① Schemata: let $A_1 = *1*100***$
$A_2 = **010*011$

Q: Which of the two schemata has the highest chance to survive mutation, for a mutation rate $p_m = 0.01$?

A: We are applying Bit-flip mutation, meaning each position in a given instance of a schema may be flipped with probability p_m.
Survival of a schema means, that all of it's fixed bits stay unchanged.
Note, that each flip is an independent event, thus we may multiply probabilities to get their joint likelihood
=> The probability of survival is the joint likelihood of no fixed bit getting flipped

$o(A_1) = 4$

$o(A_2) = 6$

$$S_m(A_1) = (1 - p_m)^{o(A_1)}$$
$$= (1 - 0.01)^4$$
$$= \underline{0.96}$$

$$S_m(A_2) = (1 - p_m)^{o(A_2)}$$
$$= (1 - 0.01)^6$$
$$= \underline{0.94}$$

=> A_1 has a higher chance of survival at 96%, due to the lower order.