1. The two hash functions define the following permutations:
\[ h_1(0) = 1, \ h_1(1) = 3, \ h_1(2) = 0, \ h_1(3) = 2, \ h_1(4) = 4; \]
\[ h_2(0) = 1, \ h_2(1) = 4, \ h_2(2) = 2, \ h_2(3) = 0, \ h_2(4) = 3. \]

For any set \( S \) define \( \min^h(S) \) to be the minimal member of \( S \) with respect to \( h \) — that is, the member \( x \) of \( S \) with the minimum value of \( h(x) \).

For \( D_1 : \{0, 1, 2\} \),
\[ \therefore h_1(2) < h_1(0) < h_1(1), \therefore \min^{h_1}(\{0, 1, 2\}) = 2; \]
\[ \therefore h_2(0) < h_2(2) < h_2(1), \therefore \min^{h_2}(\{0, 1, 2\}) = 0; \]
Therefore its sketch is \([2, 0]\).

For \( D_2 : \{1, 3, 4\} \),
\[ \therefore h_1(3) < h_1(1) < h_1(4), \therefore \min^{h_1}(\{1, 3, 4\}) = 3; \]
\[ \therefore h_2(3) < h_2(4) < h_2(1), \therefore \min^{h_2}(\{1, 3, 4\}) = 3; \]
Therefore its sketch is \([3, 3]\).

For \( D_3 : \{0, 2, 3\} \),
\[ \therefore h_1(2) < h_1(0) < h_1(3), \therefore \min^{h_1}(\{0, 2, 3\}) = 2; \]
\[ \therefore h_2(3) < h_2(0) < h_2(2), \therefore \min^{h_2}(\{0, 2, 3\}) = 3; \]
Therefore its sketch is \([2, 3]\).

The pairwise Jaccard coefficients can be estimated as
\[ J(D_1, D_2) = 0/2 = 0.0; \]
\[ J(D_2, D_3) = 1/2 = 0.5; \]
\[ J(D_3, D_1) = 1/2 = 0.5. \]