

1 Give a real-world example that requires sorting or a real-world example that requires computing a convex hull.

- Analytical data from database that should be order by ascending date on the chart.
- Replacement of bounding boxes in video games.

2 Other than speed? what other measures pf efficiency might one use in a real-world settings?.

Memory. Memory consuming is very important for microcontrollers.

3 Select a data structure than you have seen previously, and discuss its strengths and limitations.

One-way linked list.

Strengths:

- Insert without relocation memory for whole list.
- Delete element without shifting other elements.

Limitations:

- Can't go backwards from element.
- Can't select nth element without go through n-1 previous elements.

4 How are the shortest-path and traveling-salesman problems given above similar? How are they different?

Shortest-path and traveling-salesman are both about find the optimal path. With the shortest path problem you consider paths between two nodes. You can find shortest path between two source and distination using for example a A* algorithm. With the TSP you consider paths between all nodes. TSP is an NP-complete problem and shortest path is known polynomial-time.

- 5 Come up with a real-world problem in which only the best solution will do. Then come up with one in which a solution that is "approximately" the best is good enough.**

"approximately" the best: calculate next enemy movement in video game in the allotted time, calculate next movement in chess game.