Cheatography

See Sharp Cheat Sheet

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Comments

```
// Single line
/* Multiple
line */
/// XML comments on
single line
/* XML comments on
multiple lines /
```

Enumerations

```
enum Action {Start,
Stop, Rewind, Forward};
enum Status {Flunk = 50,
Pass = 70, Excel = 90};
Action a = Action.Stop;
if (a != Action.Start)
//Prints "Stop is 1"
    Sys tem.Co nso -
le.W ri teL ine(a + " is
" + (int) a);

// Prints 70
System.Co nso le.W ri -
teL ine ((int)
Status.Pass);
// Prints Pass
System.Co nso le.W ri -
teL ine (St atu s.P -
ass);
enum Weekdays{
    Sat urday, Sunday,
Monday, Tuesday,
Wednesday, Thursday,
Friday
}
```

Delegates / Events

```
delegate void
MsgArrivedEventHandler(string
message);
```

Delegates / Events (cont)

```
> event MsgArrivedEvent-
Handler MsgArrivedEvent;

//Delegates must be used with
events in C#

MsgArrivedEvent += new
MsgArrivedEventHandler
 (My_MsgArrivedEventCallb-
ack);
//Throws exception if obj is null
MsgArrivedEvent("Test messag-
e");
MsgArrivedEvent -= new
MsgArrivedEventHandler
 (My_MsgArrivedEventCallb-
ack);

using System.Windows.Forms;

Button MyButton = new Button();
MyButton.Click += new
System.EventHandler(MyButto-
n_Click);
private void MyButton_Click(-
object sender, System.Ev-
entArgs e) {
 MessageBox.Show(this, "-
Button was clicked", "Info",
   MessageBoxButtons.OK,
MessageBoxIcon.Information);
}
```

Loops

```
//Pre-test Loops: while
(i < 10)
   i++;
for (i = 2; i < = 10; i
+= 2)
    Sys tem.Co nso -
le.W ri teL ine(i);
//Post -test Loop:
do
   i++;
while (i < 10);
// Array or collection
looping
string[] names = {"St -
eve n", " SuO k", " -
Sar ah"};
foreach (string s in
names)
    Sys tem.Co nso -
le.W ri teL ine(s);
```

Objects

```
TopAuthor author = new
TopAuthor();

//No " Wit h" construct
author.Name = " Ste -
ven ";
author.Au tho rRa nking
= 3;

author.Ra nk( " Sco -
tt");
TopAut hor.De mote()
//Calling static method

TopAuthor author2 =
author //Both refer to
same object
author 2.Name = " -
Joe ";
```

Objects (cont)

```
> System.Console.WriteLine(au-
thor2.Name) //Prints Joe

author = null //Free the object

if (author == null)
 author = new TopAuthor();

Object obj = new TopAuthor();
if (obj is TopAuthor)
 SystConsole.WriteLine("Is a
TopAuthor object.");
```

Namespaces

```
namespace
ASPAlliance.DotNet.Communi
{
   ...
}

// or

namespace ASPAll iance {
    nam espace DotNet {
        nam espace Communi
{
            ...
        }
   }
}
using ASPAll ian ce.D ot -
Net.Co mmu nity;
```

Program Structure

```
using System
Namespace MyName Space{
    class HelloWorld {
```

Program Structure (cont)

```
>    static void Main(string[]
args) {
     System.Console.WriteLine-
("Hello World")
   }
 }
}
```

Console I/O

```
//Escape sequences
\n, \r
\t
\\
\

Conver t.T oCh ar(65)
//Returns 'A' -
equivalent to Chr(num)
in VB
// or
(char) 65

System.Co nso le.W ri -
te( " What's your name?
");
string name =
SYstem.Co nso le.R ea -
dLi ne();
System.Co nso le.W ri -
te( "How old are you?
");
int age = Conver t.T -
oIn t32 (Sy ste m.C -
ons ole.Re adL ine());
System.Co nso le.W ri -
teL ine ("{0} is {1}
years old.", name, age);
//or
System.Co nso le.W ri -
teL ine (name + " is " +
age + " years old.");
```

Console I/O (cont)

```
> int c = System.Console.R-
ead(); //Read single char
System.Console.WriteLine(c);
//Prints 65 if user enters "A"
```

Operators

```
//Comparison
== < > <= >= !=

//Arit hmetic
+ - * /
% (mod)
/ (integer division if
both operands are ints)
Math.P ow(x, y)

//Assi gnment
= += -= *= /= %= &= |=
^= <<= >>= ++ --

//Bitwise
& | ^ ~ << >>

//Logical
&& || !

//String Concat enation
+
```

Structs

```
struct AuthorRecord {
    public string name;
    public float rank;

    public Author Rec -
ord (string name, float
rank) {
        thi s.name =
name;
        thi s.rank =
rank;
   }
```

Structs (cont)

```
> }
AuthorRecord author = new
AuthorRecord("Steven", 8.8);
AuthorRecord author2 = author

author.name = "Scott";
SystemConsole.WriteLine(aut-
hor.name); //Prints Steven
System.Console.WriteLine(au-
thor2.name); //Prints Scott
```

Functions

```
// Pass by value (in,
default), reference
//(in/ out), and
reference (out)
void TestFu nc(int x,
ref int y, out int z) {
    x++;
    y++;
    z = 5;
}

int a = 1, b = 1, c; //
c doesn't need initia -
lizing
TestFu nc(a, ref b, out
c);
System.Co nso le.W ri -
teL ine ("{0} {1} {2}",
a, b, c); // 1 2 5

// Accept variable
number of arguments
```

Functions (cont)

```
> int Sum(params int[] nums) {
  int sum = 0;
  foreach (int i in nums)
    sum += i;
  return sum;
}

int total = Sum(4, 3, 2, 1); //
returns 10

/* C# doesn't support optional
arguments/parameters.
Just create two different
versions of the same function. */
void SayHello(string name,
string prefix) {
  System.Console.WriteLine("Gr-
eetings, " + prefix + " " + name);
}

void SayHello(string name) {
  SayHello(name, "");
}
```

File I/O

```
using System.IO;
//Write out to text file
Stream Writer writer =
File.C rea teText
     ("c: \\m yfi le.t -
xt ");
writer.Wr ite Lin e("Out
to file.");
writer.Cl ose();
```

File I/O (cont)

```
> //Read all lines from text file
StreamReader reader = File.O-
penText
  ("c:\\myfile.txt");
string line = reader.ReadLine();
while (line != null) {
  Console.WriteLine(line);
  line = reader.ReadLine();
}
reader.Close();

//Write out to binary file
string str = "Text data";
int num = 123;
BinaryWriter binWriter = new
BinaryWriter(File.OpenWrite
  ("c:\\myfile.dat"));
binWriter.Write(str);
binWriter.Write(num);
binWriter.Close();

//Read from binary file
BinaryReader binReader = new
BinaryReader(File.OpenRead
  ("c:\\myfile.dat"));
str = binReader.ReadString();
num = binReader.ReadInt32();
```

File I/O (cont)

```
> binReader.Close();
```

Classes / Interfaces

```
//Accessibility keywords
public
private
internal
protected
protected internal
static


//Inhe ritance
class Articles: Authors
{
    ...
}

using System;

interface IArticle{
   void Show();
}


class IAutho r:I Art -
icle{
    public void Show() {
        Sys tem.Co nso -
le.W ri teL ine ("Show()
method Implem ent ed");
    }


    public static void
Main(s tring[] args) {
        IAuthor author =
new IAuthor();
        aut hor.Sh ow();
    }
}
```

Arrays

```
int[] nums = {1, 2, 3};
for (int i = 0; i <
nums.L ength; i++)
    Con sol e.W rit -
eLi ne( num s[i]);

// 5 is the size of the
array
string[] names = new
string[5];
names[0] = " Ste ven ";
// Throws System.In -
dex Out OfR ang eEx -
ception
names[5] = " Sar ah"

// C# can't dynami cally
resize an array.
//Just copy into new
array.
string[] names2 = new
string[7];
// or names.C op yTo -
(na mes2, 0);
Array.C op y(n ames,
names2, names.L en gth);

float[,] twoD = new
float[ rows, cols];
twoD[2,0] = 4.5;

int[][] jagged = new
int[3][] {
   new int[5], new
int[2], new int[3] };
jagged [0][4] = 5;
```

Data Types

```
//Value Types
bool
byte, sbyte
char (example: 'A')
short, ushort, int,
uint, long, ulong
float, double
decimal
DateTime
//Refe rence Types
object
string
int x;
Consol e.W rit eLi ne( -
x.G etT ype())
Consol e.W rit eLi ne( -
typ eof (int))

//Type conversion
float d = 3.5;
int i = (int) d
```

Constructors / Destructors

```
class TopAuthor {
    private int _topAu -
thor;

    public TopAut hor()
{
          _to pAuthor =
0;
   }

    public TopAut -
hor(int topAuthor) {
        thi s._ top -
Author= topAuthor
   }

    ~To pAu thor() {
       // Destructor
code to free unmanaged
resources.
```

Constructors / Destructors (cont)

```
>    // Implicitly creates a
Finalize method
 }
}
```

Exception Handling

```
class Withfinally{
    public static void
Main() {
       try {
           int x = 5;
           int y = 0;
           int z = x/y;
            Con sol -
e.W rit eLi ne(z);
       } catch( Div -
ide ByZ ero Exc eption
e) {
            Sys tem.Co -
nso le.W ri teL ine -
("Error occurr ed");
       } finally {
            Sys tem.Co -
nso le.W ri teL ine -
("Thank you");
       }
   }
}
```

Properties

```
private int _size;

public int Size {
   get {
        return _size;
   }
   set {
       if (value < 0)
            _size = 0;
```

Properties (cont)

```
>    else
     _size = value;
 }
}

foo.Size++;
using System;
class Date{
   public int Day{
      get {
         return day;
      }
      set {
         day = value;
      }
   }
   int day;


   public int Month{
      get {
         return month;
      }
      set {
         month = value;
      }
   }
   int month;


   public int Year{
      get {
         return year;
      }
      set {
         year = value;
      }
   }
   int year;
```

Properties (cont)

```
>    public bool IsLeapYear(int
year) {
       return year%4== 0 ? true:
false;
   }
   public void SetDate (int day,
int month, int year) {
       this.day = day;
       this.month = month;
       this.year = year;
   }
}
```

Choices

```
greeting = age < 20 ?
"What's up?" : "Hello";
if (x != 100 && y < 5){
   // Multiple
statements must be
enclosed in {}
   x *= 5;
   y *= 2;
}
if (x > 5)
   x *= y;
else if (x == 5)
   x += y;
else if (x < 10)
   x -= y;
else
   x /= y;
//Must be integer or
string
switch (color){
   case " bla ck":
```

Choices (cont)

```
>  case "red": r++;
   break;
  case "blue"
   break;
  case "green": g++;
   break;
  default: other++;
   break;
}
```

Constants

```
const int MAX_AUTHORS =
25;
readonly float MIN_RA -
NKING = 5.00;
```