DISJOINT SET

1. **Determine if the following pairs of sets are disjoint:**
    a. $S_1 = \{1, 2, 3\}$, and $S_2 = \{11, 12, 13\}$
    b. $S_3 = \{a, b, c\}$, and $S_4 = \{c, d, e\}$

2. $S_5 = \{17, 15, 12, 18, 20\}$
   $S_6 = \{27, 17, 22, 15, 25\}$
   $S_7 = \{22, 18, 25, 12, 17\}$

   Create a new set using INTERSECTION and UNION operations using the existing sets above.
    a. Use UNION to create set (S_8) using set (S_5) and set (S_6).
    b. Use INTERSECTION to create set (S_9) using set (S_5), set (S_6), and set (S_7).

3. **Using the UNION-FIND algorithm for cycle detection in the given undirected graph!**