Problem 2. Show that a (strictly) commutative diagram

\[
\begin{array}{ccc}
W & \xrightarrow{f'} & Y \\
g' \downarrow & & \downarrow g \\
X & \xrightarrow{f} & Z
\end{array}
\]

is homotopy \(k\)-Cartesian if and only if for all \(x \in X\), the induced map on homotopy fibers

\[f'' : F_x(g') \to F_{f(x)}(g)\]

over the respective basepoints \(x \in X\) and \(f(x) \in Z\) is \(k\)-connected. Here we have \(k \geq 0\) or \(k = \infty\).