
Functions

Last Time

- We
 - Learnt about passing arguments by value and by reference
- Today we will
 - Look at more function examples and talk about scope

What is the output?

```
void changeit(int, int&, int&); void changeit(int j, int&
void main()                    i, int& l)
{
    {
    int i,j,k,l;                i++;
    i = 2;                      j += 2;
    j = 3;                      l += i;
    k = 4;
    l = 5;                      }
    changeit(i, j, k);
    cout << i << j << k << endl;
    changeit(k,l,i);
    cout << i << k << l << endl;
}
}
```

Program

- Write a function to compute the sum and average of two integers, and return the values of sum and average.
- An example function call would look like:
 - `compute (4, 5, sum, average);`

Scope

- Variables have scope - places in the program where they can be referenced
- Local scope - valid only in function or main program
- Global scope - valid anywhere in program
- We will use local variables most of the time

Example

```
void computeSum(int, int);
int sum;
void main()
{
    int i,j;
    cin >> i >> j;
    sum = 0;
    computeSum(i,j);
    cout << sum << endl;
}
void computeSum(int num1, int num2)
{
    sum = num1 + num2;
}
```

Example

```
int computesum(int, int);
void main()
{
    int i,j;
    cin >> i >> j;
    computesum(i,j);
    cout << sum << endl;
}
int computesum(int num1, int num2)
{
    int sum;
    sum = num1 + num2;
    return sum;
}
```

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Example

```
int computesum(int, int);
void main()
{
    int i,j,sum;
    cin >> i >> j;
    sum = computesum(i,j);
    cout << i << j << sum << endl;
}
int computesum(int num1, int num2)
{
    int i;
    i = num1 + num2;
    return i;
}
```

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Example

```
void silly(float);
void main()
{
    float x, y;
    x = 23;
    y = 5;
    silly(x);
    cout << x << y << endl;
}
void silly(float x)
{
    float y;
    y = 25.0;
    x = y;
}
```

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Summary

- ◆ In today's lecture we covered
 - More function examples
 - Scope
- ◆ Readings
 - P. 170 - 180

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