

Pseudocode

 $\forall v \in V/s d[v] = \infty$, H. insert (v. d[v]) ? Initialization d[s] = 0

/* maintain heap for laber of vertices in 3 */

While ! H. empty () do /* until heap becomes empty */

(w)

H. decrease priority (w, d[w])







Let Mour	u it	be	the	Veq to	tex	of	smallest	t la	bel ì	n S	<u> </u>				
Then	we	ne	ed	to s	hows	That									
 d[u]	ĨS	leng	h O	e Co	mect	short	est p	ath	from	s t) U.				
After	shift	ing	u	to s	, <i>ĥ</i>)e u	pdate	he	label	of	vertices 'm	<u>s</u>			
Then,	we	need	to	Shorr	that	t e	n I) is	true	for	remaining	? vert	ices		
in 3	Ŝ.									,					























$$d[s] = 0$$

$$d[v] = \infty \quad \forall \quad v \setminus \{s\}$$

$$\frac{\text{Inductive case}}{\text{substast path having at most } i-1 \text{ edges.}$$

$$(-1) \quad (u) \quad (u,v) + d[u]$$

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$$d[v] \leftarrow \min\{d[v], t(u,v) + d[u]\}$$

$$d[v] \leq d[u] + t(u,v)$$

$$= \delta(s, u) + t(u,v)$$

$$d[v] \leq \delta(s, v) - (u)$$

$$(0 \ s \ (u) \rightarrow d[v] = \delta(s, v)$$