[redacted]

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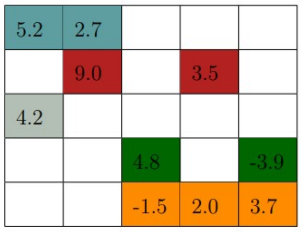
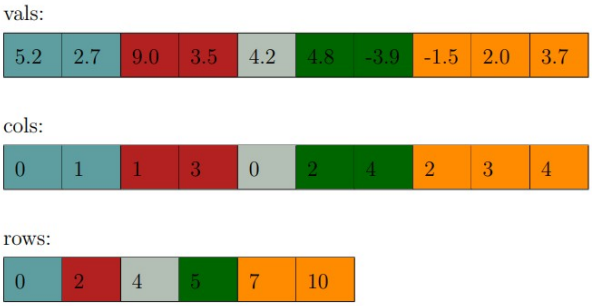
## NOTES:

**Sparse matrices are stored in a zipped format to save space in the memory. An example is CSR format. In CSR format, the matrix is represented with three arrays, namely, vals, col_idx and row_ptr**




- **vals array holds the nonzero elements of the matrix**
  - **size: # of nonzeros in the matrix**
- **col_idx array holds the column indices of nonzero elements**
  - **size: # of nonzeros in the matrix**
- **row_ptr encodes the index in vals and col_idx where the given row starts. e.g.**
  - **row_start = row_ptr[row]**
  - **row_end = row_ptr[row + 1]**
  - **size: # of rows + 1**




- **Take a look at fscanf to be able to read numerical values from a file: https://cplusplus.com/reference/cstdio/fscanf/**

**TASK:**

Write a C program that

- Reads the input.txt (provided to you) and creates vals, cols and rows arrays.
- Prints the arrays created on the screen

Create your arrays **dynamically**

Input.txt has the # of rows, columns and # of nonzeros listed in its first row, separated by spaces. The rest of the data is <row,col,value> triples given at each line.

**The output of your code should look like this:**

**row_ptr:**

**0 2 4 5 7 10**

**col_idx:**

**0 1 1 3 0 2 4 2 3 4**

**vals:**

**5.2 2.7 9.0 3.5 4.2 4.8 -3.9 -1.5 2.0 3.7**