**Programming Assignment 4-4**

**1. Problem Definition**

Finds the least and greatest values among 5 user input values and outputs the list of numbers along with the least and greatest values.

2. Input & Output

Input:Five numerical values.

Output:

The list of the five numbers entered by the users.

The least and greatest values among the numbers.
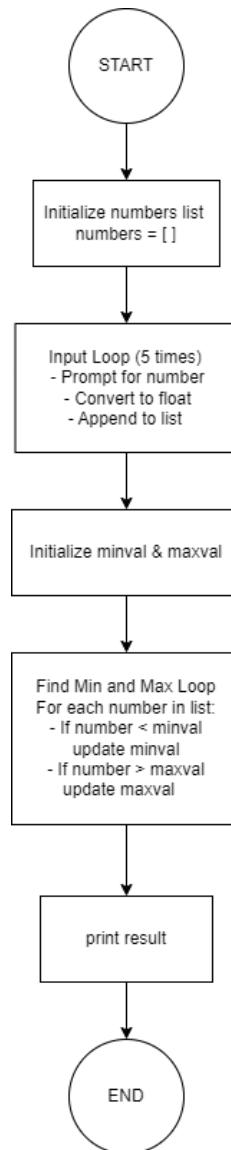
**3. Variables**

numbers: a list to store the five numbers input by the user

num: a variable used to store each user's input before appending it to the numbers list.

minval the least value in the list, initially set to the first element of the numbers list.

maxval: the greatest value in the list, initially set to the first element of the numbers list.

**4. Flow Chart**

```
                    ┌─────────┐
                    │  START  │
                    └─────────┘
                         │
                         ▼
              ┌────────────────────────┐
              │ Initialize numbers list │
              │     numbers = [ ]      │
              └────────────────────────┘
                         │
                         ▼
              ┌────────────────────────┐
              │  Input Loop (5 times)   │
              │  - Prompt for number    │
              │  - Convert to float     │
              │  - Append to list       │
              └────────────────────────┘
                         │
                         ▼
              ┌────────────────────────┐
              │ Initialize minval & maxval │
              └────────────────────────┘
                         │
                         ▼
              ┌────────────────────────┐
              │  Find Min and Max Loop  │
              │  For each number in list: │
              │  - If number < minval   │
              │     update minval       │
              │  - If number > maxval   │
              │     update maxval       │
              └────────────────────────┘
                         │
                         ▼
              ┌────────────────────────┐
              │      print result       │
              └────────────────────────┘
                         │
                         ▼
                    ┌─────────┐
                    │   END   │
                    └─────────┘
```

5. Errors and how to fix

- Error: minval and maxval were not initialized before the loop and led to the input could not properly displayed

Fix: Initialize minval and maxval to the first element of the numbers list after ensuring that the list is populated.


-Error: comparing the wrong variables when finding the least and greatest values. The wrong calculation:

```
for num in numbers:
    if num < numbers:
        minval = num
    if num > numbers:
        maxval = num
```

Fix:
```
for num in numbers:

    if num < minval:
        minval = num
    if num > maxval:
        maxval = num
```

The incorrect code tries to compare a number with a list, and the correct code compares each number with the current minimum and maximum values.