SNS COLLEGE OF ENGINEERING

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE NAME : 23ITT101 PROBLEM SOLVING AND C PROGRAMMING

I YEAR /I SEMESTER

Unit 4- Functions and pointers

Topic 4: Parameter passing: Pass by value - Pass by reference

Brain Storming

1. How perform string manipulation operations?

Call by value
(Pass by value)

- The parameters passed to function are called **actual parameters** whereas the parameters received by function are called **formal parameters**.

```
//Invoke (call) the method
int number1 = 25;
int number2 = 47;                actual parameters
                                 (or arguments)
int sum = add(number1, number2);

//Method definition
public int add(int x, int y)
{
    return (x + y);              formal parameters
}
```

Conti...

- The call by value method of passing arguments to a function copies the actual value of an argument into the formal parameter of the function. In this case, changes made to the parameter inside the function have no effect on the argument.

Conti...

```c
#include

// Function Prototype
void swapx(int x, int y);

// Main function
int main()
{
    int a = 10, b = 20;

    // Pass by Values
    swapx(a, b);

    printf("a=%d b=%d\n", a, b);

    return 0;
}

// Swap functions that swaps
// two values
void swapx(int x, int y)
{
    int t;

    t = x;
    x = y;
    y = t;

    printf("x=%d y=%d\n", x, y);
}
```

```
Output:
x=20 y=10
a=10 b=20
```

Thus actual values of a and b remain unchanged even after exchanging the values of x and y.

In call by values we cannot alter the values of actual variables through function calls.

Values of variables are passes by Simple technique.

Call by reference
(Pass by reference)

- The call by reference method of passing arguments to a function copies the address of an argument into the formal parameter. Inside the function, the address is used to access the actual argument used in the call. It means the changes made to the parameter affect the passed argument.

Conti...

```c
#include

// Function Prototype
void swapx(int*, int*);

// Main function
int main()
{
    int a = 10, b = 20;

    // Pass reference
    swapx(&a, &b);

    printf("a=%d b=%d\n", a, b);

    return 0;
}

// Function to swap two variables
// by references
void swapx(int* x, int* y)
{
    int t;

    t = *x;
    *x = *y;
    *y = t;

    printf("x=%d y=%d\n", *x, *y);
}
```

Output:
```
x=20 y=10
a=20 b=10
```

Thus actual values of a and b get changed after exchanging values of x and y.

In call by reference we can alter the values of variables through function calls.

Pointer variables are necessary to define to store the address values of variables.

Assessment 1

1. Write about call by value and call by reference ?

Ans : _____

References

1. Reema Thareja, "Programming in C", Oxford University Press, Second Edition, 2016

Thank You