

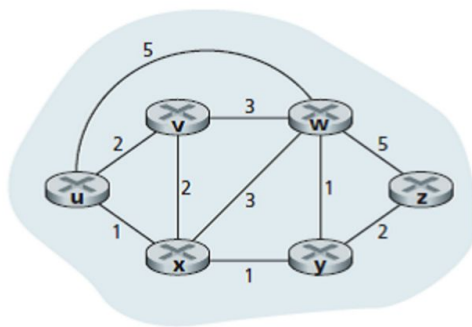
Marcus Dixon
Programming Assignment 3
CST 311
4/29/2016

NOTE: my screen shots print out an extra row that has been fixed.

I wrote the program in c++. I use vectors with unsigned ints as containers to hold my matrix. The user needs to have a separate input file with only the matrix numbers inside separated by spaces. My function works for large networks too so when I print out the table, I will only print out the numbers and not where it came from.

I did not do any error checking so if a user inputs any decimals, or letters it will crash. If the user does not pick an element in range to start with it will crash. If the input matrix isn't symmetric(4 by 4 or 5 by 5 etc...) it will crash.

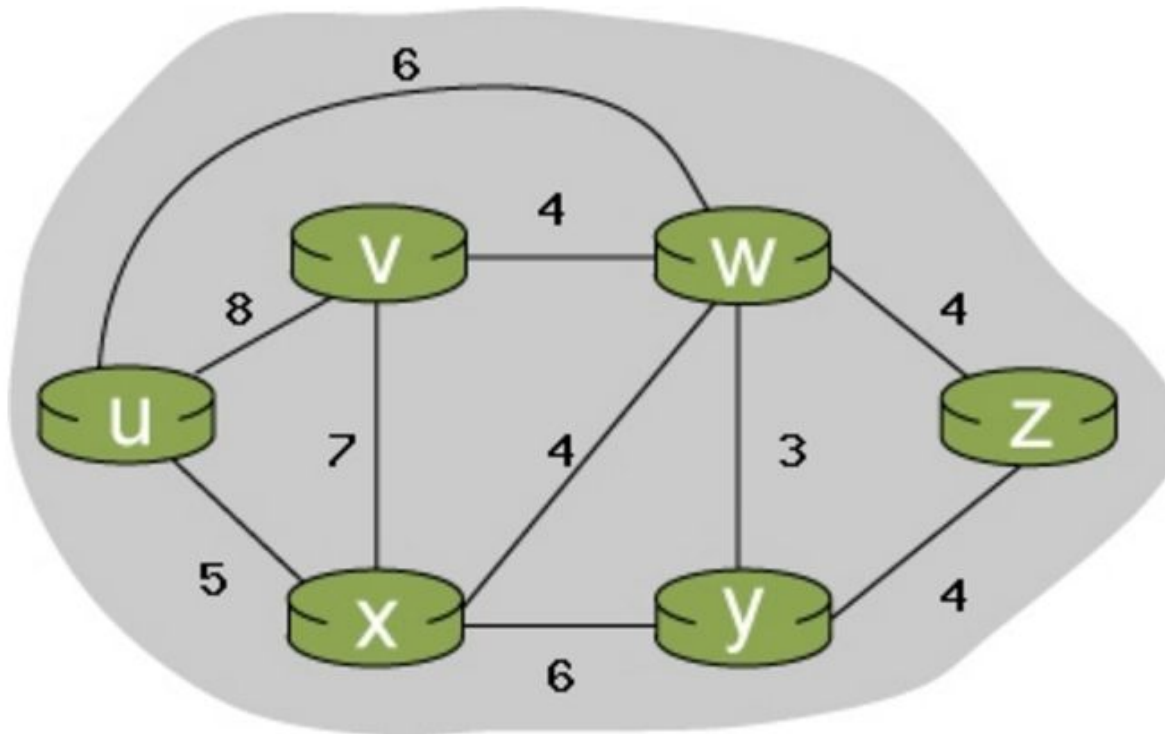
a.



```
0 2 5 1 0 0
2 0 3 2 0 0
5 3 0 3 1 5
1 2 3 0 1 0
0 0 1 1 0 2
0 0 5 0 2 0
```

```
Enter a file name: c:\input1.txt
Enter starting node number(starting with 0): 0
0 2 5 1 2147483647 2147483647
0 2 4 1 2 2147483647
0 2 4 1 2 2147483647
0 2 3 1 2 4
0 2 3 1 2 4
0 2 3 1 2 4
0 2 3 1 2 4
Press any key to continue . . .
```

b.



```

0 8 6 5 0 0
8 0 4 7 0 0
6 4 0 4 3 4
5 7 4 0 6 0
0 0 3 6 0 4
0 0 4 0 4 0
  
```

```

Enter a file name: c:\inputs.txt
Enter starting node number(starting with 0): 0
0      8      6      5 2147483647 2147483647
0      8      6      5      11 2147483647
0      8      6      5      9      10
0      8      6      5      9      10
0      8      6      5      9      10
0      8      6      5      9      10
0      8      6      5      9      10
Press any key to continue . . .
  
```

Solution:

Nprime	D(u), p(u)	D(v), p(v)	D(w), p(w)	D(x), p(x)	D(y), p(y)	D(z), p(z)
u	-	8, u	6, u	5, u	infty	infty
u x	-	8, u	6, u	-	11, x	infty
u x w	-	8, u	-	-	9, w	10, w
u x w v	-	-	-	-	9, w	10, w
u x w v y	-	-	-	-	-	10, w
u x w v y z	-	-	-	-	-	-

C.

```
0 2 4 0 0 7 0|
2 0 3 3 0 0 0
4 3 0 4 3 8 0
0 3 4 0 6 0 0
0 0 3 6 0 6 8
7 0 8 0 6 0 12
0 0 0 0 8 12 0
```

Enter a file name: c:\input.txt

Enter starting node number(starting with 0): 0

```
0 2 4 2147483647 2147483647 7 2147483647
```

```
0 2 4 5 2147483647 7 2147483647
```

```
0 2 4 5 7 7 2147483647
```

```
0 2 4 5 7 7 2147483647
```

```
0 2 4 5 7 7 15
```

```
0 2 4 5 7 7 15
```

```
0 2 4 5 7 7 15
```

```
0 2 4 5 7 7 15
```

Press any key to continue . . . ■