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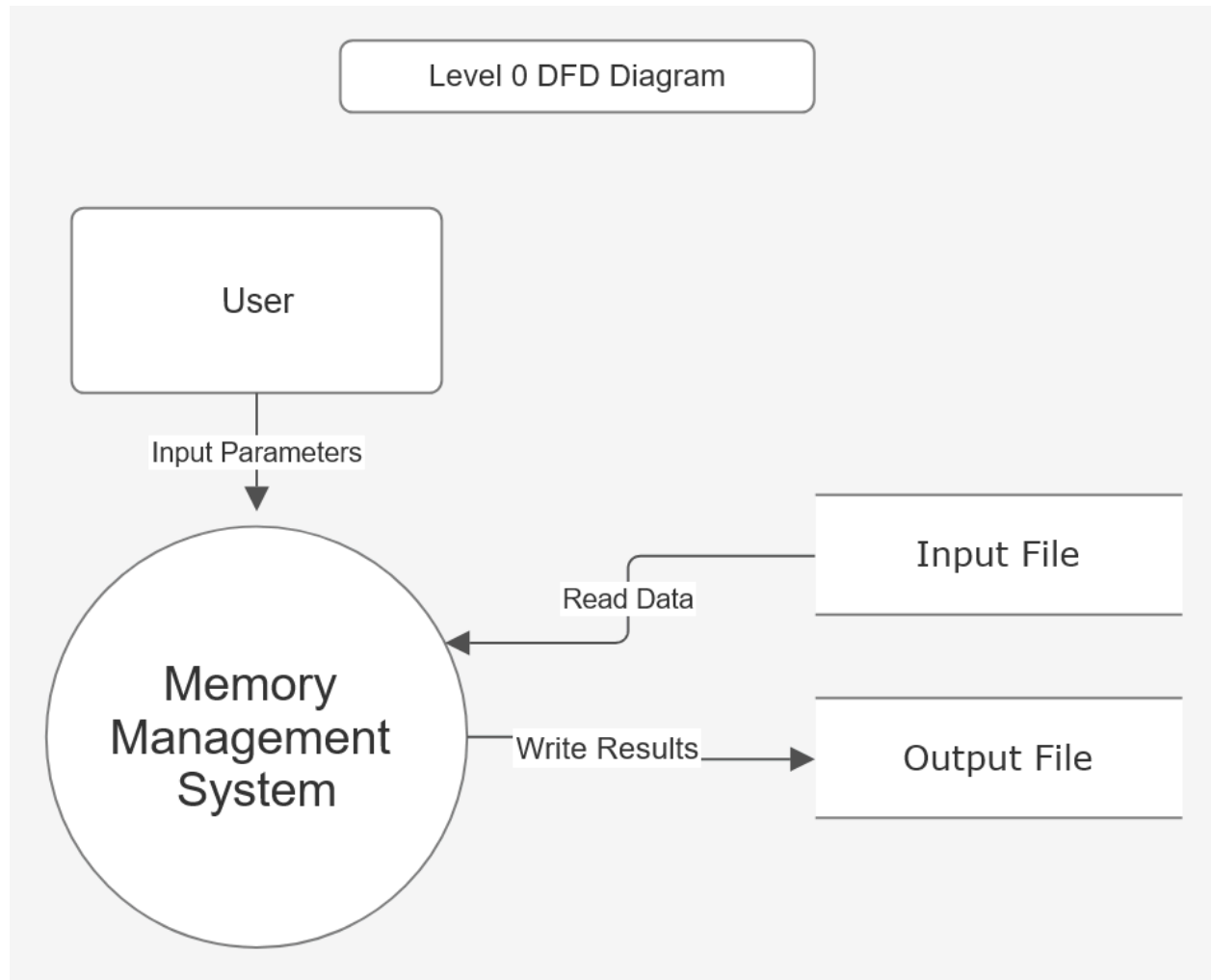Email: vincent.polanco@csu.fullerton.edu

UML Diagrams

Global Data		
Attributes	**Data Type**	**Description**
processID	int[]	Holds process-related data that can be indexed by process ID.
processArrivalTime	int[]	
processLifetime	int[]	
processMemoryRequirement	int[]	
processPagesRequired	int[]	
processStartTime	int[]	
processCompleted	bool[]	

File Handler			
Attributes	**Data Type**	**Function Name**	**Description**
inputFile	ifstream	parseInputFile	Writes simulation results using printResults
outputFile	ofstream		

int main()			
Attributes	**Data Type**	**Function Name**	**Description**
totalMemorySize	int	grabUserInput()	Collects user input for memory and files
pageSizeOption	int	parseInputFile(inputFileName, processArray[], processCount)	Reads processes from the input file and calculates required pages.
pageFrameSize	int	manageProcesses(currentTime, processArray[], processCount, processQueue)	Handles process arrival.
inputFileName	string	manageMemory(memory[], totalMemorySize, pageFrameSize, processArray[], processCount, currentTime, processQueue)	Gives memory to process based on how much is available.
outputFile	ofstream	manageQueue(currentTime, processQueue, memory[], totalMemorySize, pageFrameSize, processArray[], processCount)	Handles completion of processes and memory deallocation.
memory[]	int[]	printResults(currentTime, processQueue, memory[], totalMemorySize, pageFrameSize, processArray[], processCount)	Logs the state of memory and the ongoing processes.
processQueue	queue<int>		
MAX_PROCESS_COUNT	const int		
currentTime	int		

DFD Diagram

Level 0 DFD Diagram

User

Input Parameters

Memory
Management
System

Input File

Read Data

Write Results

Output File

Activity Diagram

Activity Diagram

grabUserInput → parseInputFile

Are there more entries in the arrays to process?

More processes → manageProcesses

No more processes

Is memory available for another process?

Memory available → manageMemory

Wait for free memory.

manageMemory → manageQueue → printResults