



SNS College of Engineering Coimbatore - 641107



Knapsack Problem

AP/IT

Knapsack problem



Knapsack Problem

Given n items:

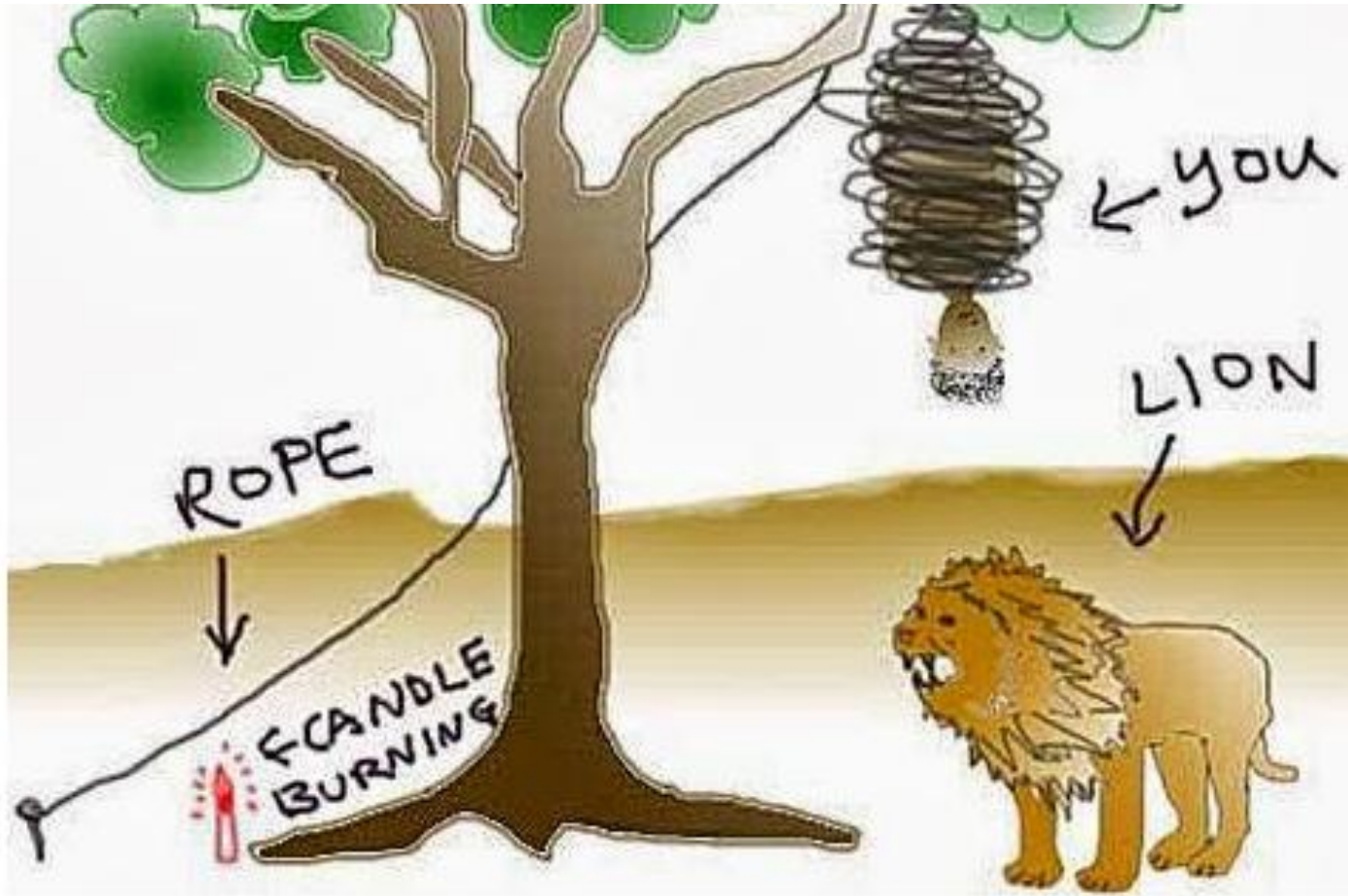
- weights: $w_1 w_2 \dots w_n$
- values: $v_1 v_2 \dots v_n$
- a knapsack of capacity W

Find most valuable subset of the items that fit into the knapsack

Example: Knapsack capacity $W=16$

<u>item</u>	<u>weight</u>	<u>value</u>
1	2	\$20
2	5	\$30
3	10	\$50
4	5	\$10

Break



Solution

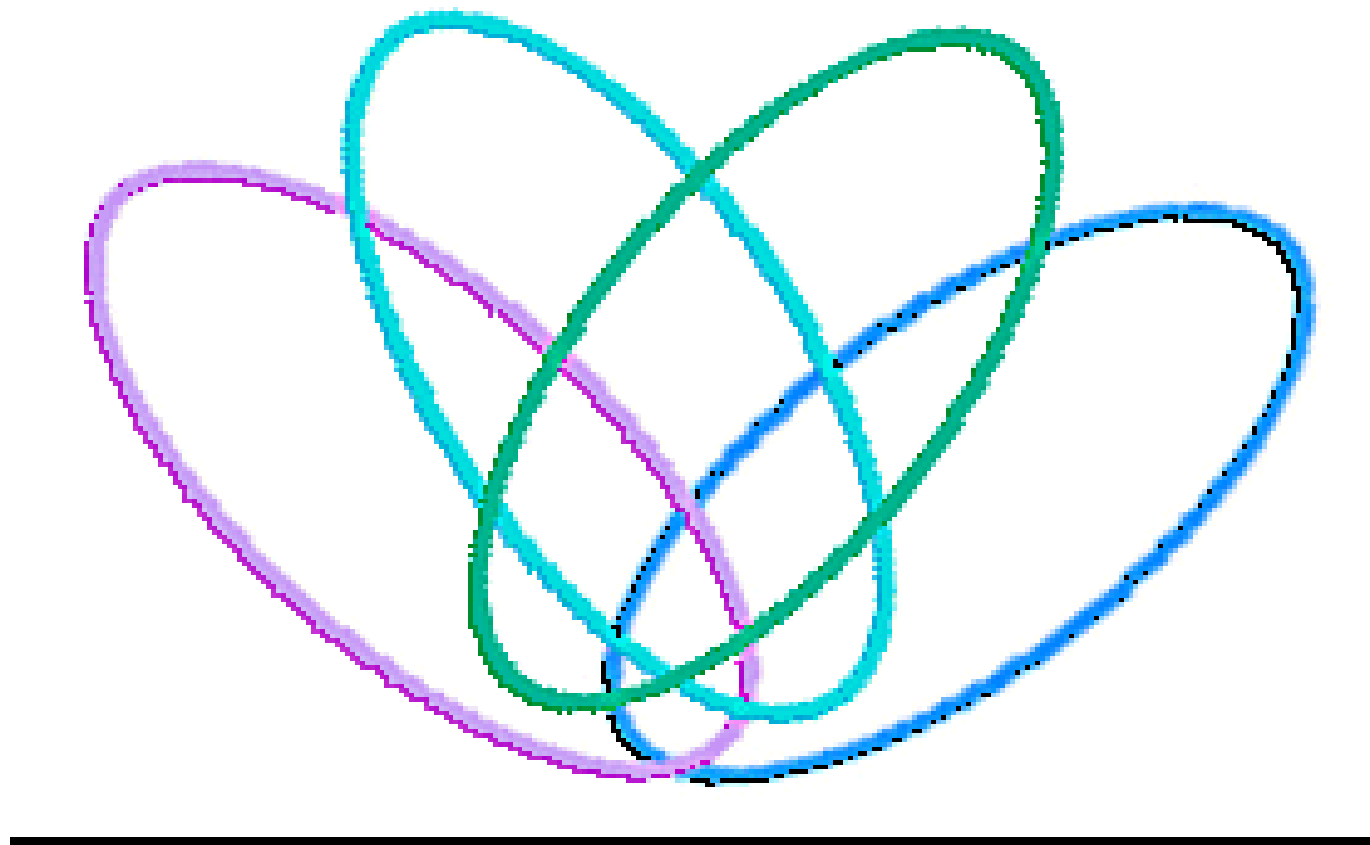
Just sing the Happy Birthday song and the Lion will blow the candle in celebration

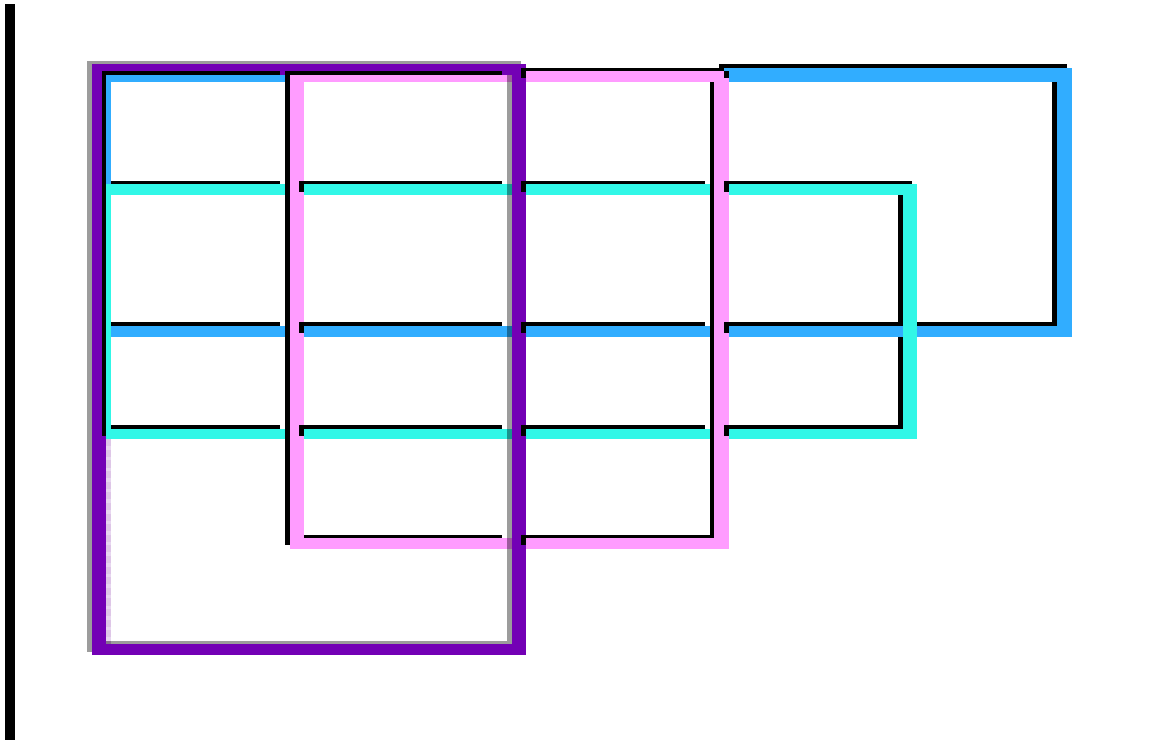
DailyBrainTeaser.Blogspot.Com



- **Get them to Draw it**

I give one person a piece of paper that has a circle, a square and a triangle drawn on it touching each other. I make sure I am careful to hold the paper so that the group cannot see what is on it. I then tell this person that their task is to get the group to draw what's on the paper but they cannot use words that describe a shape (such as circle, square, box, triangle, pyramid etc.) After a few minutes of them being unsuccessful I take the drawing and turn to the group, show them the paper and say "Draw this." This demonstrates that we all bring assumptions based on past experiences to current tasks, which can impede our success.





Problem

Capacity $W = 10$

ITEM	WEIGHT	VALUE
1	2	10\$
2	3	20\$
3	1	15\$
4	4	5\$