

# 10. Regular Expression Matching

Given an input string s and a pattern p, implement regular expression matching with support for '.' and '\*' where:

- '.' Matches any single character.
- '\*' Matches zero or more of the preceding element.

The matching should cover the **entire** input string (not partial).

## **Example 1:**

```
Input: s = "aa", p = "a"
Output: false
Explanation: "a" does not match the entire string "aa".
```

## **Example 2:**

```
Input: s = "aa", p = "a*"
Output: true
Explanation: '*' means zero or more of the preceding element, 'a'. Therefore, by repeating 'a'
once, it becomes "aa".
```

#### **Example 3:**

```
Input: s = "ab", p = ".*"
Output: true
Explanation: ".*" means "zero or more (*) of any character (.)".
```

#### **Constraints:**

- 1 <= s.length <= 20
- 1 <= p.length <= 30
- s contains only lowercase English letters.
- p contains only lowercase English letters, '.', and '\*'.
- It is guaranteed for each appearance of the character '\*', there will be a previous valid character to match