Final Assignment

The simulation of 011 knapsack using the

knapsack is basically a long hag with limited weight capacity. And the weight limited of the kenapsack slaesnat suseeed.

There are two kinds of knapsack

- 1. Fractional knapsack problem
- 2. 0/1 knapsack problem = + 100000

O/1 knapsack is a salued using dynamic programming. In this item commat the loaken which means this should take the item as a whale on should leave it. That's why it is called 0/1 kenapsack problem.

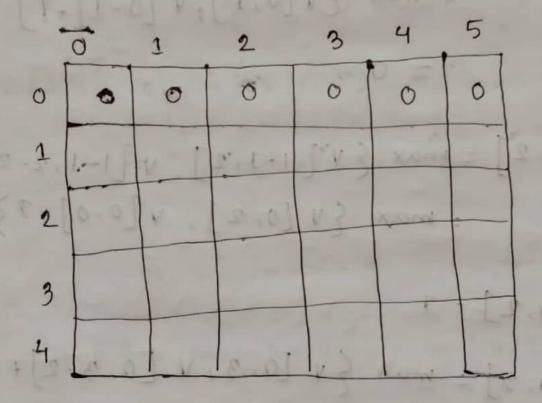
In 0/1 knapsack phoblem:

- 1) A tractinal amount of item cannot be taken.
- 2) each item is taken on not taken . Bad. Bad a planted of special · ytiongos turgious . botimi
- 3) Basically approch alwesm't enoune an aptimal Solution.

Freine Obse two kinds Of Knoppolit

+	Should	Soft-	SHOPIN	doin		Locker
1	items	P;	wi	2 2		
	1	1	2	41		atoM.
-	2	2	3		PROBLEM	
1	3	5	4			
-	4	6	5			
1						

boxes of oth now and fill all the with 0. oth column



formula!

$$v[i, \omega] = \max \{v[i-1, \omega], v[i-1, \omega]\}$$

 $\omega - \omega[ij] + p[ij]$

$$V[1,1] = \max \{ v[1-1,1]; v[1-1,1-2] + i \}$$

$$= \max \{ v[0,1]; v[0-1]+i \}$$

$$= 0$$

$$V[1,2] = \max \{ v[1-1,2], v[1-1,2-2]+i \}$$

$$= \max \{ v[0,2], v[0,0]+2 \}$$

$$V[1,3] = \max \{ v[0,3, v[0,3-2]+1 \}$$

$$= \max \{ v[0,3], v[0,1]+1 \}$$

$$= 1$$

V[1,4] = max & V[0,4], V[0,4-2]+13 = max EV[0,4], V[0,2]+13 x[0,3] = max [v[0-1], F], v [e-1,3v[1,5] = max {v[0,5], v[0,5-2]+1}
= max {v[0,5], v[0,3]+1} v [0,5] = max [v [2-1,5-3] + [2-1,5-3] + STER DY LEUDING V[2,1] = max {V[1,1], V[1,1-3]+2} = max { v [1,1], v [1-2]+23 = max {v[2-1,2],v[2-1,2-3] Y [2,2] +2}

$$= \max \{v[1,2], v[4-1]+2\}$$

$$= 1$$

$$v[2,3] = \max \{v[2-1],3], v[2-1,3-3]$$

$$+23$$

$$= \max \{v[1,4], v[1,1]+2\}$$

$$= 2$$

$$v[2,5] = \max \{v[2-1,5], v[2-1,5-3]+2\}$$

$$= \max \{v[1,5], v[1,2]+2\}$$

$$= 2+1$$

$$V[3,1] = \max_{x} \{ v[3-1, 1], v[3-1, 1-4] + 5\}$$

= max \{ v[2,1] v[2,3] + 5}

$$v[3,2] = max \{ v[3-1,2], v[3-1,2-4] + 5 \}$$

= $max \{ v[2,2], v[2-2] + 5 \}$

$$v = [3,3] = \max_{x \in \mathbb{Z}} \{v[2,3], v[2-1] + 5\}$$

V[3,5] = max {v[3-1,5], v[3-1,5-4] = max { v [2,5], v [2,1] +5 } V[4,1] = max {v[4-1,1], V[4-1,1-5]+6} =max {v [3,1], v [3-4]+63 v [4,2] = max {v [4-1,2], v [4-1,2-5]+6} = max { V [3,2], V [3-3]+6}

V[4,3] = max {v[4-1,3], v[3,3-5]+6} = max {v[3,3] v[3,-2]+6} = 2 0 0 0 0 0 V[4,4] = max {v[3,4], v[3,4-5]+63 = max EV[3,4]. V[3-1]+63 2= 52 2 1 0 0 8 v [4,5] = max {v [3,5], v [3,5-5]+6} = max & v [3,5], v [3,0]+6] CON DE PLAT INTO KNOD SERVE 6 MOXIMUM PROTITE = 6 maximum protit = c (ton 946 object)

The final table

	0	1	2	3	4	5	1
0	0	0	0	0	0	0	
1	10	0	(AP)	43	You	11=	
2	0	6	Mice	123	2	3	
3	0	0	1	2	5	5	
24	0	0	3188	.2	5	6	

So, maximum possible value that can be put into knapsack = 6

maximum profit = 6

maximum profit = 6 (for 4th object)

Hene,