Programming Assignment 4-1

1. Problem Definition

Find the consecutive letters from 'start' to 'end' given by the user.

2. Input & Output

Input:

start: A single alphabetic character input by the user to represent the starting letter.

end: A single alphabetic character input by the user to represent the ending letter.

Output:

Error messages: "input not valid" (print if the input is invalid)

result: A list of characters from the starting letter to the ending letter.

3. Variables

result: A list of characters from the start letter to the end letter.
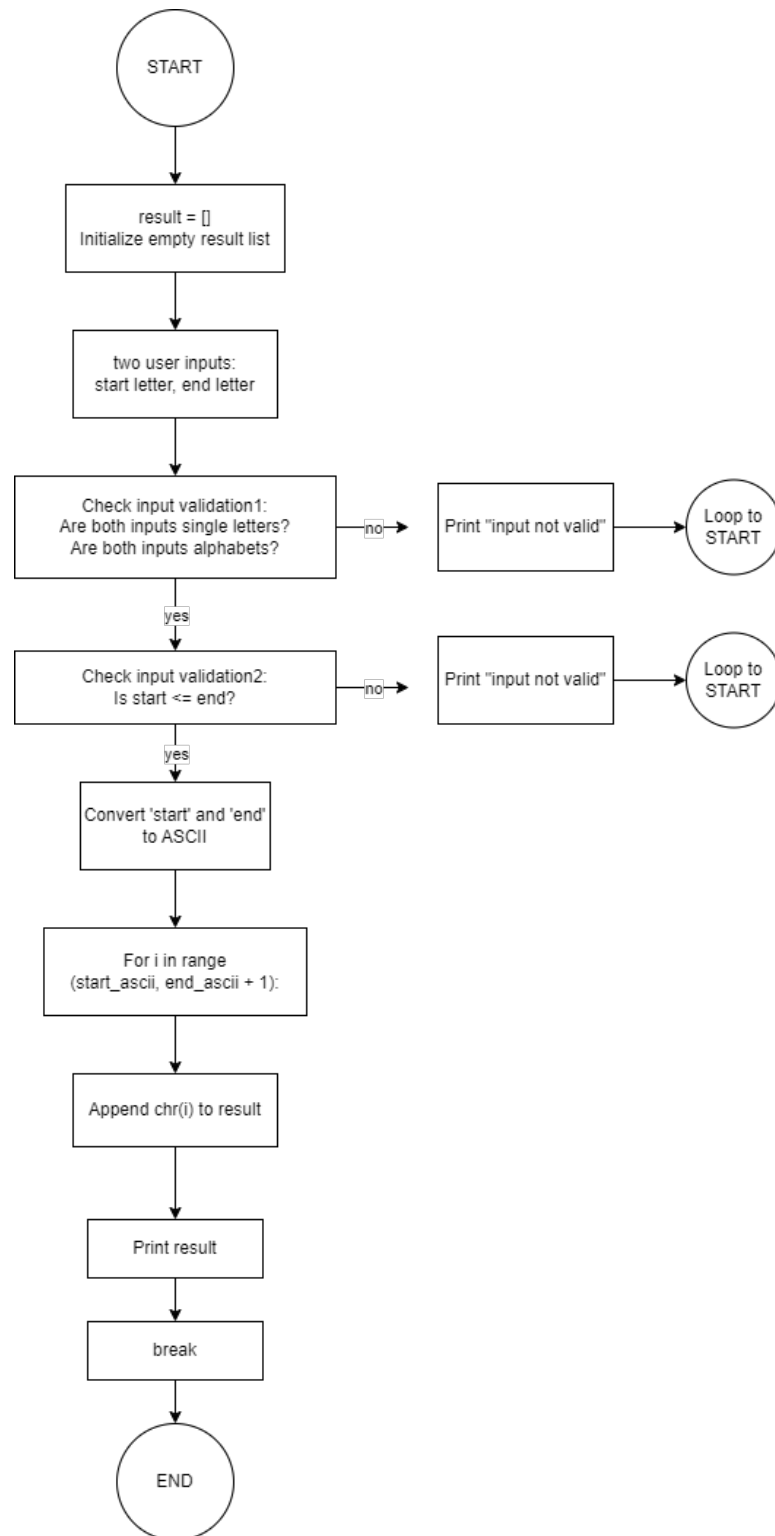
start: user's input for the starting letter

end: user's input for the ending letter.

start_ascii: An integer variable that stores the ASCII value of the start letter

end_ascii: An integer variable that stores the ASCII value of the end letter

i: The loop variable in the for loop. It represents each ASCII value in the range from start_ascii to end_ascii.

4. Flow Chart

```
                    ┌─────────┐
                    │  START  │
                    └────┬────┘
                         │
                         ▼
              ┌──────────────────────┐
              │      result = []     │
              │ Initialize empty     │
              │      result list     │
              └──────────┬───────────┘
                         │
                         ▼
              ┌──────────────────────┐
              │   two user inputs:   │
              │ start letter, end    │
              │        letter        │
              └──────────┬───────────┘
                         │
                         ▼
        ┌──────────────────────────┐      ┌──────────────────────┐   ┌──────────┐
        │  Check input validation1:│ no   │ Print "input not     │   │ Loop to  │
        │ Are both inputs single   ├─────▶│       valid"         ├──▶│  START   │
        │        letters?          │      └──────────────────────┘   └──────────┘
        │ Are both inputs alphabets?│
        └────────────┬─────────────┘
                     │ yes
                     ▼
        ┌──────────────────────────┐      ┌──────────────────────┐   ┌──────────┐
        │  Check input validation2:│ no   │ Print "input not     │   │ Loop to  │
        │     Is start <= end?     ├─────▶│       valid"         ├──▶│  START   │
        └────────────┬─────────────┘      └──────────────────────┘   └──────────┘
                     │ yes
                     ▼
              ┌──────────────────────┐
              │ Convert 'start' and  │
              │    'end' to ASCII    │
              └──────────┬───────────┘
                         │
                         ▼
              ┌──────────────────────┐
              │    For i in range    │
              │ (start_ascii,        │
              │    end_ascii + 1):   │
              └──────────┬───────────┘
                         │
                         ▼
              ┌──────────────────────┐
              │ Append chr(i) to     │
              │       result         │
              └──────────┬───────────┘
                         │
                         ▼
              ┌──────────────────────┐
              │     Print result     │
              └──────────┬───────────┘
                         │
                         ▼
              ┌──────────────────────┐
              │        break         │
              └──────────┬───────────┘
                         │
                         ▼
                    ┌─────────┐
                    │   END   │
                    └─────────┘
```

5. Errors and how to fix

- error: typos

fix: I accidentally have the same statement in the different input

start = input('Enter the starting letter: ')

end = input('Enter the starting letter: ')

and led the loop indefinitely rotating and could not display any output.

As long as I found out the typo, the problem was fixed.