C# Programming Reference Sheet

Built In Data Types & Literals

Integers
```
Int, Short Long
(e.g. 1, 2, 123)
```
Floating Point Numbers
```
Float, Double
(e.g. 3.1415, 420.69)
```
Strings and Characters
```
String, Char
(e.g. "Hello World")
```
Boolean
```
Bool
(e.g. True, False
```

Working with Strings

Assignment (giving a string a value)
```
String Brand = "Apple"
```
Concatenation (joining strings)
```
String Brand = "Apple" + "iPhone"
```
Comparison
```
String.Compare(brand1, brand2)
```
Construction from other types:
```
String text = number.ToString()
```

Simple Programming Statements

Constant declaration
```
Public Const float PI = 3.1415
```
Variable declaration
```
Public Int I = 7;
```
Assignment
```
PI = 3.1415
```
Method call
```
Console.WriteLine("Brand")
```
Sequence of statements - grouped
```
If…Else…
```

Structured Programming Statements

If statement
```
If(name = George){
      Console.WriteLine("Great Name!")
}
Else{
      Console.WriteLine("What a bad name")
}
```
Case statement
```
Switch(example){
      Case1: //First Code Snippet
      Break;
      Case2: //Second Code Snippet
      Break
      Default: //Default Code Snippet
      Break;
}
```
While loop
```
While (x <= 5){
      //Perform Code Snippet
}
```
Repeat loop
```
Do{
      //Perform Code Snippet
} while(conditions);
```

For loop
```
For(x=0; x<count; x++){
      //Perform Code Snippet
}
```

Declaring Methods

Declare a method with parameters:
```
Public void Print(String Name){
      //Perform Code Snippet
}
```
Declare a method that returns data:
```
Public int addition(variable One, variable
Two){
      Return result = One + Two
}
```
Pass by reference:
```
Public void change(int[] arr){
      Arr[0] = 420; //Change Array
}
Static void Main(){
      Int[]arr={1,2,3};
      Change(arr);
}
```

Custom Types

Classes
```
Public class x{}
```
Enumerations
```
Enum week{Monday, Tuesday, Wednesday,
Thursday, Friday, Saturday, Sunday}
```
Structs
```
Struct Employee{
      Public int EmployeeID;
      Public string FirstName;
      Public string LastName;
}
```

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
```

Programs and Modules

Creating a program
```
Using System;
Namespace HelloWorld {
      Class Hello {
            Static void Main() {

      Console.WriteLine("Hello");
            }
      }
}
```
Using a class from a library
```
Using System;
```

Arrays

Declaration
```
Int num[] = new int[1]
```
Access
```
Num[1], num[2]
```
Loop with index i
```
While (I <= 5) {
      //Perform Code Snippet
}
```
For each loop
```
For each (condition) {
      //Perform Code Snippet
}
```

Other Things

Reading from Terminal
```
Console.Read
```
Writing to Terminal
```
Console.Write
```
Comments
```
// Single Line
/* */ Multiple Lines
```