Andrew Curtis

Assignment 4

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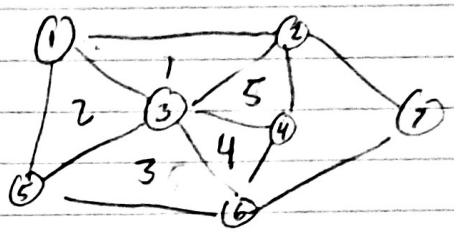
a) triangles: $V_1\ V_2\ V_3$
$V_1\ V_3\ V_5$
$V_3\ V_5\ V_6$
$V_3\ V_4\ V_6$
$V_2\ V_3\ V_4$



Connected triplets: 512 312 513 127 123 124
324 327 427 276 765 764
763 465 463 365 651 653
246 243 346 134 136 235
236 435

$$C = \frac{3 \times 5 \text{ triangles}}{32 \text{ connected triplets}} = 0.46875$$

b)

node	triangles	degree	local clustering coefficient
V_1	2	3	$2 \cdot 2 / 3(3-1) = 0.666$
V_2	2	4	$2 \cdot 2 / 4(4-1) = 0.333$
V_3	5	5	$2 \cdot 5 / 5(5-1) = 0.5$
V_4	2	3	$2 \cdot 2 / 3(3-1) = 0.666$
V_5	2	3	$2 \cdot 2 / 3(3-1) = 0.666$
V_6	2	4	$2 \cdot 2 / 4(4-1) = 0.333$
V_7	0	2	$2 \cdot 0 / 2(2-1) = 0$

formula used: local clustering $= \frac{2 \cdot \text{triangles connected to node}}{(\text{degree of node})(\text{degree of node} - 1)}$