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Python Assignment-4

⌄ Q1. Write a program to extract each character from a string using a regular expression.

```
import re

text = "Hello World"
characters = re.findall(r'.', text)
print("Characters:", characters)
```

⤷ Characters: ['H', 'e', 'l', 'l', 'o', ' ', 'W', 'o', 'r', 'l', 'd']

⌄ Q2. Write a program to extract each word from a string using a regular expression.

```
import re

text = "Hello World! How are you?"
words = re.findall(r'\w+', text)
print("Words:", words)
```

⤷ Words: ['Hello', 'World', 'How', 'are', 'you']

⌄ Q3. Write a program to print the first word of the string.

```
import re

text = "Hello World! How are you?"
first_word = re.match(r'\w+', text)
if first_word:
    print("First word:", first_word.group())
```

⤷ First word: Hello

⌄ Q4. Write a program to print the last word of the string.

```
import re

text = "Hello World! How are you?"
words = re.findall(r'\w+', text)
if words:
    print("Last word:", words[-1])
```

```
    Last word: you
```

Q5. Write the program to print the characters in pairs.

```
import re

text = "Hello World"
pairs = re.findall(r'.{2}|.{1}$', text)
print("Character pairs:", pairs)
```

```
    Character pairs: ['He', 'll', 'o ', 'Wo', 'rl', 'd']
```

Q6. Write a program to print only the first two characters of every word.

```
import re

text = "Hello World Python Programming"
words = re.findall(r'\w+', text)
first_two = [word[:2] for word in words if len(word) >= 2]
print("First two characters of each word:", first_two)
```

```
    First two characters of each word: ['He', 'Wo', 'Py', 'Pr']
```

Q7. Write a program that validates a mobile phone number. The number should start with 7, 8, or 9 followed by 9 digits.

```
import re

def validate_phone(number):
    pattern = r'^[789]\d{9}$'
    if re.match(pattern, number):
        print("Valid phone number")
    else:
        print("Invalid phone number")

# Test the function
phone_numbers = ["9876543210", "1234567890", "98765"]
for number in phone_numbers:
    print(f"Checking {number}:", end=" ")
    validate_phone(number)
```

```
Checking 9876543210: Valid phone number
Checking 1234567890: Invalid phone number
Checking 98765: Invalid phone number
```

⌄ Q8. Write a program that prints only those words that starts with a vowel.

```
import re

text = "Hello Everyone! An apple is on the table"
vowel_words = re.findall(r'\b[aeiouAEIOU]\w+', text)
print("Words starting with vowels:", vowel_words)
```

```
Words starting with vowels: ['Everyone', 'An', 'apple', 'is', 'on']
```

⌄ Q9. Write a program that uses a regular expression to match strings which starts with an upper-case character followed by a digit and a '- '.

```
import re

def check_pattern(text):
    pattern = r'^[A-Z]\d- '
    if re.match(pattern, text):
        print("Pattern matches!")
    else:
        print("Pattern doesn't match!")

# Test cases
test_strings = ["A2- test", "B5- example", "a2- test", "A22 test"]
for test in test_strings:
    print(f"Checking '{test}':", end=" ")
    check_pattern(test)
```

```
Checking 'A2- test': Pattern matches!
Checking 'B5- example': Pattern matches!
Checking 'a2- test': Pattern doesn't match!
Checking 'A22 test': Pattern doesn't match!
```

⌄ Q10. Write a program to extract the first n characters of a string.

```
import re

def extract_n_chars(text, n):
    chars = re.findall(r'.', text)[:n]
    return ''.join(chars)

# Test the function
text = "Hello World!"
n = 5
```

```
result = extract_n_chars(text, n)
print(f"First {n} characters:", result)
```

⤷ First 5 characters: Hello