Zadání 1. úkolu do předmětu IZU

Jméno: Šimon Příjmení: Feňko

login: xfenko01

Pomocí metody UCS určete **nejkratší** dobu, za kterou čtyři lidé přejdou most. Máme most, přes který mohou jít jen dva lidé zaráz a přitom musí nést pochodeň. Každý jde jinou rychlostí, pokud jsou dva lidé spolu, jdou rychlostí pomalejšího. Doba přechodu mostu pro jednotlivé osoby viz tabulka, rychlosti u operátorů doplňte. Operátory používejte podle jejich pořadí. V jednotlivých krocích uvádějte obsahy zásobníků Open a Closed. Jako cestu vypište pořadí použitých operátorů.

Pochodeň je označena "*", číslo udává dobu cesty, osoby (A, B, C, D) nalevo od čísla jsou na jedné straně mostu, osoby napravo od čísla jsou na druhé straně mostu. "X" značí dobu, za kterou se všichni lidé dostanou na druhou stranu.

Start: [*ABCD0]

Cíl: [XABCD*]

Časy:

A:1

B:5

C:6

D:15

Operátory:

1. A <- 1 5. AB -> 5 9. BD -> 15

2. B <- 5 6. AC -> 6 10. CD -> 15

3. C <- 6 7. AD -> 15

4. D <- 15 8. BC -> 6

Cesta:	AB->	<-A	AC->	<-A	AD->		

Open:	[*ABCD0]						
					1			
Closed:	[]							
Open:	[CD5*A	AB] [BD	6*AC]	[BC15*AD]	[AD6*BC]	[AC15*	'BD] [AB15*CD]
Closed:	[*ABCD	00]						
Open:	[BD6*AC]	[BC15*AD] [AD6*BC]	[AC15*BD]	[AB15*CD]	[*BCD10A] [*ACD6	B]
	T	I		I	ı			
Closed:	[*ABCD0]	[CD5*AB]						
Open:	[BC15*AD]	[AD6*BC]	[AC15*BD]	[AB15*CD]	[*BCD10A]	[*ACD6B]	[*ABD7C]	[*CBD12A]
,		-		- 1				
Closed:	[*ABCD0]	[CD5*AB]	[BD6*AC]					
C.03Cu.	[,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	[222 70]	[DDG AC]					-

Open:	[BC15*AD]	[AC15*BD]	[AB15*CD]	[*BCD10A]	[*ACD6B]	[*ABD7C]	[*ABD11C]	[*ACD12B]
Closed:	[*ABCD0]	[CD5*AB]	[BD6*AC]	[AD6*BC]				
		_		_				
Open:	[BC15*AD]	[AC15*BD]	[AB15*CD]	[*BCD10A]	[*ABD7C]	[D12ABC*] [C21ABD*	[A21BCD*
				l		L	L	L
Closed:	[*ABCD0]	[CD5*AB]	[BD6*AC]	[AD6*BC]	[*ACD6B]			
Open:	[BC15*AD]	[AC15*BD]	[AB15*CD]	[*BCD10A]	-{D12ABC*}	[C21ABD*	*] [A21BCD	*] [D12ABC*
	[B22ACD*]	[A22BCD*]						
Closed:	[*ABCD0]	[CD5*AB]	[BD6*AC]	[AD6*BC]	[*ACD6B]	[*ABD7C]		
Cioseu.	[ABCD0]	[CD3 AB]	[BD0 AC]	[ADO BC]	[ACDOB]	[ABD/C]		
Open:	[BC15*AD]	[AC15*BD]	[AB15*CD]	[C21ABD*]	[A21BCD*]	[D12ABC*]	[B22ACD*]	-{D16ABC*
	[C25ABD*]	[B25ACD*]						
			1	ĺ		1		_
Closed:	[*ABCD0]	[CD5*AB]	[BD6*AC]	[AD6*BC]	[*ACD6B]	[*ABD7C]	[*BCD10A	.]
Closed:	[*ABCD0]	[CD5*AB]	[BD6*AC]	[AD6*BC]	[*ACD6B]	[*ABD7C]	[*BCD10A]

	[BC15*AD]	[AC15*BD]	[AB15*CD]	[C21ABD*]	[A21BCD*]	[B22ACD*]	[*AD13BC]	[*BD17AC]
Open:	[*CD18AB]	[/(013 00]	[/1013 65]	[CZI/(DD]	[/ZIBCB]	[BZZ/(CD]	[NDISDE]	[55177.6]
	[CDIOAD]							
	5.t 2		f== a++ a2	F	f.b	F.t 2	54	F= + = + = = = + = 1
Closed:	[*ABCD0]	[CD5*AB]	[BD6*AC]	[AD6*BC]	[*ACD6B]	[*ABD7C]	[*BCD10A]	[D12ABC*]
	ı	ı	ı	1	1	T		
Open:	[BC15*AD]	[AC15*BD]	[AB15*CD]	[C21ABD*]	[A21BCD*]	[B22ACD*]	[*BD17AC]	[*CD18AB]
	[28ABCD*]							
Closed:	[*ABCD0]	[CD5*AB]	[BD6*AC]	[AD6*BC]	[*ACD6B]	[*ABD7C]	[*BCD10A]	[D12ABC*]
	[*AD13BC]							
	. ,							
		l	l			Į.	J.	
Open:	[4645*00]	F						
	[AC15*BD]	[AB15*CD]	[C21ABD*]	[A21BCD*]	[B22ACD*]	[*BD17AC]	[*CD18AB]	[28ABCD*]
	[*ABC16D]		[C21ABD*]	[A21BCD*]	[B22ACD*]	[*BD17AC]	[*CD18AB]	[28ABCD*]
	<u> </u>		[C21ABD*]	[A21BCD*]	[B22ACD*]	[*BD17AC]	[*CD18AB]	[28ABCD*]
	<u> </u>		[C21ABD*]	[A21BCD*]	[B22ACD*]	[*BD17AC]	[*CD18AB]	[28ABCD*]
Closed:	[*ABC16D]	-[*BCD30A]						
Closed:	[*ABC16D]	[*BCD30A]	[BD6*AC]	[A21BCD*]	[B22ACD*]	[*BD17AC]	[*CD18AB]	
Closed:	[*ABC16D]	-[*BCD30A]						[28ABCD*]
Closed:	[*ABC16D]	[*BCD30A]						
Closed:	[*ABC16D]	[*BCD30A]						
Closed:	[*ABC16D]	[*BCD30A]						
	[*ABC16D] [*ABCD0] [*AD13BC]	[CD5*AB] [BC15*AD]	[BD6*AC]	[AD6*BC]	[*ACD6B]	[*ABD7C]	[*BCD10A]	[D12ABC*
	[*ABC16D] [*ABCD0] [*AD13BC] [AB15*CD]	[CD5*AB] [BC15*AD]	[BD6*AC]					
Closed:	[*ABC16D] [*ABCD0] [*AD13BC]	[CD5*AB] [BC15*AD]	[BD6*AC]	[AD6*BC]	[*ACD6B]	[*ABD7C]	[*BCD10A]	[D12ABC*
	[*ABC16D] [*ABCD0] [*AD13BC] [AB15*CD]	[CD5*AB] [BC15*AD]	[BD6*AC]	[AD6*BC]	[*ACD6B]	[*ABD7C]	[*BCD10A]	[D12ABC*
Open:	[*ABC16D] [*ABCD0] [*AD13BC] [AB15*CD] [*ABC20D]	[CD5*AB] [BC15*AD] [C21ABD*] -[*ACD30B]	[BD6*AC]	[AD6*BC]	[*ACD6B]	[*ABD7C]	[*BCD10A]	[D12ABC*
	[*ABC16D] [*ABCD0] [*AD13BC] [AB15*CD] [*ABC20D]	[CD5*AB] [BC15*AD] [C21ABD*] [*ACD30B]	[BD6*AC]	[AD6*BC]	[*ACD6B]	[*ABD7C]	[*BCD10A]	[D12ABC*
Open:	[*ABC16D] [*ABCD0] [*AD13BC] [AB15*CD] [*ABC20D]	[CD5*AB] [BC15*AD] [C21ABD*] -[*ACD30B]	[BD6*AC]	[AD6*BC]	[*ACD6B]	[*ABD7C]	[*BCD10A]	[D12ABC*

Open:	[C21ABD*]	[A21BCD*]	[B22ACD*]	[*BD17AC]	[*CD18AB]	[28ABCD*]	[*ABC16D]	[*ABC21D]
	[*ABD30C]							
Closed:	[*ABCD0]	[CD5*AB]	[BD6*AC]	[AD6*BC]	[*ACD6B]	[*ABD7C]	[*BCD10A]	[D12ABC*]
	[*AD13BC]	[BC15*AD]	[AC15*BD]	[AB15*CD]				
Open:	[C21ABD*]	[A21BCD*]	[B22ACD*]	[*BD17AC]	[*CD18AB]	[28ABCD*]	[C21ABD*]	[B22ACD*]
	[A22BCD*]							
Classi	[**DCD0]	[CDE*AD]	[DDC**C]	[400*00]	[*^CDCD]	[**************************************	[*000404]	[D424DC*]
Closed:	[*ABCD0] [*AD13BC]	[CD5*AB] [BC15*AD]	[BD6*AC] [AC15*BD]	[AD6*BC] [AB15*CD]	[*ACD6B] [*ABC16D]	[*ABD7C]	[*BCD10A]	[D12ABC*]
	[ADISBC]	[BCI3 AD]	[ACI3 BD]	[ABI3 CD]	[ABCIOD]			
Open:	[C21ABD*]	[A21BCD*]	[B22ACD*]	[*CD18AB]	[28ABCD*]	[32ABCD*]		
			1			,		
Closed:	[*ABCD0]	[CD5*AB]	[BD6*AC]	[AD6*BC]	[*ACD6B]	[*ABD7C]	[*BCD10A]	[D12ABC*]
	[*AD13BC]	[BC15*AD]	[AC15*BD]	[AB15*CD]	[*ABC16D]	[*BD17AC]	-	
Open:	[C21ABD*]	[A21BCD*]	[B22ACD*]	[28ABCD*]	[33ABCD*]			
	-		T		1	T	T.	
Closed:	[*ABCD0]	[CD5*AB]	[BD6*AC]	[AD6*BC]	[*ACD6B]	[*ABD7C]	[*BCD10A]	[D12ABC*]
	[*AD13BC]	[BC15*AD]	[AC15*BD]	[AB15*CD]	[*ABC16D]	[*BD17AC]	[*CD18AB]	

Open:	[A21BCD*]	[B22ACD*]	[28ABCD*]	[*AC22BD]	[*BC26AD]	[*CD36AB]		
Closed:	[*ABCD0]	[CD5*AB]	[BD6*AC]	[AD6*BC]	[*ACD6B]	[*ABD7C]	[*BCD10A]	[D12ABC*]
0.0000.	[*AD13BC]	[BC15*AD]	[AC15*BD]	[AB15*CD]	[*ABC16D]	[*BD17AC]	[*CD18AB]	[C21ABD*]
	[7101500]	[BCIS /ID]	[/(013 88]	[/1013 60]	[/\BCIOD]	[BB177(c)	[6516/15]	[CZI/(DD]
Open:	[B22ACD*]	[28ABCD*]	[*AC22BD]	[*BC26AD]	[*AB26CD]	[*AC27BD]	[*AD36BC]	
орен.	[BZZACD]	[ZOADCD]	[ACZZBD]	[BCZUAD]	[ADZUCD]	[ACZ/DD]	[ADSOBE]	
Closed:	[* \ D C D \ O]	[CDE*AD]	[DDC*AC]	[ADC*DC]	[*^CDCD]	[*^DD7C]	[*DCD104]	[D12ADC*]
LINCHAL	[*ABCD0]	[CD5*AB]	[BD6*AC]	[AD6*BC]	[*ACD6B]	[*ABD7C] [*BD17AC]	[*BCD10A] [*CD18AB]	[D12ABC*] [C21ABD*]
Closea.	_	[DC1E*AD]	[\(C1E*DD)					IL ZIADIJI
Closed.	[*AD13BC]	[BC15*AD]	[AC15*BD]	[AB15*CD]	[*ABC16D]	[BD1/AC]	[6516/15]	[CZI/(DD]
Closed	_	[BC15*AD]	[AC15*BD]	[AB15*CD]	[*ABC16D]	[BD17AC]	[651676]	[CZINDD]
ciosca.	[*AD13BC]	[BC15*AD]	[AC15*BD]	[AB15*CD]	[*ABC16D]	[BD17AC]		[CZI/IOD]
Open:	[*AD13BC]	[BC15*AD]	[*BC26AD]	[AB15*CD]	[*ABC16D]	[*BC28AD]	[*BD37AC]	[CLINED]
	[*AD13BC] [A21BCD*]							[CZI/NBD]
	[*AD13BC] [A21BCD*]							[CLINOD]
Open:	[*AD13BC] [A21BCD*]	[*AC22BD]	[*BC26AD]	[*AB26CD]	[*AB23CD]	-{*BC28AD}	[*BD37AC]	
	[*AD13BC] [A21BCD*] [28ABCD*]	[*AC22BD]	[*BC26AD]	[*AB26CD]	[*AB23CD]	[*BC28AD]	[*BD37AC]	[D12ABC*]
Open:	[*AD13BC] [A21BCD*] [28ABCD*] [*ABCD0] [*AD13BC]	[*AC22BD] [CD5*AB] [BC15*AD]	[*BC26AD]	[*AB26CD]	[*AB23CD]	-{*BC28AD}	[*BD37AC]	
Open:	[*AD13BC] [A21BCD*] [28ABCD*]	[*AC22BD]	[*BC26AD]	[*AB26CD]	[*AB23CD]	[*BC28AD]	[*BD37AC]	[D12ABC*]
Open:	[*AD13BC] [A21BCD*] [28ABCD*] [*ABCD0] [*AD13BC]	[*AC22BD] [CD5*AB] [BC15*AD]	[*BC26AD]	[*AB26CD]	[*AB23CD]	[*BC28AD]	[*BD37AC]	[D12ABC*]
Open:	[*AD13BC] [A21BCD*] [28ABCD*] [*ABCD0] [*AD13BC]	[*AC22BD] [CD5*AB] [BC15*AD]	[*BC26AD]	[*AB26CD]	[*AB23CD]	[*BC28AD]	[*BD37AC]	[D12ABC*]
Open:	[*AD13BC] [A21BCD*] [28ABCD*] [*ABCD0] [*AD13BC] [A21BCD*]	[*AC22BD] [CD5*AB] [BC15*AD] [B22ACD*]	[*BC26AD] [BD6*AC] [AC15*BD]	[*AB26CD] [AD6*BC] [AB15*CD]	[*AB23CD]	[*BC28AD]	[*BD37AC]	[D12ABC*]
Open:	[*AD13BC] [A21BCD*] [28ABCD*] [*ABCD0] [*AD13BC]	[*AC22BD] [CD5*AB] [BC15*AD] [B22ACD*]	[*BC26AD] [BD6*AC] [AC15*BD]	[*AB26CD]	[*AB23CD]	[*BC28AD]	[*BD37AC]	[D12ABC*]
Open:	[*AD13BC] [A21BCD*] [28ABCD*] [*ABCD0] [*AD13BC] [A21BCD*]	[*AC22BD] [CD5*AB] [BC15*AD] [B22ACD*]	[*BC26AD] [BD6*AC] [AC15*BD]	[*AB26CD] [AD6*BC] [AB15*CD]	[*AB23CD]	[*BC28AD]	[*BD37AC]	[D12ABC*]
Open:	[*AD13BC] [A21BCD*] [28ABCD*] [*ABCD0] [*AD13BC] [A21BCD*]	[*AC22BD] [CD5*AB] [BC15*AD] [B22ACD*]	[*BC26AD] [BD6*AC] [AC15*BD]	[*AB26CD] [AD6*BC] [AB15*CD]	[*AB23CD]	[*BC28AD]	[*BD37AC]	[D12ABC*]
Open:	[*AD13BC] [A21BCD*] [28ABCD*] [*ABCD0] [*AD13BC] [A21BCD*]	[*AC22BD] [CD5*AB] [BC15*AD] [B22ACD*]	[*BC26AD] [BD6*AC] [AC15*BD]	[*AB26CD] [AD6*BC] [AB15*CD]	[*AB23CD]	[*BC28AD]	[*BD37AC]	[D12ABC*]
Open:	[*AD13BC] [A21BCD*] [28ABCD*] [*ABCD0] [*AD13BC] [A21BCD*]	[*AC22BD] [CD5*AB] [BC15*AD] [B22ACD*]	[*BC26AD] [BD6*AC] [AC15*BD]	[*AB26CD] [AD6*BC] [AB15*CD]	[*AB23CD]	[*BC28AD]	[*BD37AC]	[D12ABC*]
Open: Closed: Open:	[*AD13BC] [A21BCD*] [28ABCD*] [*ABCD0] [*AD13BC] [A21BCD*]	[*AC22BD] [CD5*AB] [BC15*AD] [B22ACD*]	[*BC26AD] [BD6*AC] [AC15*BD] [*AB23CD]	[*AB26CD] [AD6*BC] [AB15*CD]	[*AB23CD] [*ACD6B] [*ABC16D]	[*BC28AD] [*ABD7C] [*BD17AC]	[*BD37AC] [*BCD10A] [*CD18AB]	[D12ABC*] [C21ABD*]

Open:	[28ABCD*]	[*BC26AD]	[28ABCD*]					
Closed:	[*ABCD0]	[CD5*AB]	[BD6*AC]	[AD6*BC]	[*ACD6B]	[*ABD7C]	[*BCD10A]	[D12ABC*]
	[*AD13BC]	[BC15*AD]	[AC15*BD]	[AB15*CD]	[*ABC16D]	[*BD17AC]	[*CD18AB]	[C21ABD*]

Open:	[28ABCD*]	[32ABCD*]			

Closed:	[*ABCD0]	[CD5*AB]	[BD6*AC]	[AD6*BC]	[*ACD6B]	[*ABD7C]	[*BCD10A]	[D12ABC*]
	[*AD13BC]	[BC15*AD]	[AC15*BD]	[AB15*CD]	[*ABC16D]	[*BD17AC]	[*CD18AB]	[C21ABD*]
	[A21BCD*]	[B22ACD*]	[*AC22BD]	[*AB23CD]	[*BC26AD]			

V tomto kroku volim uzol 28ABCD*, je to cieľovy uzol, takže sme boli uspešni a najkratšia cesta je28

[B22ACD*] [*AC22BD] [*AB23CD]

[A21BCD*]