

OBJECTIVES : Fnc. With Output Parameters

Instructor : Burcu LİMAN

Assistants : Engin Z. KIRAÇBEDEL, Sıla YAPICI

Q1. Fill in the blanks in the following C program using the given addresses and values of ptr and number variables. Then, write and execute it on your development environment and observe if all of the output is valid or not to correct your errors; addresses should look like hexadecimal numbers while values should look like decimal values.

```
#include <stdio.h>
```

```
int main (void)
{
    int number = 747;
    int *ptr;

    ptr = &number;

    printf("1.Value of the variable number by using number is : __\n", __);
    printf("2.Value of the variable number by using ptr is : __\n", __);

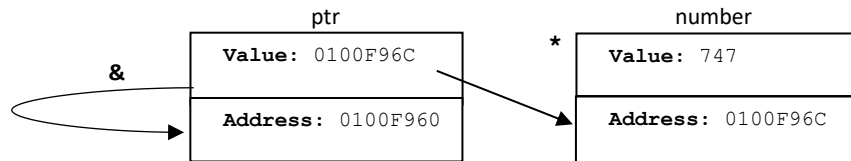
    printf("\n1.Address of the variable number by using number is : __\n", __);
    printf("2.Address of the variable number by using ptr is : __\n", __);

    printf("\n1.Address of the pointer ptr by using ptr is : __\n", __);
    printf("\n1.Value of the pointer ptr by using ptr is : __\n", __);

    *ptr = 380;

    printf("\n1.Value of the variable number by using number is : __\n", __);
    printf("2.Value of the variable number by using ptr is : __\n", __);

    return 0;
}
```



Project Name: LG12_Q1

File Name: Q1.cpp

Q2. In a central phone company; for the 4 big cities in Turkey (Ankara, Istanbul, Izmir and Konya); new phone numbers will be generated according to the city code and old phone numbers of a user.

Write the following functions;

- **numOfDigit()** that gets an integer number and returns the number of digits .
- **findCity()** that gets the city code ,phone number and returns the plate number and new phone number.

Write a C program that gets city code and phone number of 3 users, then it makes the new phone and also shows the plate code according given conditions and using the following functions.

- Plate number is; 06 for city code 312 (Ankara),
- Plate number is; 34 for city code 212 (Istanbul),
- Plate number is; 35 for city code 232 (Izmir),
- Plate number is; 42 for city code 332 (Konya),
- Otherwise, assume plate number is 0.

New Phone number will be generated; plate number * city code, then it is added to the old phone number.

Your program should make data validation for the digits of the city code (312 must be 3 digit) and also phone number (290 5058 must be 7 digit).

ExampleRun:

Enter the 1. user city code and phone number:13 6667412

Project Name: LG12_Q2

File Name: Q2.cpp

Wrong city code or phone enter again!

Enter 1. user the city code and phone number:312 2473284

1. user Plate Code is 6 and new phone number is 2475156

Enter the 2. user city code and phone number:232 9871211

2. user Plate Code is 35 and new phone number is 9879331

Enter the 3. user city code and phone number:232 569874

Wrong city code or phone enter again!

Enter 3. user the city code and phone number:212 5653987

3. user Plate Code is 34 and new phone number is 5661195

Q3. Write a modular C program that gets a number representing an amount of days for this number in the units of days to be represented in years, months and days respectively. The program stops when -1 is given as the number of days. Please examine the example run below, carefully.

- Write the function named **convertDays** that gets the value the user gave in units of days, in order to compute and "return" the respective values of years, months and days.

Hint: Assume that one year is 365 days, one month is 30 days.

Example Run:

Enter the number of days: 365

365 days is 1 year(s), 0 month(s), 0 day(s)

Enter the number of days: 351540231

351540231 days is 963123 year(s), 11 month(s), 6 day(s)

Enter the number of days: 2845

2845 days is 7 year(s), 9 month(s), 20 day(s)

Enter the number of days: -1

Project Name: LG12_Q3

File Name: Q3.cpp

Q4. Write a function named rollDice() that rolls two dice by using random function that finds their sum and returns two dice and the sum of the two number of the dice.

If the sum is 2, 6, 7 or 11 on the first throw, the player wins.

Other than above, on the first throw, the player loses and the player continues to roll the dices until he/she wins the game.

Write a modular C program that simulates a chance game. A player rolls two dice. Each dice has six faces. These faces contain 1, 2, 3, 4, 5, 6 spots. After the dice have come to rest, the sum of the spots on the two upward faces is calculated.

The number of rolls should be calculated and displayed too.

Project Name: LG12_Q4

File Name: Q4.cpp

Hint: You are going to use **srand(time(0));** statement in your code.

Example Run #1:

Player rolled 5 + 2 = 7

Player wins with 1 rolls

Player rolled 4 + 1 = 5

Player loses

Continues rolling..

Example Run #2:

Player rolled 2 + 6 = 8

Player loses

Continues rolling..

Player rolled 5 + 4 = 9

Player loses

Continues rolling..

Player rolled 4 + 3 = 7

Player wins with 2 rolls

Player rolled 2 + 3 = 5

Player loses

Continues rolling..

Example Run #3:

Player rolled 4 + 1 = 5

Player loses

Continues rolling..

Player rolled 6 + 5 = 11

Player wins with 5 rolls

ADDITIONAL QUESTIONS

AQ.

- a)** Write a function named as **swap()** that takes two numbers and swaps them (exchanges their places).
- b)** Write a function named **make_order_two()** that takes two numbers and orders them from smaller to bigger by using function written in part a.
- c)** Write a function named as **make_order_three()** that takes three numbers and orders them from smaller to bigger by using function written in part b.

Write a modular C program that takes 5 students' ids and three grades, and displays the id and ordered grades of the each student by using the functions stated above.

Example Run:

Project Name: LG12_AQ

File Name: AQ.cpp

Enter the id of the student1: 20104641

Enter three grades: 90.9 70.7 45.8

Student 20104641's grades: 45.8 70.7 90.9

Enter the id of the student2: 20104532

Enter three grades: 23.2 78.1 12.4

Student 20104532's grades: 12.4 23.2 78.1

Enter the id of the student3: 20101265

Enter three grades: 100.0 10.0 10.1

Student 20101265's grades: 10.0 10.1 100.0

Enter the id of the student4: 20107861

Enter three grades: 75.4 20.3 89.4

Student 20107861's grades: 20.3 75.4 89.4

Enter the id of the student5: 20104114

Enter three grades: 45.4 90.5 99

Student 20104114's grades: 45.4 90.5 99.0