CS 2104 Homework Assignment 4. Individual work

1. (30 points. "Intro into game theory".) You walk into a casino with $1000 in your pocket. Your game strategy is to maximize the probability of a *win*. A win is defined as an event in which you leave the casino with more money than you came in with. Your tactics is to always bet on "black" in roulette, which has 1/2 probability of success. Once the wheel is spun, and the ball falls on "black", you get back twice the money you bet; otherwise you get back zero. Your tactics is "bet doubling" discussed in class: you double your previous bet after each loss. The minimum allowed bet is $1, maximum $1,000. You have made up your mind to leave immediately in case of a win (according to the definition above). You also must leave if it becomes clear you can not win.

   Question 1: What is the probability of loss ("loss" = "not win") in the above strategy?

   Question 2: If such loss occurs, how much money will still be left in your pocket as you leave?

Submission Strictly follow the "General Assignment Guidelines" (individual assignment) on the course web-site.