

Computer Programming

Lab2

Mar 20, 2025



Ex3

- Write a program that takes an amount to be withdrawn from an ATM, calculates the number of available bills, and withdraws the amount. The user enters a specific amount, and the ATM provides the amount using the *smallest* possible number of bills (50,000 won, 10,000 won, 5,000 won, 1,000 won).

- **Program output**

```
[ohyong@cse Lab2]$ vi ex2_3.c
[ohyong@cse Lab2]$ gcc ex2_3.c -o ex2_3
[ohyong@cse Lab2]$ ./ex2_3
Enter the amount to withdraw: 137000
Withdrawal details:
50000 won: 2
10000 won: 3
5000 won: 1
1000 won: 2

[ohyong@cse Lab2]$ ./ex2_3
Enter the amount to withdraw: 926
Withdrawal not possible: Please enter a multiple of 1,000.
```

Ex extra1

- *Check Digit* is an additional single digit number used to detect and authenticate errors in serial numbers or numbers. For example, a credit card number includes a check digit, so when the user enters the card number, the check digit is used to check whether the correct card number has been entered. The simplest way is to add up all the digits and then use the remainder after dividing by 10. For example, if it is 12345, $(1+2+3+4+5)=15$ divided by 10 and the remaining 5 is used as the check digit. Assume that each digit is given separated by a space.
- Write a program that calculates and outputs check digits. From now on, error handling is not considered. In other words, let's assume that the values come in normally.

Ex extra1

- **Program output**

```
[ohyong@cse Lab2]$ vi ex2_extra1.c
[ohyong@cse Lab2]$ gcc ex2_extra1.c -o ex2_extra1
[ohyong@cse Lab2]$ ./ex2_extra1
Please enter your identification number: 1 2 3 4 5
The check digit is 5.
[ohyong@cse Lab2]$ ./ex2_extra1
Please enter your identification number: 2 3 8 3 1
The check digit is 7.
```

Ex extra2

- Write a *modified version* of extra1's problem.
- *Check Digit* is an additional single digit number used to detect and authenticate errors in serial numbers or numbers. For example, a credit card number includes a check digit, so when the user enters the card number, the check digit is used to check whether the correct card number has been entered. The simplest way is to add up all the digits and then use the remainder after dividing by 10. For example, if it is 12345, $(1+2+3+4+5)=15$ divided by 10 and the remaining 5 is used as the check digit. *That is, there are no spaces between the digits of the input number.*
- Write a program to calculate the check digit and print the check digit as the last digit.

Ex extra2

- **Program output**

```
[ohyong@cse Lab2]$ vi ex2_extra2.c
[ohyong@cse Lab2]$ gcc ex2_extra2.c -o ex2_extra2
[ohyong@cse Lab2]$ ./ex2_extra2
Please enter your identification number: 12345
The identification number with digit : 123455.
[ohyong@cse Lab2]$ ./ex2_extra2
Please enter your identification number: 23831
The identification number with digit : 238317.
```

Submission

- **Submit to server**

Lab #

Class #

At the end of the Lab2, submit your C sources file by typing

```
~gs1401/bin/submit Lab2_2 ex2_3.c ex2_extra1.c ex2_extra2.c // by Thur. 11:50
```

You may check that you have submitted your source code correctly by typing

```
~gs1401/bin/submit -check
```