1. Let \( P = \text{abacabaca} \) and let \( T = \text{abacabadabaca} \). Search for \( P \) in \( T \) using the KMP algorithm.

2. Consider using the Boyer-Moore algorithm with only the Bad Character heuristic to search for a pattern \( P \) of length \( m \) in a text \( T \) of length \( n \), with \( n > m \), where \( P \) does \textbf{not} appear in \( T \).

   a) Give an example of a pattern \( P \) with length \( n \) and text \( T \) with length \( n \) that achieves the worst-case runtime for searching. Do not consider preprocessing time.

   b) Same question, but for the best-case runtime.

3. Let \( P = \text{MOM} \) and let \( T = \text{ALOMOMOLA} \). Search for \( P \) in \( T \) using Suffix Arrays,