

Exercise sheet 4  
COMP6741: Parameterized and Exact Computation

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**Exercise 1.** Recall that an *independent set* of a graph  $G = (V, E)$  is a subset of pairwise non-adjacent vertices.

INDEPENDENT SET

Input: Graph  $G$ , integer  $k$

Question: Does  $G$  have an independent set of size  $k$ ?

- Show that INDEPENDENT SET is FPT for parameter  $q$ , where  $q = k + \Delta(G)$  and  $\Delta(G)$  denotes the maximum degree of  $G$ .