMatrix contains a proxy handle of the in-memory matrix data created at frovedis server, along with number of rows and number of columns information.

Constructor Documentation

FrovedisCRSMatrix (mat=None)

Parameters

mat: It can be a string containing filename having text data to be loaded, or any scipy sparse matrix or any python array-like object or None. In case of None (Default), it does not make any request to server.

Purpose

This constructor can be used to construct a FrovedisCRSMatrix instance, as follows:

```
mat1 = FrovedisCRSMatrix() # empty matrix, no server request is made
mat2 = FrovedisCRSMatrix("./data") # will load data from given text file
mat3 = FrovedisCRSMatrix([1,2,3,4]) # will load data from the given list
```

Return Type

It simply returns “self” reference.

Pubic Member Function Documentation

load (mat)

Parameters

mat: It can be a string containing filename having text data to be loaded, or any scipy sparse matrix or any python array-like object (but it can not be None).

Purpose

This works similar to the constructor.

It can be used to load a FrovedisCRSMatrix instance, as follows:

```
mat1 = FrovedisCRSMatrix().load("./data") # will load data from given text file
mat2 = FrovedisCRSMatrix().load([1,2,3,4]) # will load data from the given list
```

Return Type

It simply returns “self” reference.

load__scipy__matrix (mat)

Parameters

mat: Any scipy matrix with values to be loaded in.

Purpose

This function can be used to load a python side scipy sparse data matrix into frovedis server side crs matrix. It accepts a scipy sparse matrix object and converts it into the frovedis server side crs matrix whose proxy along with number of rows and number of columns information are stored in the target FrovedisCRSMatrix object.

Return Type

It simply returns “self” reference.

load__text (filename)

Parameters

filename: A string object containing the text file name to be loaded.

Purpose

This function can be used to load the data from a text file into the target matrix. Note that the file must be placed at server side at the given path and it should have contents stored in libSVM format, i.e., “column_index:value” at each row (see frovedis manual of make_crs_matrix_load() for more details).

Return Type

It simply returns “self” reference.

load_binary (dirname)

Parameters

dirname: A string object containing the directory name having the binary data to be loaded.

Purpose

This function can be used to load the data from the specified directory with binary data file into the target matrix. Note that the file must be placed at server side at the given path.

Return Type

It simply returns “self” reference.

save_text (filename)

Parameters

filename: A string object containing the text file name in which the data is to be saved.

Purpose

This function is used to save the target matrix as text file with the filename at the given path. Note that the file will be saved at server side at the given path.

Return Type

It returns nothing.

save_binary (dirname)

Parameters

dirname: A string object containing the directory name in which the data is to be saved as little-endian binary form.

Purpose

This function is used to save the target matrix as little-endian binary file with the filename at the given path. Note that the file will be saved at server side at the given path.

Return Type

It returns nothing.

numRows()

Purpose

It returns the number of rows in the matrix

Return Type

An integer value containing rows count in the target matrix.

numCols()

Purpose

It returns the number of columns in the matrix

Return Type

An integer value containing columns count in the target matrix.

debug_print()

Purpose

It prints the contents of the server side distributed matrix data on the server side user terminal. It is mainly useful for debugging purpose.

Return Type

It returns nothing.

release()

Purpose

This function can be used to release the existing in-memory data at frovedis server side.

Return Type

It returns nothing.

FrovedisCRSMatrix.asCRS(mat)

Parameters

mat: A scipy matrix, an instance of FrovedisCRSMatrix or any python array-like data.

Purpose

This static function is used in order to convert a given matrix to a crs matrix. If the input is already an instance of FrovedisCRSMatrix, then the same will be returned.

Return Type

An instance of FrovedisCRSMatrix.