

We want to show that the Window Cleaner Problem (WCP) is at least as hard as the Vertex Cover (VC) problem. For WCP, we consider each station as a vertex. However, as long as there are lines can pass a station, such a station can be placed a worker who is able to clean all the train windows whose lines pass that station. Hence, for WCP, we treat each line as an “edge”. For this “edge”, we mean each vertex can access the entire line by using the “edge”. **Hence, from this perspective, VC problem is a special case of WCP, since VC can be regarded as WCP that has only 2 stations in each line.** Hence if we have a black-box to solve WCP, we can solve VC since in this case WCP is powerful as a subroutine (because VC is a special case of WCP). Hence, we showed that WCP is at least as hard as VC.