

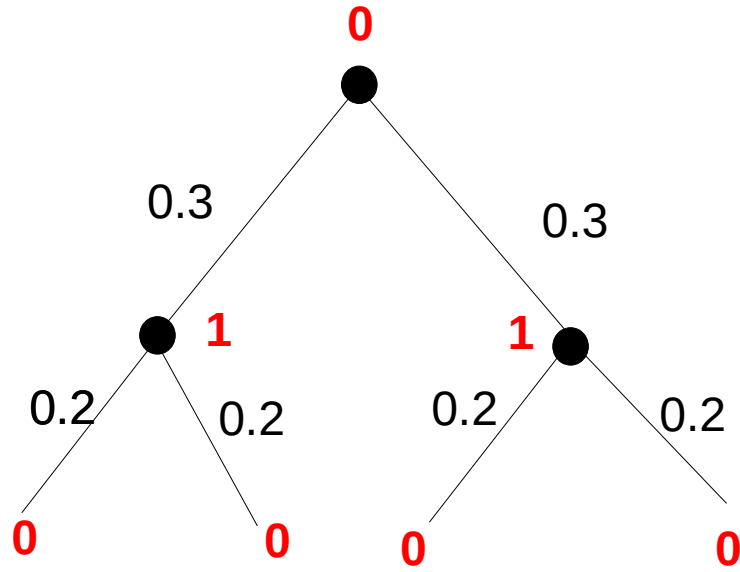
# Introduction to Bioinformatics for Computer Scientists

## Excercise 9

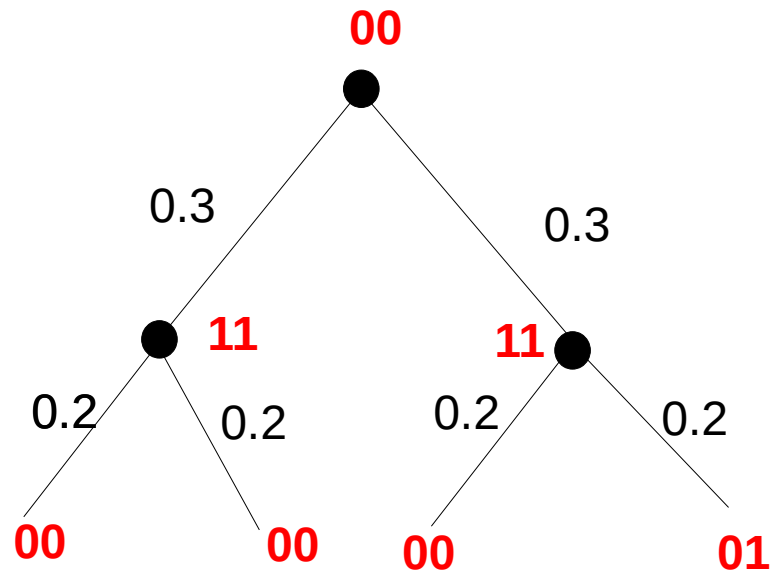
# Likelihood

- Given:
  - A two state binary alphabet 0/1
  - The stationary frequencies  $\pi = (\pi_0, \pi_1) = (0.5, 0.5)$
- And a transition probability matrix
  - $P_{0 \rightarrow 1}(0.2) = 0.1$
  - $P_{0 \rightarrow 1}(0.3) = 0.2$
  - $P_{0 \rightarrow 0}(0.2) = 0.9$
  - $P_{0 \rightarrow 0}(0.3) = 0.8$
  - $P_{1 \rightarrow 0}(0.2) = 0.1$
  - $P_{1 \rightarrow 0}(0.3) = 0.2$
  - $P_{1 \rightarrow 1}(0.2) = 0.9$
  - $P_{1 \rightarrow 1}(0.3) = 0.8$
- Compute the likelihood and log likelihood on the following trees

# Tree 1



# Tree 2



# Tree 3

