C# Programming Reference Sheet

Built In Data Types & Literals

Integers
```
int, uint, ulong, long
```
(e.g. 342, 54555, 5545245669966)

Floating Point Numbers
```
float, double, decimal
```
(e.g. 0.22, 333.204,22.34546565677)

Strings and Characters
```
Char, String
```
(e.g. 'a', "What time is it")

Boolean: `bool (e.g. true, false)`

Working with Strings

Assignment (giving a string a value)
```
String CarBrand = "Ferrari"
```
Concatenation (joining strings)
```
String CarName = "Ferrari" + "Italia"
```
Comparison
```
If (CarBrand == "Ferrari"){}
```
Construction from other types:
```
CarName = "Ferrari"+Name.ToString();
```

Simple Programming Statements

Constant declaration
```
Const int x = 0;
```
Variable declaration
```
String name = "Nicholas Hi"
```
Assignment
```
x = 0; name = "Nicholas Hi";
```
Method call
```
int total = addition();
```
Sequence of statements - grouped
```
from student in students
group student by student.Last[0];
```

Structured Programming Statements

If statement
```
If(statement){do…} else{do…}
```
Case statement
```
Switch(){case 1:……;break;}
```
While loop
```
While(Case){do…;}
```
Repeat loop
```
Do{something…;}while(statement…);
```
For loop
```
For(x=0;x<=20;x++){……….}
```

Declaring Methods

Declare a method with parameters:
```
Public static void DoSomething(int Thing)
```
Declare a method that returns data:
```
Public static int Something(int a, int b)
```
Pass by reference:
```
Int Dosomething = Something(x, y);
printSomething(DoSomething);
```

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 function/procedure:
```
Return;
```

Custom Types

Classes
```
Public class name{}
```
Enumerations
```
Public enum Car{Honda,Porché}
```
Structs
```
Public struct position{
        Private double xAxis;
        Private double yAxis;
}
```

Arrays

Declaration
```
dell[]num = new num[20];
```
Access
```
num[4]=1234;
```
Loop with index i
```
For(i=0;i<20;i++){do…}
```
For each loop
```
Foreach(Counter c in counters){

Console.WriteLine(c.num," ",c.delta);
}
```

Programs and Modules

Creating a program
```
Public Static void Main (string[] args)
{Console.WriteLine("Testing 123");}
```
Using a class from a library

```
Using SwinGameSDK;
```

Other Things

Reading from Terminal
```
String Store = Console.ReadLine();
```
Writing to Terminal
```
Console.WriteLine(Write);
```
Comments
```
//This is Task 4
/*This is task 4*/
```