Problem Solving Techniques 문제해결

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Homework 1a

- 20 points for coding evaluation (Usually 50 points, but this homework is very easy)
  - Submission format
    - File name: yourid_HW1a.c
      - Example: 2000123456_HW1a.c
    - File type: Not .cpp but .c
  - Submission site: https://skku.goorm.io
    - [Homework] 1a (code)

- 5 points for report
  - The report is not evaluated in detail but evaluated as Pass/Fail
  - Submission format: [Template] Report for exercise/homework
    - File name: yourid_HW1a.pdf
      - Example: 2000123456_HW1a.pdf
  - Submission site: https://icampus.skku.edu/
    - Week 3: [Homework] 1a (report)

- Due date: 3/22 23:59 (no late submission accepted)

# Rules for homework

- **You should follow instructions.**
  - **Complier**
    - You will get no/less point if your program cannot be complied with the specified complier
  - **Input/output format**
    - You will get no/less point if TA's automatic evaluation program cannot parse your input or output.
  - **Permitted modification scope**
    - You will get no/less point if you modify code outside of the permitted modification scope
  - **All other rules**
    - You will get severe penalty or no/less point if you violate the given rules.

Complier for homework

- Complier
  - skku.goorm.io -> gcc 11.1.0   C language, not C++ language
  - Your program will be correctly evaluated *only if* your program works on skku.goorm.io with gcc 11.1.0 complier
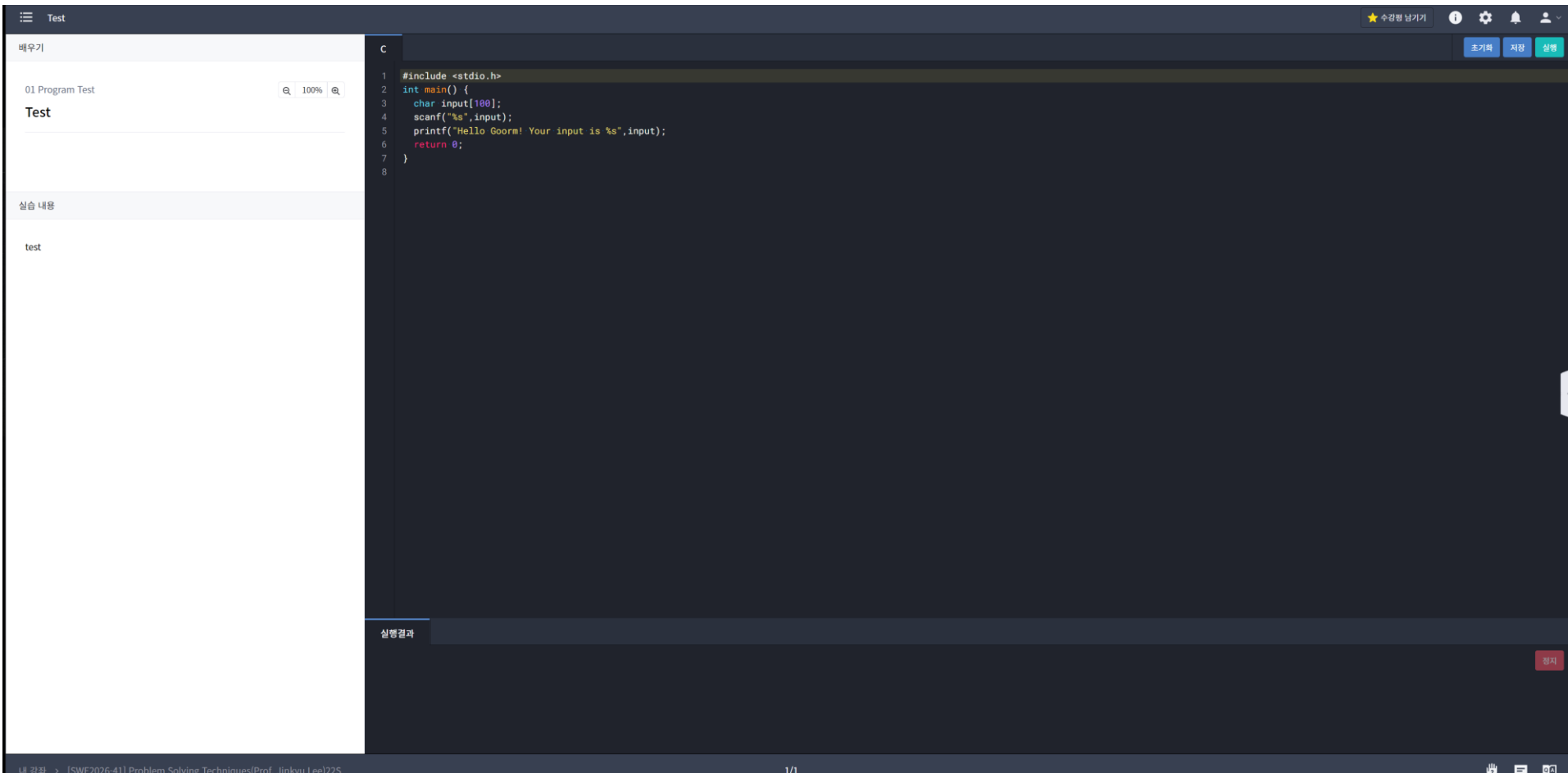
Problem

- Problem: 3n+1
  - Given an integer number n, we repeat the following process until x=1:
  - If the number is odd, x is set to 3*x+1;
  - Otherwise (even number), x is set to x/2;
  - Then, we can count the number of elements until x=1 (including the initial x and x=1).

- For given X, and Y, print the maximum of the number of elements for X, X+1, X+2, …, Y

$1 \leq X \leq Y \leq 100000$

Problem

- Example
  - If X=20, then the number of elements is 8 as follows:

    20 10 5 16 8 4 2 1

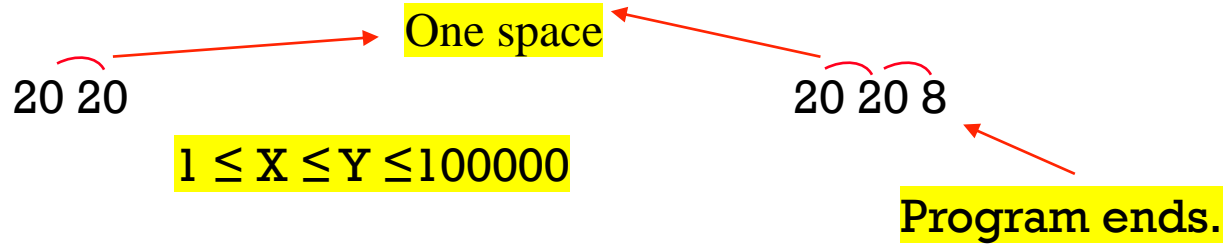 - If X=11, then the number of elements is 15 as follows:

    11 34 17 52 26 13 40 20 10 5 16 8 4 2 1

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Input/Ouput Format

■ Input   ■ Output

One space

20 20   20 20 8

$1 \leq X \leq Y \leq 100000$

Program ends.

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11 11   11 11 15

---

1 10   1 10 20

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100 200   100 200 125

Template

- Template
  - No C code template

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Evaluation

- Evaluation
  - TA will test several cases.
  - For each test case,
    - If your C code results in an answer <mark>within 10 seconds</mark> on <mark>skku.goorm.io</mark> with <mark>gcc 11.1.0 complier</mark>,
      - If your answer is correct,
        - You get 100%.
      - Else,
        - You get 0%.
    - Else,
      - You get 0%.

Before submission, test your program on skku.goorm.io with gcc 11.1.0 complier! Otherwise, you may get zero point although your program works on your environment.