# C# Programming Reference Sheet

## Built In Data Types & Literals

Integers
Int, short, long
(e.g. 5, 10, 15)
Floating Point Numbers
Float, double
(e.g. 3.14, 2.5555555, 69.69)
Strings and Characters
```
String char (e.g. "hello", 'h')
```
Boolean
Bool(e.g. true, false)

## Working with Strings

Assignment (giving a string a value)
String Name = "Gamaliel"

Concatenation (joining strings) string name =
"Gamaliel " + "D'mello"

Comparison
```
String.Compare(str1, str2)
```
Construction from other types:
```
String text = age.ToString()
```

## Simple Programming Statements

Constant declaration: Public Const **float** PI = 3.14f

Variable declaration: private/public int I = 21;

Assignment: PI = 3.14

Method call: Console.WriteLine("text")

Sequence of statements – grouped
If …. Else*

## Declaring Methods

Declare a method with parameters:
Public void Print (string name)
{…}
Declare a method that returns data:
```
Public int addtwo (var One, var Two)
{
Return result = One + Two
}
```
Pass by reference:
```
Public void change(int[] arr)
{
        Arr[0] = 9128;//code to change array
}
static void Main()
   {
      int[] arr = {1, 4, 5};
           change(arr);
}
```

## Structured Programming Statements

If statement
```
If (i<10) //comparison statement
{
        X = 20; //if true do this
}
else
{
        X = 1; //if false do this
}
```
Case statement
```
switch (a)
{
        Case 1: //code
        Break;
        Case 2: //code 2
        break;
        Default: //default if neither 1 or 2
        Break;

}
```
While loop
```
While (i < 10)
{do these steps}
```
Repeat loop repeat … until
```
do
{
        //code
} while (condition);
```
For loop
```
for{i=0 ; i<count ; i++}
{
        Do this//
}
```

## Boolean Operators and Other Statements

Comparison: equal, less, larger, not equal, less eq
`==, <, >, !=, <=`

Boolean: And, Or and Not
`&&, ||, !=`

Skip an iteration of a loop
`Continue`

End a loop early
`break`

End a method:
`Return;`

## Custom Types

Classes
Public class x{ }

Enumerations: enum week{Monday, Tuesday, ETC. }

Structs: struct Employee{

```
  public int EmpId;
  public string FirstName;
  public string LastName;
}
```

## Arrays

Declaration
int die[] = new int[5]

Access: die[2], die[3]

Loop with index i

```
While (i < 10)
{
do these steps
}
```

For each loop

```
For each (roll r in die)
{
do this
}
```

## Programs and Modules

Creating a program

```
using System;
namespace HelloWorld
{class Hello {static void Main() {
 Console.WriteLine("Hello World!");}}}
```

Using a class from a library

```
Using System;
```

## Other Things

Reading from Terminal: Console.Read

Writing to Terminal: Console.Write

Comments: // (single line) or /* */ (multiline)