

Lab 5 - wb 25/11/13

This week will cover functions. Follow the demos below to cover this.

Your First Function - How we declare and use them

In the following demo we will create a function and use it

```
#include <iostream>
#include <stdlib.h>

using namespace std;

//We Declare our functions up here before the main

//Function return type      //Function name
void                        drawSquare();

int main()
{
    cout<<"Press any key to draw a square!";
    cin.get();

    system("CLS");// Clear the screen

    drawSquare(); // Call the function

    cin.get();

    return 0;
}

//Then we can write our functions down here below main

void drawSquare()
{
    cout<<"#####\n#####\n#####\n#####\n#####\n#####\n";
}
```

Creating a function that takes variables as input

You can choose the size of your square

```
#include <iostream>
#include <stdlib.h>

using namespace std;

//We Declare our functions up here before the main

//Function return type      //Function name      // Variables
void                        drawSquare          (int xSize, int ySize); //separate variables by commas

int main()
{
    int x,y;
    cout<<"How big would you like your square?";
    cout<<endl<<"X Size: ";
    cin>>x;
    cout<<"Y Size: ";
    cin>>y;

    cout<<endl<<endl<<"Press enter to continue!";
    cin.ignore();
    cin.get();

    system("CLS");// Clear the screen

    drawSquare(x,y); // Call the function

    cin.get();

    return 0;
}

//Then we can write our functions down here below main

void drawSquare(int xSize, int ySize)
{
    for(int i=0; i<ySize; ++i)
    {
        for(int j=0; j<xSize;++j)
        {
            cout<<"#";
        }
        cout<<endl;
    }
}
```

Creating a function that returns data

We can return data when a function has finished

```
#include <iostream>
#include <stdlib.h>

using namespace std;

//We Declare our functions up here before the main

//return type is an int
int adder(int a, int b);

int main()
{
    int a,b;
    cout<<"Pick 2 numbers and I will add them?";
    cout<<endl<<"A: ";
    cin>>a;
    cout<<"B: ";
    cin>>b;

    cout<<endl<<endl<<"Press enter to continue!";
    cin.ignore();
    cin.get();

    system("CLS");// Clear the screen

    cout<<"Your numbers added makes...."<<adder(a,b);

    cin.get();

    return 0;
}

//Then we can write our functions down here below main

int adder(int a, int b)
{
    return a+b;//return the numbers added together
}
```

Have A Go - Test Your Knowledge!

Challenge 1

Using your code from last week, Create a function of that outputs a random greeting/joke/insult.

Call this function until the user quits.

TIP

To generate a random number include time.h and stdlib.h at the top of your program (#include <stdlib.h>)
(#include <time.h>)

Then do the following in your main function to generate a number between 1 and 100

```
int random_number;  
// initialize random seed - You don't need to know too much about this  
srand (time(NULL));  
  
// generate secret number between 1 and 100  
random_number = rand() % 100 + 1;
```

```
#include <iostream>  
#include <stdlib.h>  
#include <time.h>  
  
using namespace std;  
  
int main()  
{  
    int random_number;  
    // initialize random seed - You don't need to know too much about this  
    srand (time(NULL));  
  
    // generate secret number between 1 and 100  
    random_number = rand() % 100 + 1;  
  
    cout<<random_number;  
    cin.get();  
    main();  
    return 0;  
}
```

Challenge 2

Create an function that takes an array as input and returns the sum of all the items in the array.

TIP

To take an array as input write your function declaration similar to this:

```
int myfunct(int numArray[ ]);
```

TIP

You will probably also want to take the size of the array as an input to the function.