90 Python Regular Expression Tasks

This file contains **90 tasks** to practice Python's `re` module, from beginner to advanced.

Part 1 – Beginner (Basic Matching & Searching) – 30 Tasks

1. Match the word `"Python"` in a string.
2. Check if a string contains only letters (a–z, A–Z).
3. Verify if a string contains only digits.
4. Find all occurrences of the digit `7` in a string.
5. Match all lowercase letters in `"Hello World"`.
6. Match all uppercase letters in `"Hello World"`.
7. Extract all numbers from `"My phone number is 03001234567"`.
8. Check if a string starts with `"Hello"`.
9. Check if a string ends with `"World"`.
10. Find all vowels in `"Regular Expressions are fun!"`.
11. Find all consonants in a sentence.
12. Match a word with exactly 5 letters.
13. Match a string with at least one space.
14. Extract words starting with `"P"`.
15. Check if a string contains `"cat"` or `"dog"`.
16. Extract all words from `"Python3 is fun"`.
17. Find all two-digit numbers in `"I am 21 years old and my brother is 15"`.
18. Match any character except vowels.
19. Find all punctuation marks in `"Hello! How are you?"`.
20. Extract text inside double quotes.
21. Match `"yes"` or `"no"` regardless of case.
22. Check if a string contains only whitespace.
23. Match words that start and end with the same letter.
24. Extract all hashtags from `"Loving #Python #Coding"`.
25. Match a string that contains only hexadecimal characters.
26. Extract all file extensions from `"file.txt file2.pdf image.jpeg"`.
27. Find all `\n` newline occurrences in a string.
28. Match any digit followed by a letter.
29. Extract all URLs from a string.
30. Match a string containing `"abc"` exactly 3 times.

Part 2 – Intermediate (Groups, Quantifiers, Special Sequences) – 30 Tasks

31. Extract the domain name from an email address.
32. Extract the username from an email address.
33. Extract the first word from a sentence.
34. Replace all spaces with underscores.
35. Replace multiple spaces with a single space.
36. Remove all numbers from a string.
37. Remove all non-alphanumeric characters from a string.
38. Extract all text inside parentheses.
39. Match any 4-digit year in `"Born in 1998, graduated in 2020"`.
40. Validate a Pakistani mobile number (e.g., 03001234567).
41. Validate a landline number format like `(042)1234567`.
42. Validate a CNIC number like `12345-1234567-1`.
43. Match all repeated words in `"This is is a test test"`.
44. Find duplicate letters in a word.
45. Match a number with optional decimal places.
46. Validate a password with at least 8 characters, 1 digit, and 1 special character.
47. Extract currency amounts like `$100`, `€50`.
48. Extract HTML tags from a string.
49. Remove HTML tags from a string.
50. Match an IP address format.
51. Validate a strong password (uppercase, lowercase, digit, special char).
52. Match time in `HH:MM` format.
53. Match date in `DD-MM-YYYY` format.
54. Extract all three-letter words.
55. Match a sequence of vowels.
56. Match a word containing `ing`.
57. Extract Twitter usernames starting with `@`.
58. Extract YouTube video IDs from URLs.
59. Replace all digits with `#`.
60. Match hex color codes like `#fff` or `#ff5733`.

Part 3 – Advanced (Lookarounds, Backreferences, Performance) – 30 Tasks

61. Match numbers only if they are followed by `"kg"`.
62. Match numbers only if they are **not** followed by `"kg"`.
63. Extract words only if they are followed by a comma.
64. Extract words only if they are preceded by `#`.
65. Match `"Python"` only if it’s not followed by `"3"`.
66. Find overlapping matches of `"aba"` in `"ababa"`.
67. Match numbers between `100` and `999`.
68. Match floating-point numbers with optional sign (+/-).
69. Match strings without the letter `"e"`.
70. Validate IPv6 addresses.
71. Match HTML opening tags without closing tags.
72. Match a repeated word using a backreference.
73. Match palindromes of 3 letters.
74. Extract all filenames without extensions.
75. Validate credit card numbers (simple pattern).
76. Match only words with alternating vowels and consonants.
77. Validate a URL.
78. Match all words longer than 10 characters.
79. Match words with at least 3 vowels.
80. Match numbers divisible by 5 (ending with 0 or 5).
81. Match text between two specific words.
82. Find words containing double letters.
83. Match numbers with commas (e.g., `1,000`, `20,345`).
84. Match Roman numerals.
85. Match all hashtags not followed by a number.
86. Match a repeated sequence of characters like `"abcabc"`.
87. Match binary numbers containing only `0` and `1`.
88. Validate MAC addresses.
89. Extract the first and last name from `"John Doe"`.
90. Match all HTML comments.

Usage

- Import the `re` module:

```python
import re
```