PRACTICE 7

2. We consider the weighted graph G with 12 vertices and 18 edges whose incidence map f is defined as follows:

$$f(e_1) = \{v_1, v_2\}, \quad f(e_2) = \{v_1, v_3\}, \quad f(e_3) = \{v_1, v_4\}, \quad f(e_4) = \{v_1, v_5\}, \quad f(e_5) = \{v_5, v_6\},$$
$$f(e_6) = \{v_4, v_6\}, \quad f(e_7) = \{v_4, v_7\}, \quad f(e_8) = \{v_4, v_8\}, \quad f(e_9) = \{v_3, v_7\}, \quad f(e_{10}) = \{v_3, v_8\},$$
$$f(e_{11}) = \{v_2, v_8\}, \quad f(e_{12}) = \{v_8, v_9\}, \quad f(e_{13}) = \{v_7, v_{10}\}, \quad f(e_{14}) = \{v_7, v_{11}\},$$
$$f(e_{15}) = \{v_6, v_{11}\}, \quad f(e_{16}) = \{v_{11}, v_{12}\}, \quad f(e_{17}) = \{v_{10}, v_{12}\}, \quad f(e_{18}) = \{v_9, v_{12}\}$$

and whose weight's vector is the following one:

$v = (0.25,\ 0.36,\ 0.28,\ 0.25,\ 0.51,\ 0.63,\ 0.74,\ 0.81,\ 0.32,\ 0.32,\ 0.43,\ 0.51,\ 0.51,\ 0.32,\ 0.33,\ 0.45,\ 0.21,\ 0.4).$

(the ith component of this vector represents the weight of the edge e_i)

Compute a shortest path (or path with minimum weight) between the vertices 1 and 12.

SOLUTION