C Programming & Lab

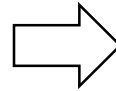## 4. Expressions

Practical Exercise

Sejong University

4-2)Problem1

▪ **Read an integer between 0 and 99999. Print each digit as follow:**
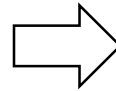
Input Example 1

12345

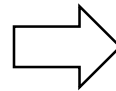⟹ Output Example 1

1!2!3!4!5

Input Example 2

2016

⟹ Output Example 2

0!2!0!1!6

Input Example 3
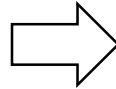
100

⟹ Output Example 3

0!0!1!0!0

4-2)Problem2

- **Read a positive integer (seconds) and print it in a format of hours:minutes:seconds as follows:**
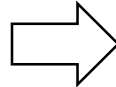 - Use division (/) and modulus (%)

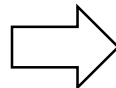Input Example 1

```
9741
```

⟹

Output Example 1

```
2:42:21
```

Input Example 2

```
63
```

⟹

Output Example 2

```
0:1:3
```

- **Advanced : Modify the code to print minutes and seconds using two digits**

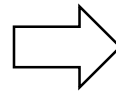Input Example

```
63
```

⟹

Output Example

```
0:01:03
```

4-2)Problem3

- **Read a positive integer N between 10000~99999. Print hundreds digit.**
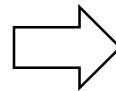
Input Example 1

71000

Output Example 1

0

Input Example 2

12345
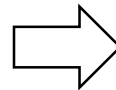
Output Example 2

3

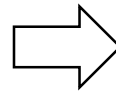Input Example 3

99999

Output Example 3

9

4-3)Problem4

▪ **Read a positive integer N between 10000 and 99999. Round to the nearest thousand.**
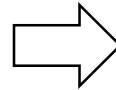
Input Example 1

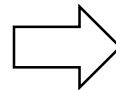35800

Output Example 1

36000

Input Example 2

29300

Output Example 2

29000

Input Example 3
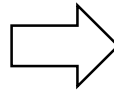
99999

Output Example 3

100000

4-3)Problem5

- **Read a real number N as the circumference of a circle. Calculate the area of the circle and round to 0 decimal place.**
    - pi is 3.14.
    - Circumference of a circle with a radius $r = 2\pi r$
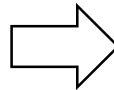   - Area of a circle with a radius $r = \pi r^2$

Input Example 1

```
24.5
```

⟹

Input Example 1

```
48
```
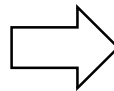
Input Example 2

```
50
```

⟹

Input Example 2

```
199
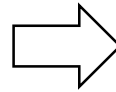```

Input Example 3

```
1
```
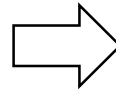
⟹

Input Example 3

```
0
```

4-5)Problem6

- **Read an integer N. If N is in between 20 and 30 (including 20 and 30), then print 1. Otherwise, print 0.**
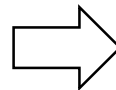 - Note. Result of logical operators and relational operators is 1 or 0

Input Example 1

```
20
```

Output Example 1

```
1
```

Input Example 2

```
19
```

Output Example 2

```
0
```

Input Example 3

```
-10
```
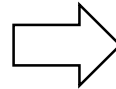
Output Example 3

```
0
```

4-5)Problem7

- **Read a character. If it is one of the alphabet letters, then print 1. Otherwise, print 0.**
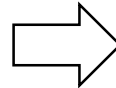
Input Example 1
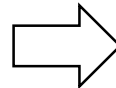
```
K
```

Output Example 1

```
1
```

Input Example 2

```
=
```

Output Example 2

```
0
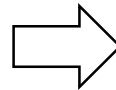```

Input Example 3

```
s
```

Output Example 3

```
1
```

4-6)Problem8

- **Read a positive integer N. If N is an odd number, then print "odd". If N is an even number, then print "even"**
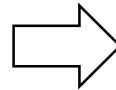 - Use conditional operators

Input Example 1

```
1024
```
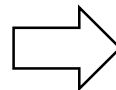
Output Example 1

```
even
```

Input Example 2

```
23
```

Output Example 2

```
odd
```

Input Example 3
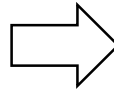
```
999999
```

Output Example 3

```
odd
```

4-6)Problem9

- **Read two different integers N and M. Print the larger number.**
    - Input : N and M are typed in one line
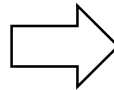   - Output : Print the larger number, either N or M

Input Example 1

```
1 2
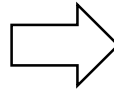```

Output Example 1

```
2
```

Input Example 2

```
9999 1
```

Output Example 2

```
9999
```
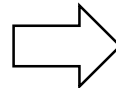
Input Example 3

```
0 -99
```

Output Example 3

```
0
```

4-6)Problem10

- **Read two different positive integers N and M. Divide the smaller number by the larger number and print the quotient and remainder**
  - Input: N and M are typed in one line
  - Output: Print the quotient, change the line, and print the remainder

Input Example 1
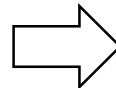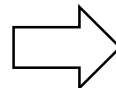
```
4 26
```

⇒

Output Example 1

```
6
2
```

Input Example 2

```
1 2
```

⇒

Output Example 2

```
2
0
```

Input Example 3

```
49 50
```

⇒

Output Example 3

```
1
1
```

- Check your code using OJ system (oj.sejong.ac.kr)!!

4-6)Problem10 (OJ system)

- **Check your code using OJ system!!**
  - OJ system: http://oj.sejong.ac.kr/JudgeOnline/
    - ✓ Caution: select your class

- **Not working in OJ system, although it works well in Visual Studio?**
  - Check your input and output!!
    - ✓ Check your output whether it contains unnecessary characters or digits that were not required
    - ✓ Check spaces!!

  - Check variable initialization!!
    - ✓ Visual Studio may automatically initialize variables (especially, in debug mode, but it is not a standard)