Knapsack Problem using Branch & Bound Algorithm.

$U_b = v + (W - w)(v_{i+1}) / (w_{i+1})$

Node 3: $v = 0, \ w = 0, \ i = 1$

$U_b = 0 + (10)(6)$

$= 60$.

Node 5:

$v = 40 \quad w = 4 \quad i = 2$

$U_b = 40 + (6)(v_3) / (w_3)$

$= 40 + 6(5)$

$= 40 + 30 = 70$

Node 6: $v = 65 \quad w = 9 \quad i = 3$.

$65 + (10 - 9)(v_4) / (w_4)$

$65 + (1)(4)$

$= 69$.

Node 7

$v = 40 \quad w = 4 \quad i = 3$.

$40 + (10 - 4)(v_4) / (w_4)$.

$40 + (6)(4)$

$40 + 24 = 64$

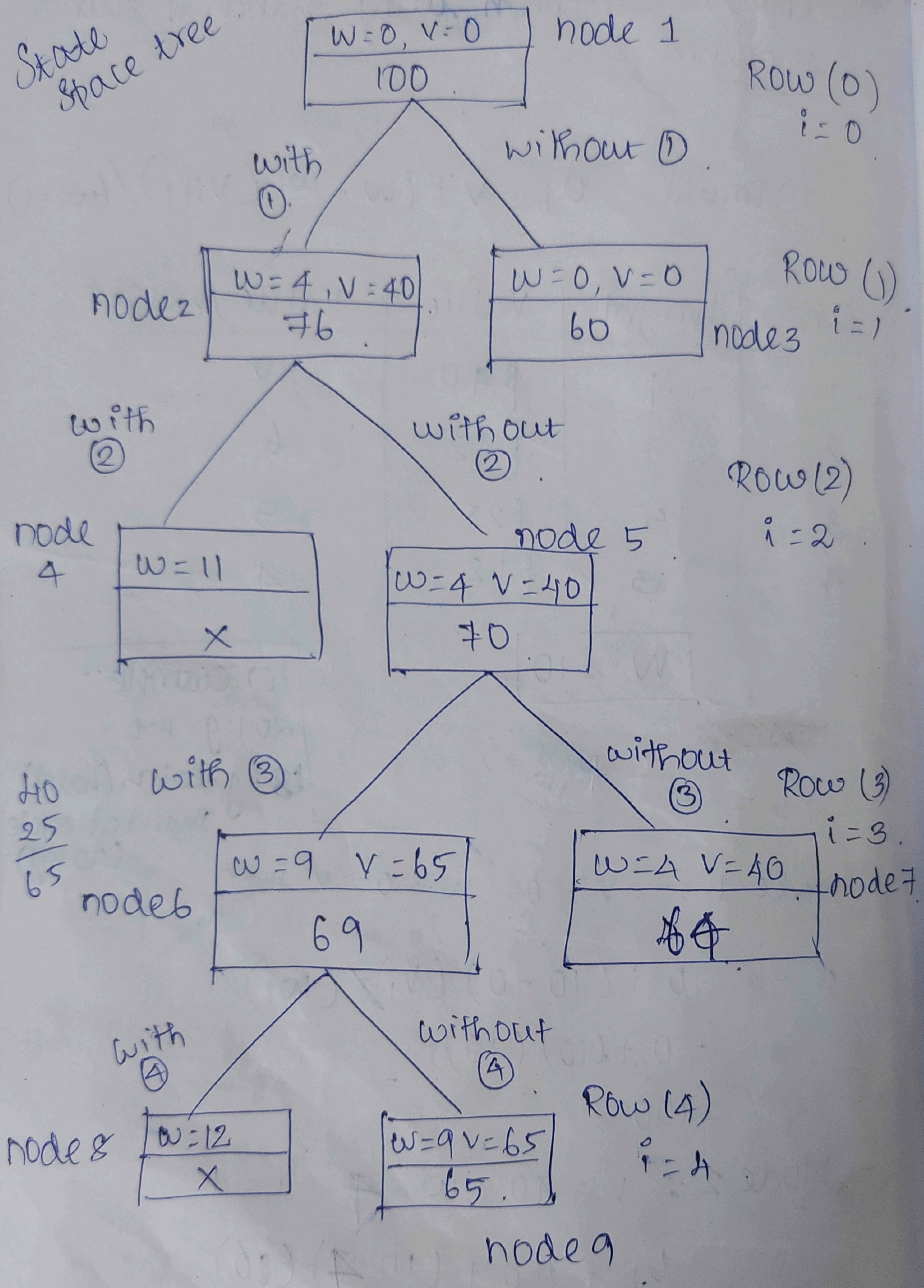
Node 9

$w = 9 \quad v = 65 \quad i = 4$

$65 + (1)(0)$

$= 65$

State space tree



Choosed Nodes:-

w_1, w_3

$\therefore$ 1010

weight: 4+5=9

value: 40+25=65