# Computer Vision
# Exercise 1

Gruppe 26
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## Task 3

$$p(X) = [0.3, 0.1, 0.2, 0.0, 0.4, 0.0]$$
$$q(X) = [0.0, 0.1, 0.3, 0.0, 0.2, 0.4]$$

$$E(p) = 0.3 \cdot 0 + 0.1 \cdot 1 + 0.2 \cdot 2 + 0 \cdot 3 + 0.4 \cdot 4 + 0 \cdot 5 = 2.1$$
$$E(q) = 0 \cdot 0 + 0.1 \cdot 1 + 0.3 \cdot 2 + 0 \cdot 3 + 0.2 \cdot 4 + 0.4 \cdot 5 = 3.5$$

$$P(X) = [0.3, 0.4, 0.6, 0.6, 1.0, 1.0]$$
$$Q(X) = [0.0, 0.1, 0.4, 0.4, 0.6, 1.0]$$

$$\begin{aligned} L_1(p,q) &= \sqrt{|(0.3-0)| + |(0.1-0.1)| + |(0.2-0.3)| + |(0-0)| + |(0.4-0.2)| + |(0-0.4)|} \\ &= 1.0 \end{aligned}$$