Let $G = (V, E)$ be an *undirected* graph, and let $u, v, w \in V$ be three distinct vertices. Describe an $O(m\sqrt{n})$ algorithm to determine whether there exist a simple path from $u$ to $v$ passing through $w$.

**Hint.** *Reduce this to a problem you have previously seen, maybe in lectures...*

**Note.** *The fact that $G$ is **undirected** makes the problem easy. The problem would be computationally difficult if $G$ was directed.*

**Rubric.**

- This task will form part of the portfolio.
- Ensure that your argument is clear and keep reworking your solutions until your lab demonstrator is happy with your work.