

Puzzle – 25

Q- Prisoner's Hat Puzzle

100 prisoners in jail are standing in a queue facing in one direction. Each prisoner is wearing a hat of colour either black or red. A prisoner can see hats of all prisoners in front of him in the queue, but cannot see his hat and hats of prisoners standing behind him. The jailer is going to ask colour of each prisoner's hat starting from the last prisoner in queue. If a prisoner tells the correct colour, then is saved, otherwise executed.

How many prisoners can be saved at most if they are allowed to discuss a strategy before the jailer starts asking colours of their hats ?

My Approach and Solution –

At most 99 prisoners can be saved and the 100th prisoner has 50-50 chances of being executed.

The idea is that every prisoner counts number of red hats in front of him. Prisoner's will agree that if he sees an odd number of red hats, he calls out red, if he sees an even number of red hats, he calls out blue.

If 100th prisoner said 'blue'. (There must have been even number of red hats in front of him)

If 99th prisoner sees odd number of red hats in front of him, then his colour is Red.

If 99th prisoner sees even number of red hats in front of him, then his colour is blue.