Code First Girls:
Intro to Coding Challenge 2023

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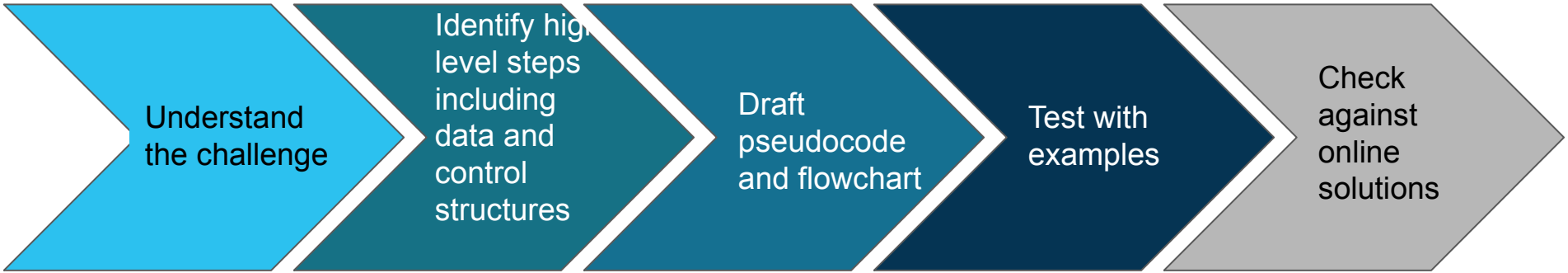
Summary

- Division of work
- Our approach
- Challenge #1: Determine if a number is admirable
- Challenge #2: Determine n number of leap years from current year
- Challenge #3: Determine if a number is deficient, perfect, or abundant
- Challenge #4: Remove a character from a string
- Challenge #5: Find the second largest number in an array

Division of work

- Initial call to understand challenge and to allocate tasks
- Sharing of initial work via google slides and slack
- Feedback and refinement

Our Approach



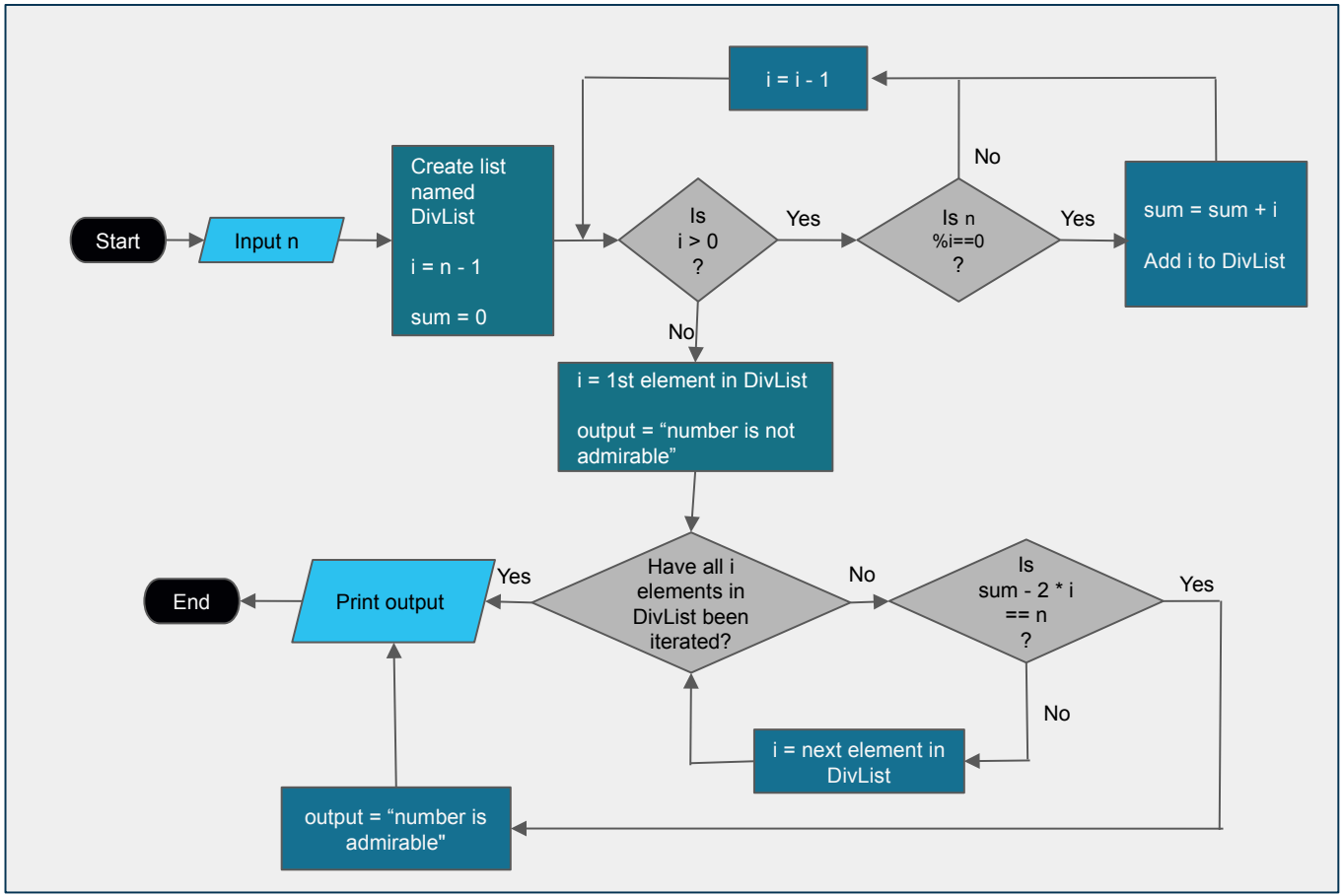
Challenge Problem #1

Determine if a number is admirable

STEPS:
1. Identify & sum divisors (list, while loop)
2. Test condition (for loop)

PSEUDOCODE:

```
INPUT n

Create list DivList
i = n - 1
sum = 0

WHILE i > 0
    IF n % i == 0
        Insert i into DivList
        sum = sum + i
        i = i - 1

    ELSE
        i = i - 1

i = first element in DivList
output = “number is not admirable”

FOR each i element in DivList
    IF sum - 2 * i == n
        output = “number is admirable”
        BREAK

    ELSE
        CONTINUE

PRINT output
```



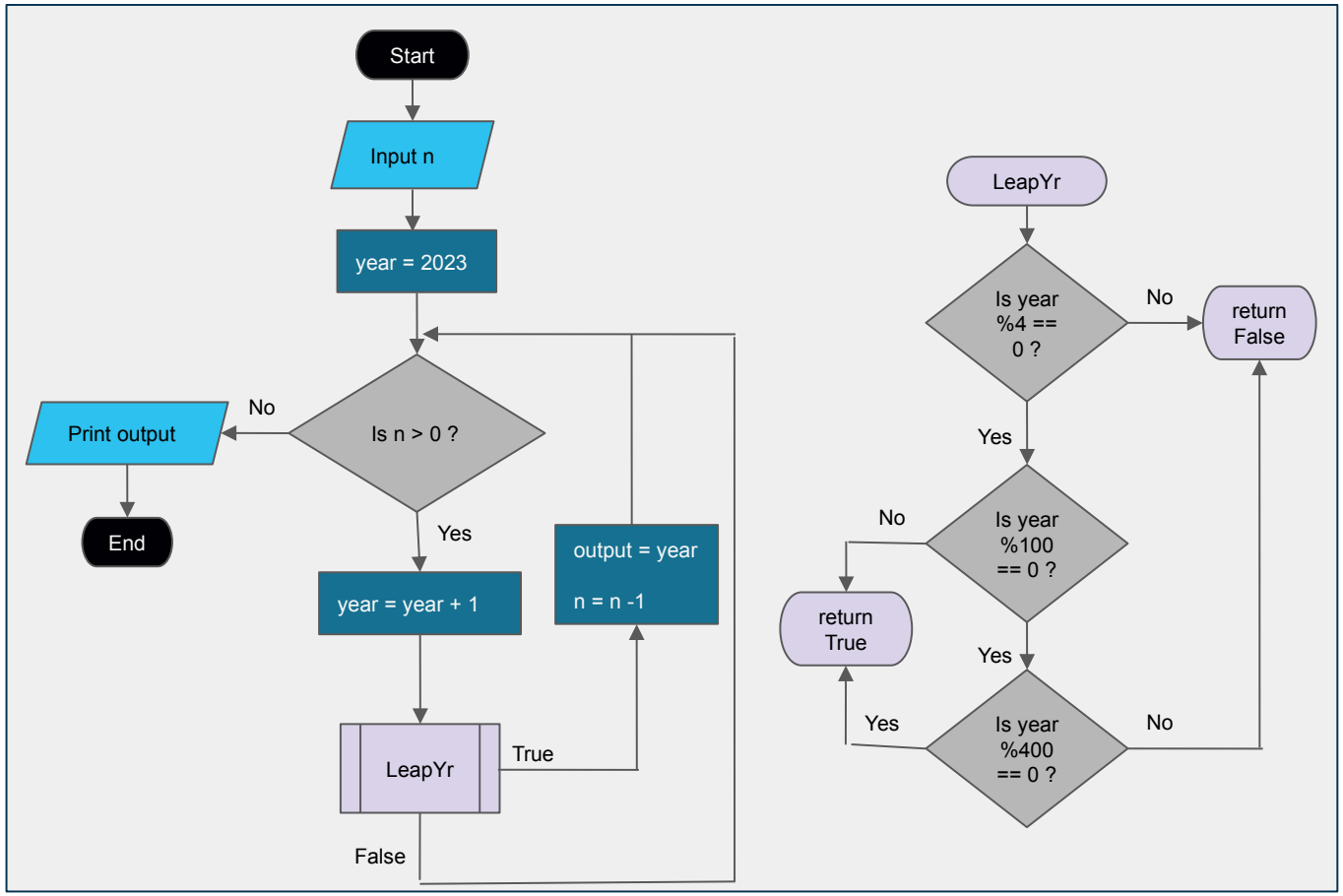
Challenge Problem #2

Determine n number of leap years from current year

STEPS:
1. Counting n number of years that are leap years (while loop)
2. Determine if year is leap year (function with if/else structure returning boolean)

PSEUDOCODE:

```
INPUT n
year = 2023

DEFINE function LeapYr
    IF [year % 4 == 0 AND year % 100
    == 0 AND year % 400 == 0] OR
    [year % 4 == 0 AND year % 100 != 0]
        return True

    ELSE
        return FALSE

WHILE n > 0
    year = year + 1

    IF function LeapYr returns True
        output = year
        n = n - 1

    ELSE
        CONTINUE

PRINT output
```



Challenge Problem #3

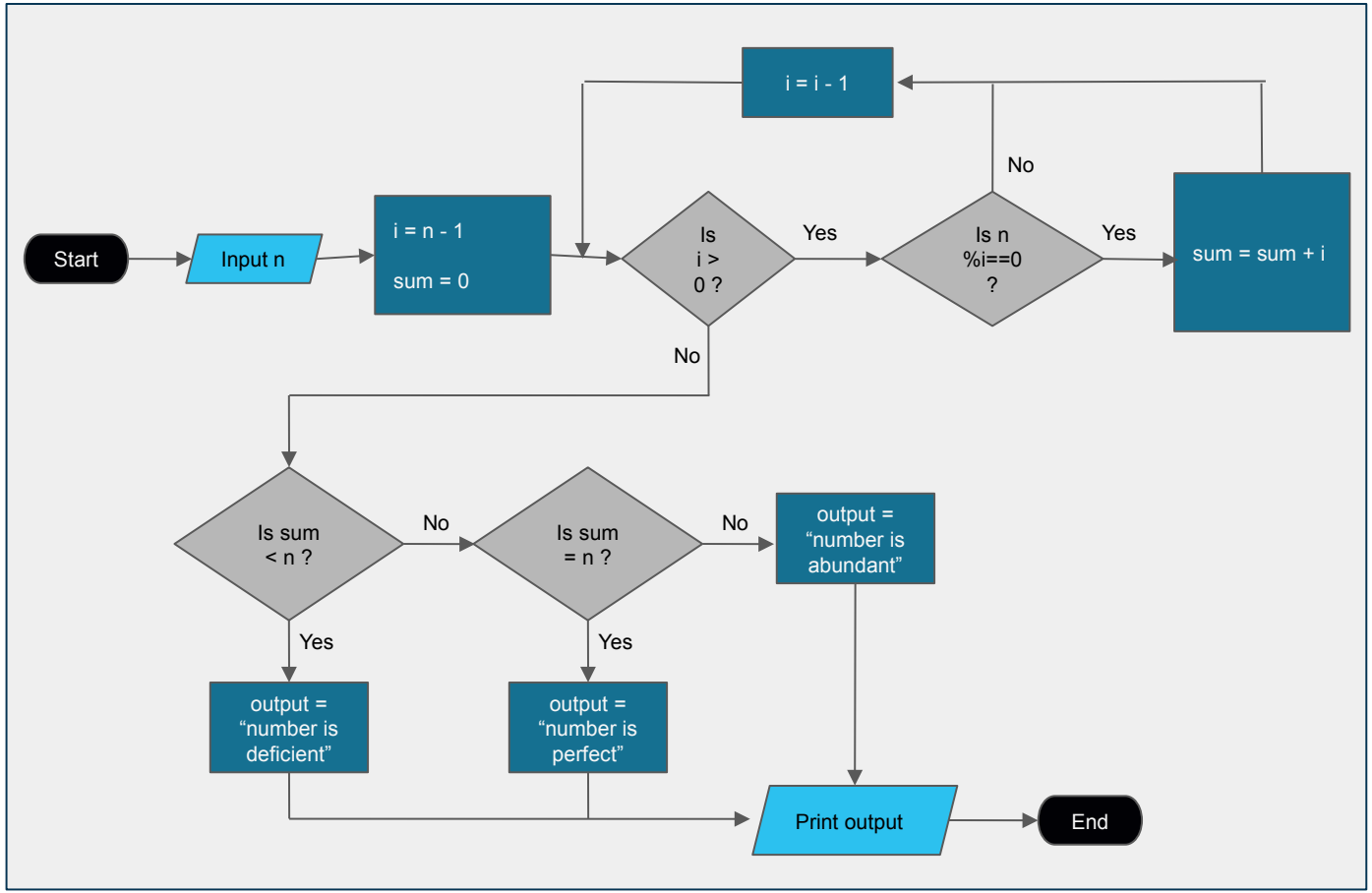
Determine if a number is deficient, perfect, or abundant

STEPS:

1. Sum the divisors of number n (while loop)
2. Use sum to determine if deficient, perfect, or abundant (if/elseif/else)

PSEUDOCODE:

```
INPUT n

i = n - 1
sum = 0

WHILE i > 0
    IF n % i == 0
        sum = sum + i
        i = i - 1

    ELSE
        i = i - 1

IF sum < n
    output = “number is deficient”

ELSEIF sum = n
    output = “number is perfect”

ELSE
    output = “number is abundant”

PRINT output
```



Challenge Problem #4

Remove a given character from a given string

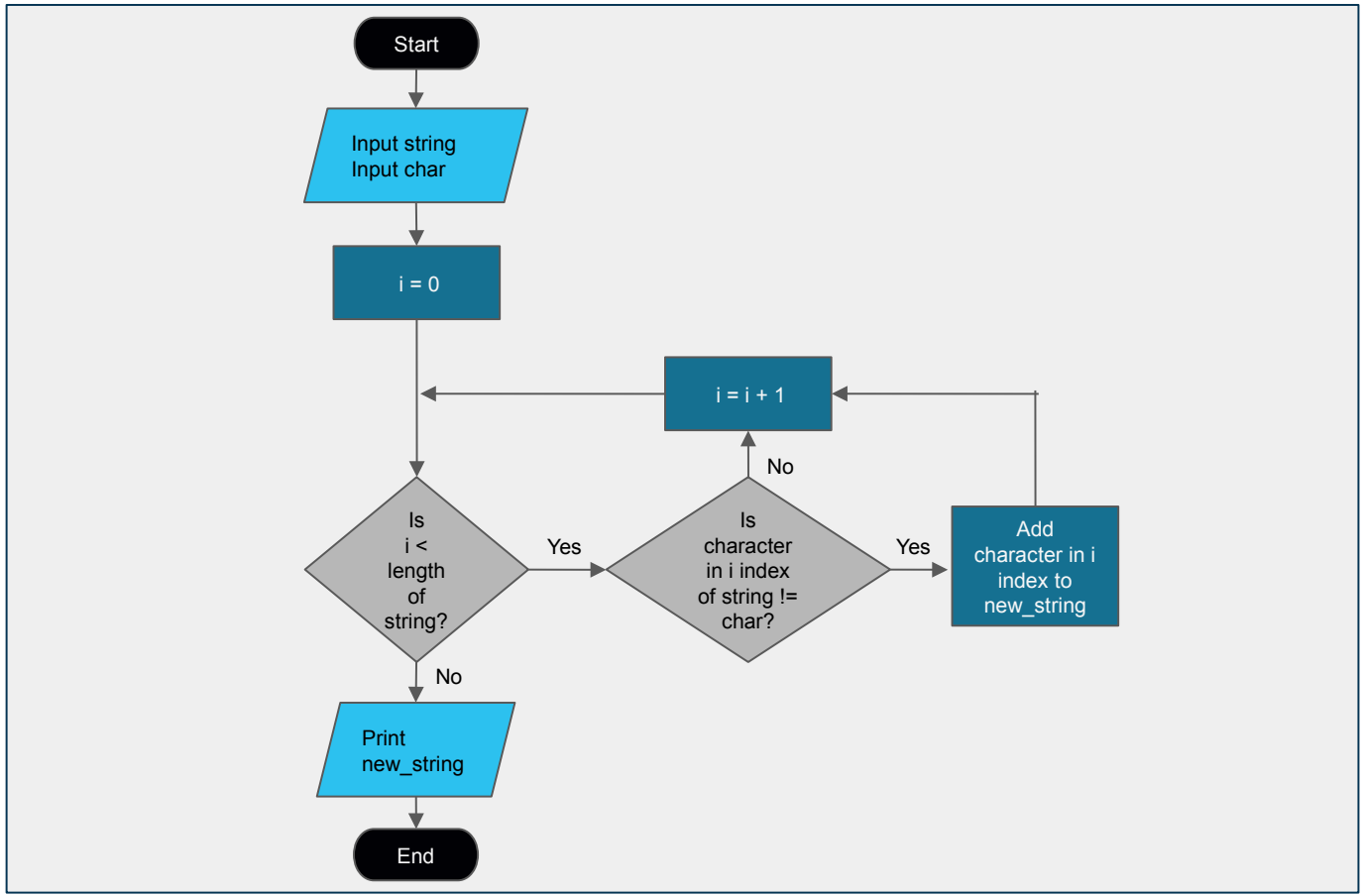
STEPS:

1. Iterating index by index (assuming first index is 0), check each character in the string to assess if it is the same as the character to be removed. (while loop, if/then)

2. Add characters that are not the same as the given character to a new string which is then printed

PSEUDOCODE:

```
INPUT string
INPUT char
i = 0

WHILE i < length of string
    IF character in i index of string != char
        Add character in i index to new_string
        i = i +1

    ELSE
        i = i + 1

PRINT new_string
```



Challenge Problem #5

Find the second largest number in an array

STEPS:

1. Assign max1 and max2 variables to first element in array

2. Use a for loop and if statement to compare each array element to max1 and max2, reassigning the variables when a value is greater than current value

PSEUDOCODE:

```
INPUT array

max1 = value in index 0 of array
max2 = value in index 0 of array
i = 1
len = count of total elements in array

FOR each i index in array to len
    IF array(i) > max1
        max1 = array(i)
        max2 = max1

    ELSEIF array(i) > max2
        max2 = array(i)

    ELSE
        CONTINUE

PRINT max2
```