While Loops Challenge 26: Factor Generator App

Description:
You are responsible for writing a program that generates all factors of a given number. Your program will display the factors individually and give a mathematically summary of how different pairs of factors can be multiplied together to get the given number.

Step By Step Guide:

- Print a welcome message.
- Create an active flag variable to control a while loop and set it to True.

- Use this flag to run a while loop:
    - Get user input for a number to determine the factors of.

    - Write an algorithm to determine the factors of the given number.
        - Create a blank list called factors.
        - Use a for loop to loop through the numbers 1 up to and including the given number:
            - If the given number is divisible by the current number in the loop, the current number is a factor:
                - Add the current number to the list factors.
                - Modulo division will help you here.

    - Print all factors of the number as formatted below.

    - Print a summary which shows how the factors multiply together to get the users number using a for loop.
        - The first element in your list will pair with the last element.
            - factors[0] an factors[-1]
        - The second element will pair with the second to last element.
            - factors[1] and factors[-2]
        - The third element will pair with the third to last element.
            - factors[2] and factors[-3]
        - Try to generalize this pattern using an iterable variable i.
        - You only need to loop through half of your list to accomplish this.
            - for i in range(int(len(factors)/2))

    - Get user input for if they would like to continue the program.
    - If the user does not want to continue:
        - Set your flag variable to False
        - Print a goodbye message thanking the user.

- Use at least 2 comments to describe sections of your code.
- “Chunk” your code so that is readable.

- Use appropriate and informative variable names.
- Format your output as below.

Example Output 1:

```
Welcome to the Factor Generator App

Enter a number to determine all factors of that number:  44

Factors of 44 are:
1
2
4
11
22
44

In summary:
1 * 44 = 44
2 * 22 = 44
4 * 11 = 44

Run again (y/n):  n
Thank you for using the program.  Have a great day.
```

Example Output 2:

```
Welcome to the Factor Generator App

Enter a number to determine all factors of that number:  100

Factors of 100 are:
1
2
4
5
10
20
25
50
100

In summary:
1 * 100 = 100
2 * 50 = 100
4 * 25 = 100
5 * 20 = 100
```

```
Run again (y/n):  y

Enter a number to determine all factors of that number:  33

Factors of 33 are:
1
3
11
33

In summary:
1 * 33 = 33
3 * 11 = 33

Run again (y/n):  n
Thank you for using the program.  Have a great day.
```