

Function Overloading

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1. Objectives

After you complete this experiment you will be able to implement function overloading in a C++ program.

2. Introduction

Function overloading occurs when two or more functions have the same name but different formal parameter lists. The compiler only uses the function signatures to identify a function in function overloading. Never consider the function return type.

More information on function overloading can be found in your course textbook and on the web.

3. Experiments

Step 1: In this experiment you will learn how to implement function overloading.

Enter, save, compile and execute the following program in MSVS. Call the new project “FunctionOverloadingExp” and the program “FunctionOverloading.cpp”. Answer the questions below:

```
#include <iostream>
#include <string>

using namespace std;
void swap(string &a, string &b)
{
    string temp = a;

    a=b;
    b=temp;
}

void swap(int &a, int &b)
{
    int temp = a;

    a=b;
    b=temp;
}

void swap(char &a, char &b)
{
    char temp = a;

    a=b;
    b=temp;
}
```

```

int main()
{
    string x="111", y="222";
    char r='1', s='2';
    int a=111, b=222;

    cout<<"original strings: x = "<<x<<" y = "<<y<<endl;
    cout<<"original integers: a = "<<a<<" b = "<<b<<endl;
    cout<<"original characters: r = "<<r<<" s = "<<s<<endl;

    swap(x,y);
    swap(r,s);
    swap(a,b);

    cout<<"swap with strings: x = "<<x<<" y = "<<y<<endl;
    cout<<"swap with integers: a = "<<a<<" b = "<<b<<endl;
    cout<<"swap with characters: r = "<<r<<" s = "<<s<<endl;

    return 0;
}

```

Question 1: Please execute the program in Step 1 and explain how function overloading was used?

Question 2: Without changing the original program, would the following function cause an error if added in the source file that contains the program in Step 1? If so, list the error message(s), and explain why the error(s) occurred.

```

double swap(string &a, string &b)
{
    string temp = a;

    a=b;
    b=temp;

    return 0;
}

```

