Module Two VectorSorting Pseudocode

The following is a reflection the code & it’s functions.

The code consists of several functions and structures. strToDouble converts CSV data into numeric format, while the Bid struct holds the bid data used in a vector to be sorted. The displayBid function outputs these values to the console, though getBid remains unused.

The loadBids function reads CSV data from a specified or default path, adding it to the Bid struct before storing it in the unsorted vector. Sorting is handled by two algorithms: quickSort and selectionSort. The partition function drives the recursive quickSort by identifying and swapping out-of-order elements, while selectionSort uses loops to swap elements without recursion.

The main function acts as the application’s driver, offering options to load, view, and sort data via either algorithm, and it times each sort using the time.h library. The code was generally straightforward, though Visual Studio threw errors on cin and cout, which were fixed by explicitly using std::cout.

The following is the pseudocode.

Main Program

1. Setup:
   * csvPath: CSV file path.
   * bids: List to hold bids.
   * choice: User menu input.
   * ticks: Track time.
2. Menu Loop (until exit):
   * Show menu options:
     1. Load Bids
     2. Display Bids
     3. Selection Sort
     4. Quick Sort
     5. Exit
   * Get user choice and validate.
3. Menu Actions:
   * Load Bids: Read from CSV, show count and time.
   * Display Bids: Print all bids.
   * Selection Sort: Sort bids by title, show time.
   * Quick Sort: Sort bids by title, show time.
   * Exit: End program.

Functions

1. selectionSort(bids):
   * Find smallest bid in unsorted list.
   * Swap it with the current bid.
   * Repeat until sorted.
2. quickSort(bids, start, end):
   * If start >= end, return.
   * Split bids using partition.
   * Recursively sort both parts.
3. partition(bids, start, end):
   * Choose middle bid as pivot.
   * Move smaller bids left, larger bids right.
   * Return the split point.
4. loadBids(csvPath):
   * Read CSV, create bids, return list.
5. strToDouble(str, ch):
   * Remove ch (e.g., '$') from str.
   * Convert to number.

Input Handling

1. getBid():
   * Prompt for bid details (ID, title, fund, amount).
   * Convert amount and return bid.

Menu Flow

* Show Menu.
* User Input:
  + Load: Read bids.
  + Display: Show bids.
  + Sort (Selection/Quick): Sort and show time.
  + Exit: End.