TITLE: Write the python program for Cript-Arithmetic problem

CODE:

```
from itertools import permutations


def solve_cryptarithmetic(puzzle):
    words = puzzle.split()
    unique_chars = set(''.join(words))
    if len(unique_chars) > 10:
        return "Invalid puzzle. Too many unique characters."

    chars = ''.join(words)
    leading_chars = set(word[0] for word in words)
    if len(leading_chars) > 3:
        return "Invalid puzzle. Too many words starting with different characters."

    # Generate permutations of digits to assign to characters
    for perm in permutations('0123456789', len(unique_chars)):
        char_to_digit = {char: digit for char, digit in zip(unique_chars, perm)}
        if '0' not in perm[:len(leading_chars)]:
```

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        num1 = int(''.join(char_to_digit[char] for char in
words[0]))
        num2 = int(''.join(char_to_digit[char] for char in
words[1]))
        num3 = int(''.join(char_to_digit[char] for char in
words[2]))
        if num1 + num2 == num3:
            return char_to_digit

    return "No solution found."

if __name__ == "__main__":
    puzzle = input("Enter the cryptarithmetic puzzle: ")
    solution = solve_cryptarithmetic(puzzle)
    if isinstance(solution, dict):
        print("Solution found:")
        for char, digit in solution.items():
            print(f"{char} = {digit}")
    else:
        print(solution)
```

OUTPUT:

```
========== RESTART: D:\python\crypt.py ==========
Enter the cryptarithmetic puzzle: FREE CAGE BIRD
Solution found:
B = 2
F = 1
E = 3
D = 6
R = 7
G = 4
C = 0
A = 8
I = 5
>>
```