- Please ask further questions AFTER you read this and think about your mistakes cf. the reference solutions.

- Attached are two reference solutions from previous years. Their 1.1, 1.4, 2 and 3 problems correspond to this homework. We won't provide reference solutions for the neural network playground since it's really intended for you to play and answers could be diverse.

- There may not be a unique way or notation to solve each problem.

- Detailed point distribution for this homework:
1.1: 1pt
1.2: 1pt
2: 2pt
3: 2pt
4: 4pt

- Grading standard is generally not very strict. Commensurate points are given as long as you show some derivation efforts or get the correct answer (but not both).

- Explanations for some common problems:
1.2: Some directly take the inverse of the probability of this pattern (0.5 ^ (k+1)), but since the toss is not performed in batches of k + 1 tosses, we believe the rigorous derivation must rely on some induction/recursion on k, though this quick inverse enhances understanding.

2: You have to arrive at the final form of the dual problem otherwise you get only 1 point. We've been stringent only on this problem.
Some are missing the min/max symbol. Some are missing constraints though they may be in the middle of your derivation. But failure to realize them to be final constraints does lead to a different optimization problem hence the -0.5 deduction.

4: 1 point for the correctness of the regularized gradient (meaning the update rule in regularized IRLS) in at least your code.
The experiments/analysis suggested in the homework instructions are not all mandatory but if you did too little there's also -0.5 deduction.
We won't provide reference code since implementations differ person by person. We hope you can carefully debug your code cf. the derivation in the reference solutions and also with breakpoints, intermediate checking, etc.