# Homework 6

1. Prim’s Algo

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| --- | --- |
| Tree Vertices | Not tree |
| A | B (A, 2), C (A, 5), D (A, 4), E ((-, -), F ((-, -), G ((-, -), H((-, -), I (-, -), J (-, -), K (-, -), L(-, -) |
| A, B(A) | C (A, 5), D (A, 4), E ((B, 3), F ((B, 6), G ((-, -), H((-, -), I (-, -), J (-, -), K (-, -), L(-, -) |
| A, B(A), E(B) | C (A, 5), D (E, 1), F ((E, 2), G ((-, -), H((-, -), I (E, 4), J (-, -), K (-, -), L(-, -) |
| A, B(A), E(B), D(E) | C (D, 2), F ((E, 2), G ((-, -), H((D, 5), I (E, 4), J (-, -), K (-, -), L(-, -) |
| A, B(A), E(B), D(E), C(D) | F (E, 2), G ((C, 4), H((D, 5), I (E, 4), J (-, -), K (-, -), L(-, -) |
| A, B(A), E(B), D(E), C(D), F(E) | G (C, 4), H((D, 5), I (E, 4), J (F, 5), K (-, -), L(-, -) |
| A, B(A), E(B), D(E), C(D), F(E), G(C) | H(G, 3), I (E, 4), J (F, 5), K (G, 6), L(-, -) |
| A, B(A), E(B), D(E), C(D), F(E), G(C), H(G) | I (E, 4), J (F, 5), K (G, 6), L(-, -) |
| A, B(A), E(B), D(E), C(D), F(E), G(C), H(G), I(E) | J (I, 3), K (G, 6), L(I, 5) |
| A, B(A), E(B), D(E), C(D), F(E), G(C), H(G), I(E), J(I) | K (G, 6), L(I, 5) |
| A, B(A), E(B), D(E), C(D), F(E), G(C), H(G), I(E), J(I), L(I) | K(G, 6) |
| A, B(A), E(B), D(E), C(D), F(E), G(C), H(G), I(E), J(I), L(I), K(G) |  |

1. Kruskal’s Algo

Edges: AB = 3, AC = 5, AD = 4, BE = 3, BF = 6, CD = 2, CG = 4, DH = 5, DE = 1, EI = 4, EF = 2, FJ = 5, GH = 3, GK = 6, HK = 7, HI = 6, IL = 5, IJ = 3, JL = 9, KL = 8

In Order: DE, CD, EF, AB, BE, GH, IJ, AD, CG, EI, DH, FJ, IL, BF, GK, HI, HK, KL, JL

Min Span Tree

A B



C D E F



G H I J



K L

1. Dijkstra’s Algo
2. Huffman Code
   1. Construct
   2. Encode ABACABAD
   3. Decode 100010111001010
3. P, NP, and NP Complete Problems
4. Decision Trees
   1. What is Infor-Theoretic lower bound?
   2. Draw tree