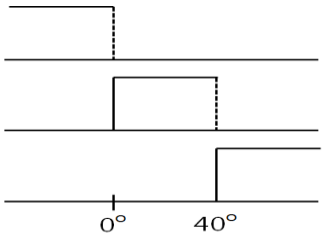
C Programming & Lab

5. Selection Statements

Sejong University

5-3)Problem1

- **Read an integer N from a user, print the followings.**
  - If less than 0, print "indoor activity"
  - If greater than 0 and less than 4, print "outdoor activity"
  - If greater than 40, print "indoor activity"



Input example1

```
-1
```

Output example1

indoor activity

Input example2

```
0
```

Output example2

outdoor activity

Input example3

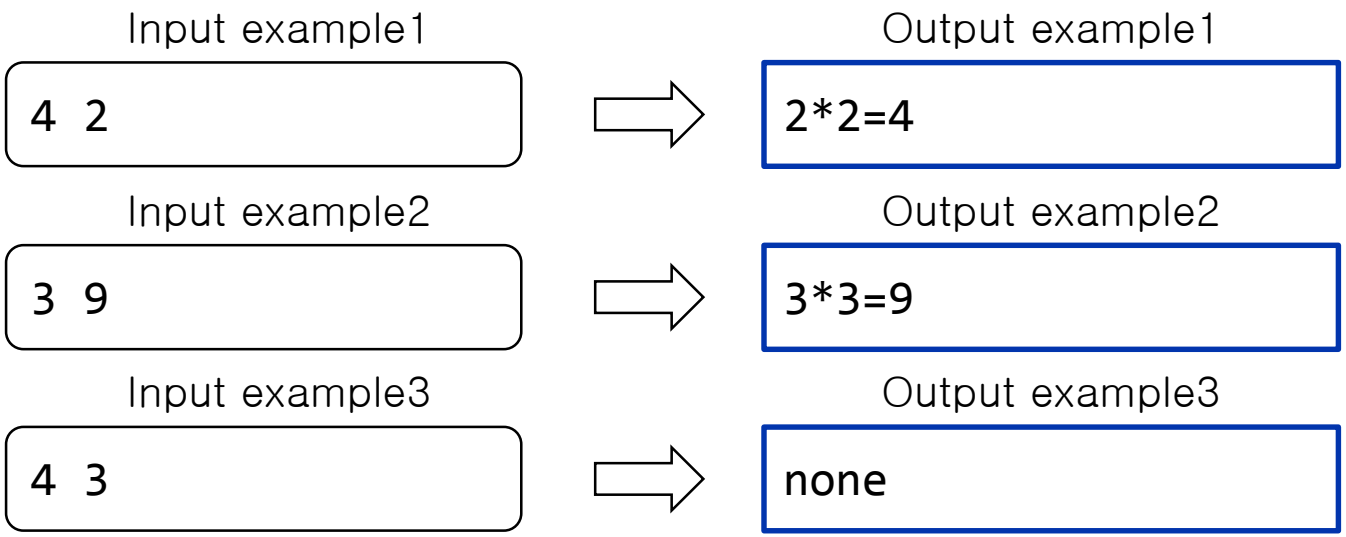
```
40
```

Output example3

indoor activity

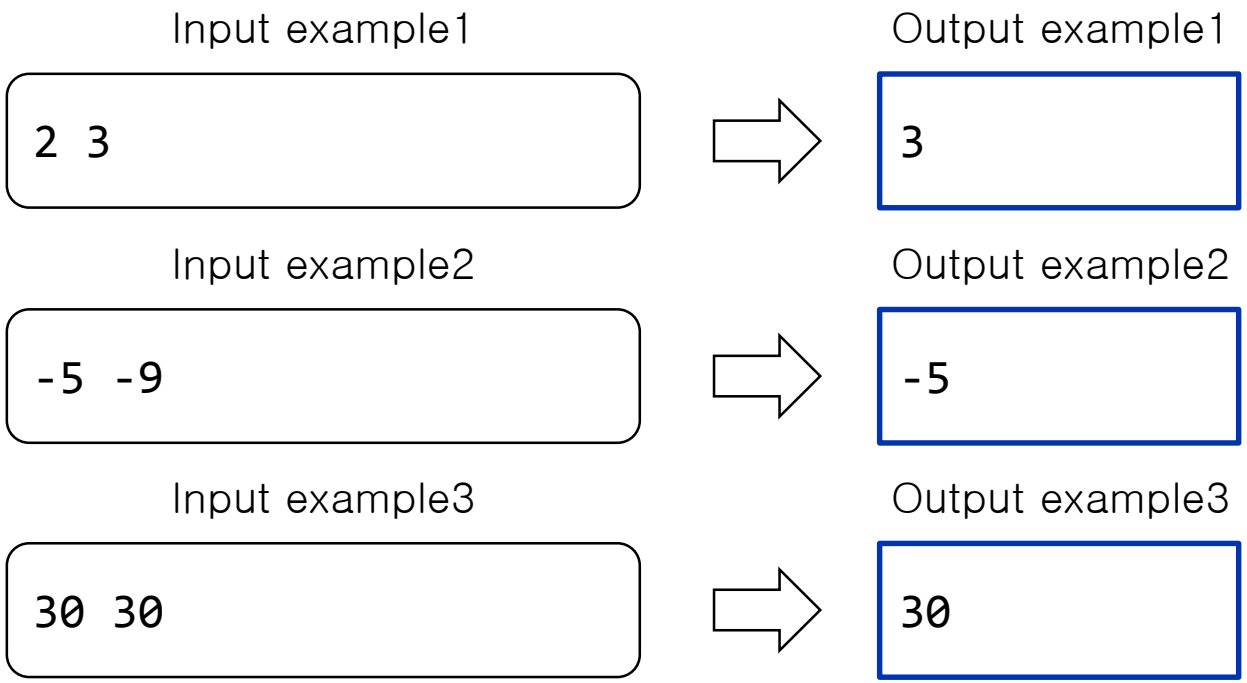
5-3) Problem2

- **Read two positive integers N, M, if one is equal to the square of the other, print as follows. Otherwise, print “none”.**



5-3) Problem3

- **Read two integers from a user, print the larger number.**

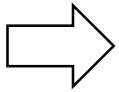


5-4) Problem4

- **Read three integers from a user, print the maximum and minimum value.**
  - Print a space between the maximum and minimum value.
  - Do not print a space after the minimum value.

Input example1

```
2 3 4
```



Output example1

```
4 2
```

Input example2

```
3 2 1
```

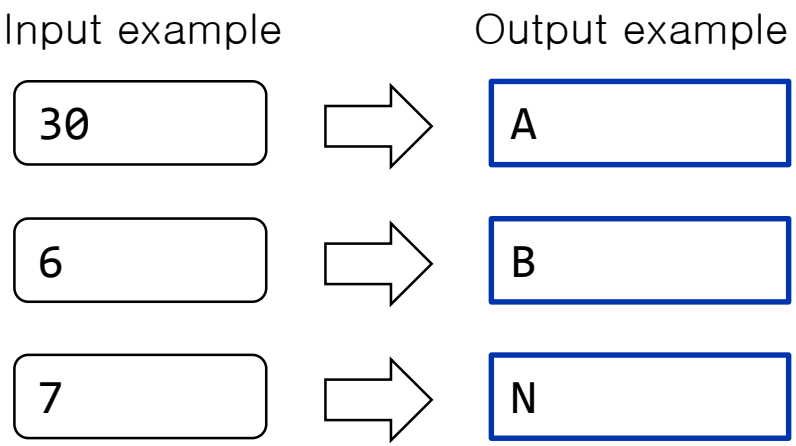
Output example2

```
3 1
```

5-4) Problem5

- **Read a positive integer from a user, print alphabets as follows.**

	Output
① Divisible by 2, 3, and 5	A
② Divisible by 2 and 3	B
③ Divisible by 2 and 5	C
④ Divisible by 3 and 5	D
⑤ Divisible by one of 2, 3, and 5	E
⑥ Not divisible by 2, 3, and 5	N



5-4) Problem6

- **Read a positive integer N (year), determine if it is a leap year or normal year.**
  - Leap year rules (refer the next slide):

```
1) If divisible by 4, it is a leap year.
2) Although 1) is true, if divisible by 100, it is a normal year.
3) Although 2) is true, if divisible by 400, it is a leap year.
```

Input example1

```
4
```

Output example1

```
Leap year
```

Input example2

```
2016
```

Output example2

```
Leap year
```

Input example3

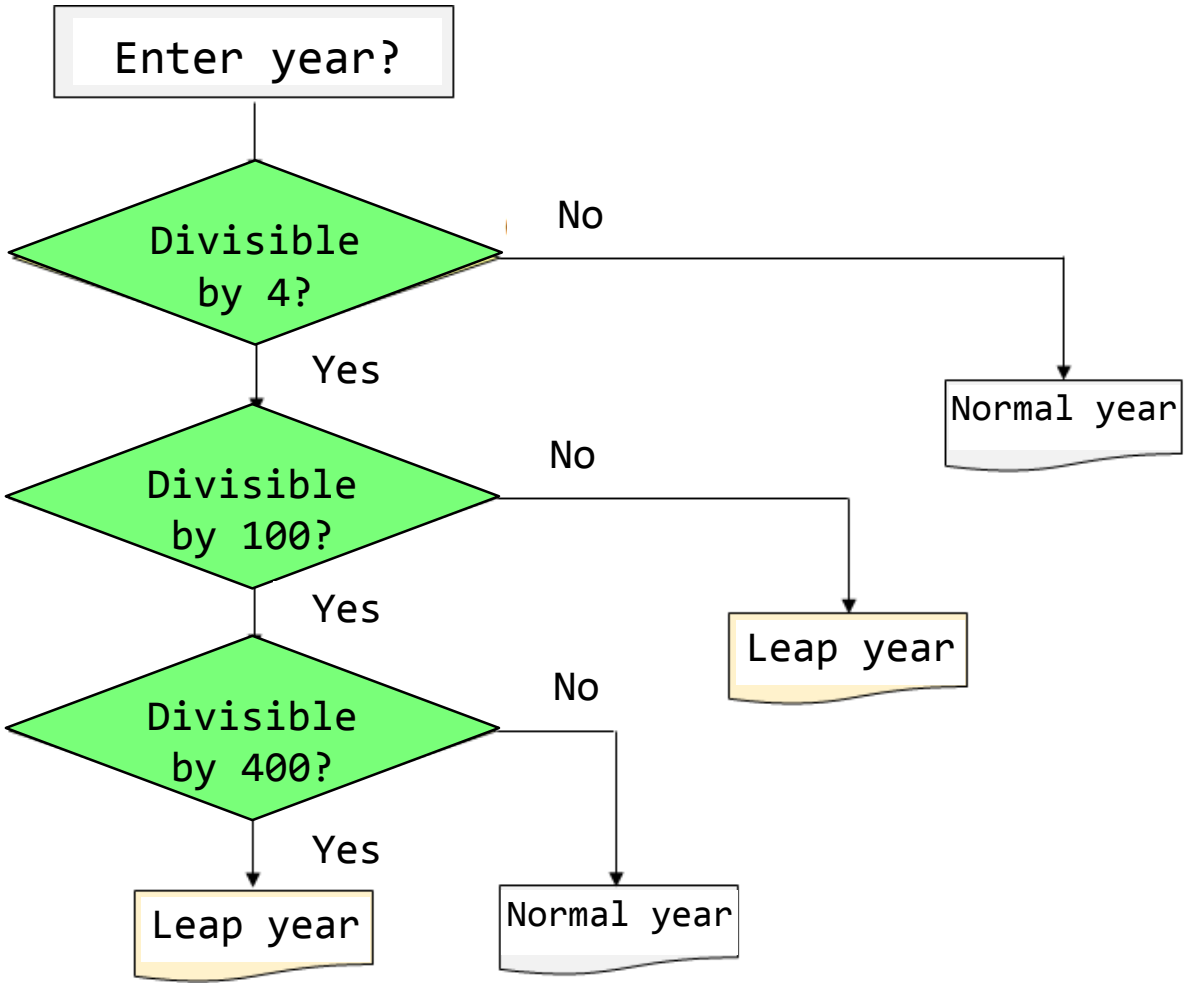
```
1900
```

Output example3

```
Normal year
```

5-4) Problem6

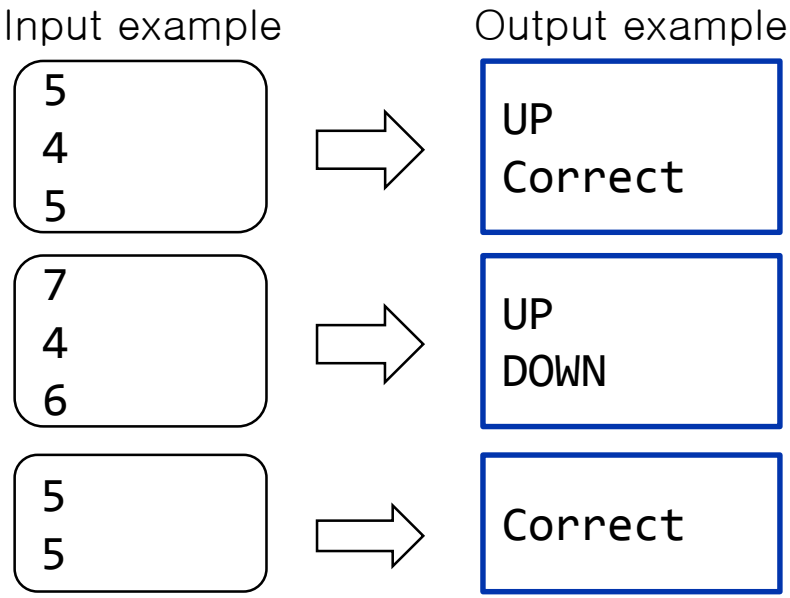
- **Leap year program**
  - Draw a flow chart before start coding.



5-4) Problem7

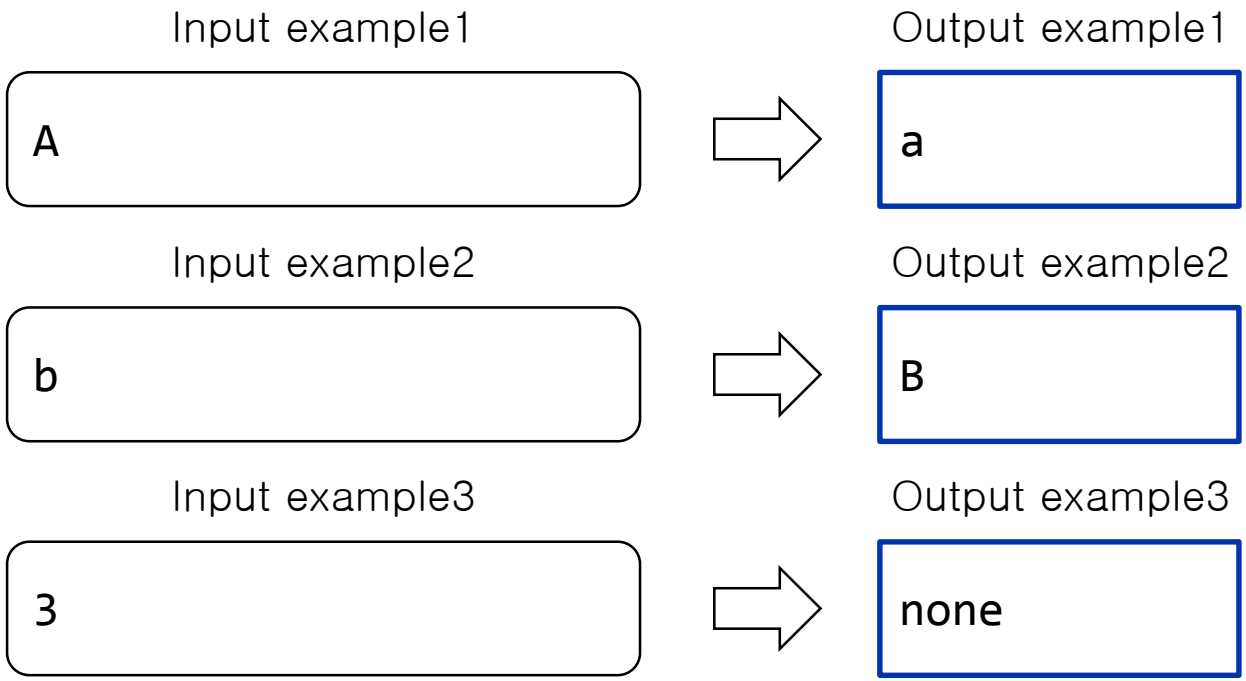
- **UP DOWN number guessing game.**

① 1st line: Read an integer N($1 \le N \le 6$). This is the answer.
② 2nd line: Guess the answer M (suppose you do not know the answer).
③ If the number M (your guess) is equal to N, print “Correct”.
④ If the number M is less than N, print ‘UP’.
⑤ If the number M is larger than N, print ‘DOWN’.
⑥ If it is wrong, repeat ②~⑤ once and terminate the game. (Note. Print it in new line)



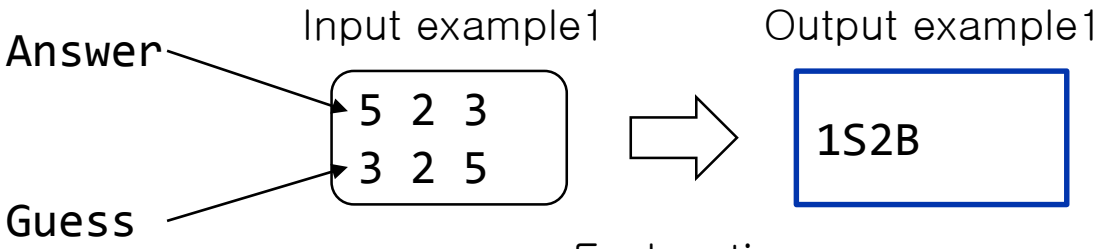
5-4) Problem8

- **Read a character from a user, print as follows.**
  - Convert upper-case letters to lower-case letters and print them.
  - If not alphabet letters, print "none".



5-4) Problem9

- **(Baseball Game)** Guess three numbers.
  1) Read three integers (0~9) from a user which is the answer.
  2) Guess three integers between 0 and 9.
  3) Print the number of "strike" and "ball".
     - ✓ "strike" : Same number at the same location
     - ✓ "ball" : Same number but different location



Explanation

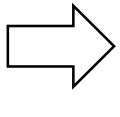
```
2 exists at the same location,
3 and 5 exist but at the different location.
Therefore, 1S2B (1 strike, 2 balls)
```

5-4) Problem9

- **More examples**

Input example2

```
5 2 3
5 3 4
```



Output example2

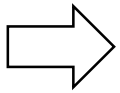
```
1S1B
```

Explanation

```
5 and 3 exist.
3 is not at the same location
```

Input exampl3

```
5 2 3
5 2 3
```



Output example3

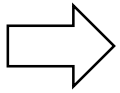
```
3S0B
```

Explanation

```
All the numbers exist at the
same location.
```

Input exampl4

```
5 2 3
2 3 5
```



Output example4

```
0S3B
```

Explanation

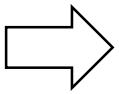
```
All the numbers exist but at
the different location.
```

5-5) Problem10

- **Read an equation including one operator and two positive numbers, print the result.**
  - ✓ User inputs the equation in the order of integer, operator, integer. Use a space as delimiter.
  - ✓ Operator can be '+' or '–'. No other operators are used.

Input example1

```
7 + 12
```

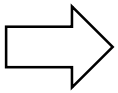


Output example1

```
19
```

Input example2

```
7 - 2
```



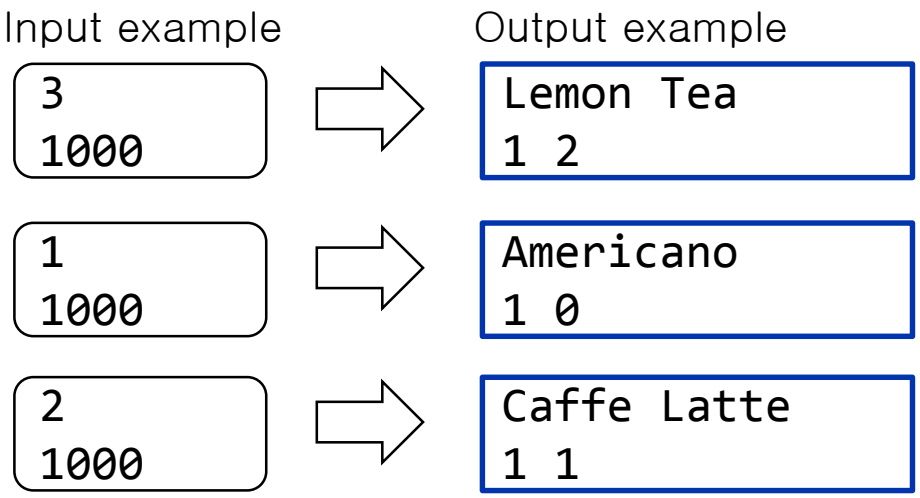
Output example2

```
5
```

5-5) Problem11

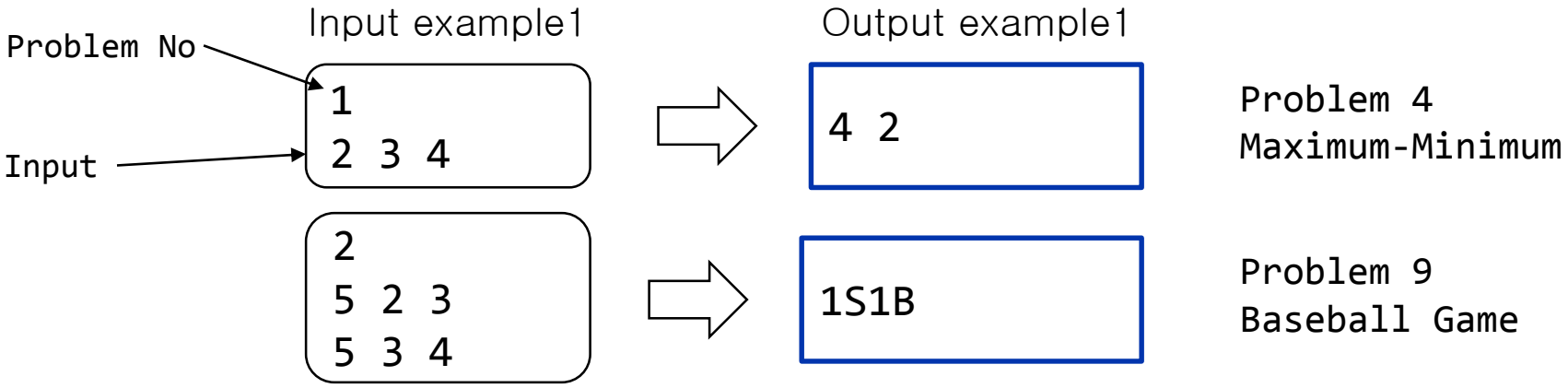
- **(Vending Machine) Read twos integers N and M: N (1~3) denotes the drink you chose and M is the amount of money you paid (multiple of 100). Print the name of the drink and the number of changes.**
  - ✓ Changes can be ₩500 and ₩100. The machine do not give more than 5 ₩100.
  - ✓ Print the number of changes in the order of ₩500, ₩100. A space between them.

```
1. Americano(₩500) 2. Caffe Latte(₩400) 3. Lemon Tea(₩300)
```



5-5) Problem12

- **Read an integer between 1 and 3, and do the corresponding problem.**
  - List of problems
    - ✓ If 1, do 'problem 4'
    - ✓ If 2, do 'problem 9'
    - ✓ If 3, do 'problem 10'
  - Use the code in the next slide.
    - ✓ You need to copy your previous codes and paste in the right position (function)
  - First enter the number of the problem, then enter the input for the problem.



Copy and paste the code below

```
#include <stdio.h>

int main1()
{
   //Problem No. 1 code
}

int main2()
{
   //Problem No. 2 code
}

int main3()
{
   //Problem No. 3 code
}
```

The code on the left side is followed by

```
int main()
{
    int pro_num=0;

    scanf("%d",&pro_num);

    switch(pro_num){
        case 1: main1(); break;
        case 2: main2(); break;
        case 3: main3(); break;
    }

    return 0;
}
```