Activity: Distributed Physical Optimization

1. Compute the fragment query (data location stage) for the database setting and query below
2. Generate all the alternative process trees you can figure out

- A distributed database with 5 sites (i.e., database nodes): S_1, S_2, S_3, S_4 and S_5.
- 3 relations in the database R, S and T.
- Each relation is horizontally fragmented in two fragments (we refer to them by the name of the relation and a subindex, for example: R_1, R_2). You can consider them to be correct (i.e., complete, disjoint and reconstructible).
- Each fragment is replicated at all 5 sites.

Suppose now that the following query is issued in S_3: $Q_1 = \sigma(R) \bowtie \sigma(S) \bowtie T$