

# Lab #2

## (C Pointer Basics)

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# **Lab #2-1**

# lab2-1.c

```
#include <stdio.h>
int main()
{
    char charType;
    int integerType;
    float floatType;
    double doubleType;

    printf("Size of char: %ld byte\n",sizeof(charType));
    printf("Size of int: %ld bytes\n",sizeof(integerType));
    printf("Size of float: %ld bytes\n",sizeof(floatType));
    printf("Size of double: %ld bytes\n",sizeof(doubleType));

    printf("-----\n");

    printf("Size of char: %ld byte\n",sizeof(char));
    printf("Size of int: %ld bytes\n",sizeof(int));
    printf("Size of float: %ld bytes\n",sizeof(float));
    printf("Size of double: %ld bytes\n",sizeof(double));

    printf("-----\n");

    printf("Size of char*: %ld byte\n",sizeof(char*));
    printf("Size of int*: %ld bytes\n",sizeof(int*));
    printf("Size of float*: %ld bytes\n",sizeof(float*));
    printf("Size of double*: %ld bytes\n",sizeof(double*));

    return 0;
}
```

# **Lab #2-2**

# lab2-2.c

```
#include <stdio.h>

int main()
{
    int i;
    int *ptr;
    int **dptr;

    i = 1234;

    printf("[checking values before ptr = &i] \n");
    printf("value of i == %d\n", i);
    printf("address of i == %p\n", &i);
    printf("value of ptr == %p\n", ptr);
    printf("address of ptr == %p\n", &ptr);

    ptr = &i;    /* ptr is now holding the address of i */

    printf("\n[checking values after ptr = &i] \n");
    printf("value of i == %d\n", i);
    printf("address of i == %p\n", &i);
    printf("value of ptr == %p\n", ptr);
    printf("address of ptr == %p\n", &ptr);
    printf("value of *ptr == %d\n", *ptr);
```

# lab2-2.c

```
    dptr = &ptr;                /* dptr is now holding the address of ptr */

    printf("\n[checking values after dptr = &ptr] \n");
    printf("value of i == %d\n", i);
    printf("address of i == %p\n", &i);
    printf("value of ptr == %p\n", ptr);
    printf("address of ptr == %p\n", &ptr);
    printf("value of *ptr == %d\n", *ptr);
    printf("value of dptr == %p\n", dptr);
    printf("address of ptr == %p\n", &dptr);
    printf("value of *dptr == %p\n", *dptr);
    printf("value of **dptr == %d\n", **dptr);

    *ptr = 7777;                 /* changing the value of *ptr */

    printf("\n[after *ptr = 7777] \n");
    printf("value of i == %d\n", i);
    printf("value of *ptr == %d\n", *ptr);
    printf("value of **dptr == %d\n", **dptr);

    **dptr = 8888;              /* changing the value of **dptr */

    printf("\n[after **dptr = 8888] \n");
    printf("value of i == %d\n", i);
    printf("value of *ptr == %d\n", *ptr);
    printf("value of **dptr == %d\n", **dptr);

    return 0;
}
```