



- Define the Term Regular Expression also explain its role in programming languages
- **Write RegEx for the language accepting all the string which are starting with 1 and ending with 0, over $\Sigma = \{0, 1\}$.**

Ans: $R = 1(0+1)^*0$

- **Create a RE that accept only hexadecimal numbers**

Ans: $^[0-9a-fA-F]+\$$

Explanation:

- $^$: Ensures that the match starts at the beginning of the string.
- $[0-9a-fA-F]$: Matches any hexadecimal digit (0-9, a-f, or A-F).
- $+$: Ensures that the pattern matches one or more hexadecimal characters.
- $\$$: Ensures that the match ends at the end of the string.

- **Create a RE that accept only mobile number only from Pakistan (pakistan mobile number start with +92) and total numeric numbers are 13**

Ans: $\$pattern = "/^\+92[0-9]{10}\$/"; \$mobile_number = "+923001234567";$

- **Differentiate between $\{10\}$ and $\{10,\}$ in RegEx**

Ans: $\{10\}$ Matches exactly 10 characters. $\{10,\}$ mean 10 or more characters