Solutions for Introduction to Algorithms 2022, 4th edition.
link to MIT open course

1.1.1 Describe your own real-world example that requires sorting. Describe one that requires finding the shortest distance between two points.

Sorting product tables by various parameters: date, price, etc. AABB collisions needs to know shortest distance between two points in rectangle-circle case.

1.1.2 Other than speed, what other measures of efficiency might you need to consider in a real-world setting?

Memory.

1.1.3 Select a data structure that you have seen, and discuss its strengths and limitations.

Hash table. Operations `Search`, `Delete` and `Insert` take $\mathcal{O}(1)$ time on average. However, database can degrade if it goes through a large number of collisions.

1.1.4 How are the shortest-path and traveling-salesperson problems given above similar? How are they different?

Both problems regard path finding with minimum cost.
The are different in few things:

- TSP is NP-complete while SPP is known P-complex
- UPSOLVE