**COMP 6521**

**Advanced Database Systems and Application**

**Project 1**

**Two Phase Multi-Way Merge Sort**

Collaborators:

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Algorithm:

Sorting algorithm: Heap sort.

n – Number of Tuples

mm – Main Memory

Max Buffer Capacity <– mm \* 10,000

Max Input buffer capacity <– 80% Max buffer Capacity

Max Output buffer capacity <– 20% Max buffer Capacity

Phase 1:

While input file is not empty

Loop:

Read file and load the Buffer with max capacity.

Sort all elements in input buffer.

Write and save it to temporary file.

End loop.

Now we have various temporary files with sorted sub lists.

Phase 2:

Number of input buffers <– Max input buffer capacity / number of temporary files

Output buffer capacity <– max output buffer capacity

For each temporary file

Loop:

Load the input buffers till max.

End loop.

While all files are not empty,

Loop:

Store first element of each input buffer and find minimum among them.

If output buffer is full

Then:

Write the buffer to output file and reset the output buffer.

End if

Store the minimum in output buffer.