

## Greedy Algorithms

- locally optimal choice
- myopic (blind) choice

### Coin Changing Problem:-

1, 5, 10, 25, 50 → cent coins

92-cents = ? # smallest no. of coins possible

$$= 1 \times 50 + 1 \times 25 + 1 \times 10 + 1 \times 5 + 2 \times 1 \rightarrow 92 \text{¢}$$

Q2:-

If you have denominations like

1, 14, 25

28¢ = ?

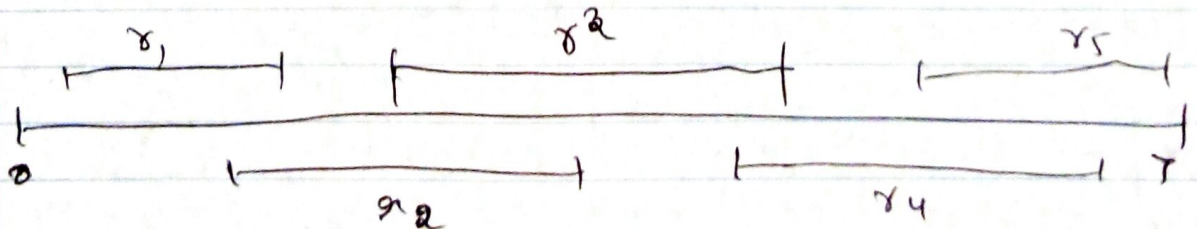
Greedy algorithm will choose,

$$25¢ + 3 \times 1¢ = 4 \text{ coins,}$$

but we can do it 2 coins

greedy algo fails,

### Room Scheduling Algorithm



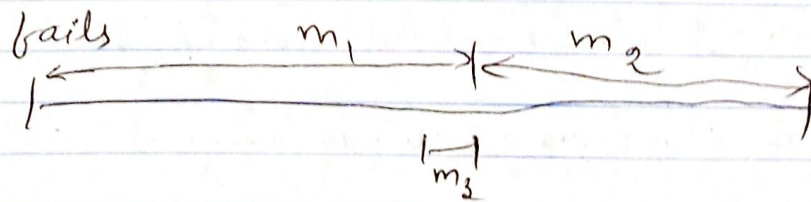
We have a meeting room, and there are requests to the meeting room, but the time slots overlap.

But we can accommodate only one request at a time.

→ We should make sure that, maximum # of meetings take place.

Choices:

① Shortest meeting first:



→ In the above case, you can schedule only one meeting. But we could have done "2" meetings.

2) S.M.F is sub-optimal.

② Earliest Ending meeting first: