Laboratory 12: Cover Sheet

Name: Christopher Eichstedt Date: 11/27/2017

Section CS 302.1001

Place a check mark in the *Assigned* column next to the exercises your instructor has assigned to you. Attach this cover sheet to the front of the packet of materials you submit following the laboratory.

Activities	**Assigned:** Check or list exercise numbers	**Completed**
Implementation Testing	☑	
Programming Exercise 1		
Programming Exercise 2		
Programming Exercise 3		
Analysis Exercise 1		
Analysis Exercise 2		
	Total	

Laboratory 12: Analysis Exercise 1

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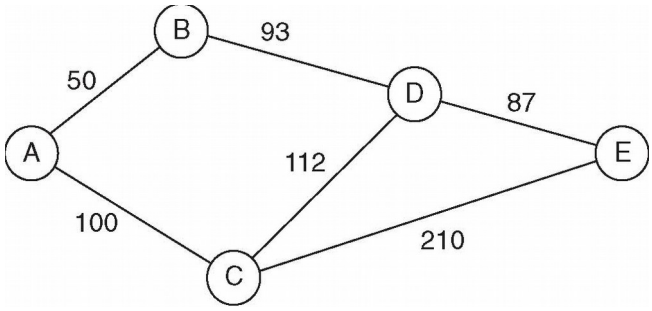
[Please reference the lab book for the full description of this problem.] The following graph, for example,



yields the augmented path matrix shown below.

Vertex list		*Path matrix (cost|second vertex on shortest path)*					
Index	*Label*	*From/To*	*0*	*1*	*2*	*3*	*4*
0	A	0	0|0	50|1	100|2	143|1	230|1
1	B	1	50|0	0|1	150|0	93|3	180|3
2	C	2	100|0	150|0	0|2	112|3	199|3
3	D	3	143|1	93|1	112|2	0|3	87|4
4	E	4	230|3	180|3	199|3	87|3	0|4

Entry (0,4) in this path matrix indicates that the cost of the shortest path from vertex A to vertex E is 230. It further indicates that vertex B (the vertex with index 1) is the second vertex on the shortest path. Thus the shortest path is of the form AB...E.

Explain how you can use this augmented path matrix to list the vertices that lie along the shortest path between a given pair of vertices.

Using this set up, (Index | Row), repeat until the end.

Laboratory 12: Analysis Exercise 2

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Give an example of a graph for which no proper coloring can be created using less than five colors (see Programming Exercise 2). Does your example contradict the Four-Color Theorem?

I am a little confused as to how to solve this question as we didn't spend a lot of time with color labels.