세계 속의 빛
이공계 대학

Computer Programming

Lab6

Apr. 29, 2025

Ex1

- ***(Euclidean Algorithm)*** Using the Euclidean Algorithm below, write a function **euclid_gcd( )** that receives two integers and finds the greatest common divisor (GCD).
  - Step 1: Assign *M* and *N* the value of the larger and smaller of the two input values, respectively.
  - Step 2: Divide *M* by *N*, and call the remainder *R*.
  - Step 3: Assign *M* the value of *N*, and assign *N* the value of *R*. If *N* is not zero, return to Step 2. Otherwise, the greatest common divisor is the value currently assigned to *M*.

Ex1

- **Program output**

```
[ohyong@cse ~/cp/Lab6]$ vi ex6_1.c
[ohyong@cse ~/cp/Lab6]$ gcc ex6_1.c -o ex6_1
[ohyong@cse ~/cp/Lab6]$ ./ex6_1
Enter two integers: 12 28
Greatest common divisor: 4
```

```
[ohyong@cse ~/cp/Lab6]$ ./ex6_1
Enter two integers: 28 12
Greatest common divisor: 4
```

Ex2

- ***(Car Rental Services)*** A car rental service charges a minimum fee of $25.00 to rent a car for 8 hours, and charges an additional $5 per hour after 8 hours. The maximum charge per day is $50 exclusive of service tax. The company charges an additional $0.50 per hour as service tax. Assume that no car is rented for more than 72 hours at a time. If a car is rented for more than 24 hours, then rental is calculated on a daily basis.
- Write a program that calculates and prints the rental charges for each of three customers who rented cars from this agency yesterday. You should enter the hours for which the car has been rented for each customer. Your program should print the results in a neat tabular format and should calculate and print the total of yesterday's receipts. The program should use the **function** calculateCharges to determine the charges for each customer. The data type of hour is int.

Ex2

- **Program output**

```
[ohyong@cse ~/cp/Lab6]$ vi ex6_2.c
[ohyong@cse ~/cp/Lab6]$ gcc ex6_2.c -o ex6_2
[ohyong@cse ~/cp/Lab6]$ ./ex6_2
Enter the hours rented for 3 cars: 12 34 48
  Car          Hours         Charge
    1             12          51.00
    2             34         117.00
    3             48         124.00
TOTAL             94         292.00
```

```
[ohyong@cse ~/cp/Lab6]$ ./ex6_2
Enter the hours rented for 3 cars: 5 9 12
  Car          Hours         Charge
    1              5          27.50
    2              9          34.50
    3             12          51.00
TOTAL             26         113.00
```

Submission

- **Submit to server**

Lab #

Class #

At the end of the Lab6, submit your C sources file by typing

~gs1401/bin/submit Lab6_2 ex6_1.c ex6_2.c // by Thur. 11:50

~gs1401/bin/submit Lab6_3 ex6_1.c ex6_2.c // by Friday 10:50

~gs1401/bin/submit Lab6_4 ex6_1.c ex6_2.c // by Friday 11:50

~gs1401/bin/submit Lab6_5 ex6_1.c ex6_2.c // by Friday 13:50

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

~gs1401/bin/submit -check