Computer Science 4
Semester 4

Contents

Chapter 1

The Fall of Communism

The most basic C# program (equivelant to `int main(void)` in C) is

```
using System;

namespace name_of_program_here {
class Program {
    static void Main(string[] args) {
        /*
         * Your code goes here
         * */
    }
}
}
```

1.1 Similarities with C

```
/* Variable assignment */
int x = 5, i = 0;
float y = 4.5;
double z = 3.1415;
char c = 'A';

/* Basic Operations */
x + y;
x * y;
x++;
etc...

/* Conditionals */
if (x == y) {
    /*...*/
} else if (x < y) {
    /*..*/
} else {
    /*...*/
}
```

```
/* Ternary Operator */
int w = (x < y)? y : x;

/* Loops */
while (i < 6) {
    /*...*/
}

do {
    /*...*/
} while (i < 6);

for (int i = 0; i < 6; i++) {
    /*...*/
}
```

1.2 Basic C#

1.2.1 Input Output

Basically how to take input from the user and give an output back.

In C we have the `scanf()`, which is used to get input from the user and place it in to a variable. in C# we have the `Console.ReadLine()` which is similar however it *returns* the user input as a string rather than placing it in a variable so if we want user input in C we do

```
int x;
scanf("%d",&x);
```

While in C# we have to read the input as a string then convert it to an integer like so

```
int x = System.Int32.Parse(Console.ReadLine());
```

Likewise, in C we use `printf()` to print something to the screen, but in C# we use `Console.WriteLine()` to do the same thing, however the difference is that C forces you to use a string to format before it is printed while C# can handle the formatting for you, for example the C code

```
int x = 5;
printf("%d\n",x);
```

is equivelant to the following C# code

```
int x = 5;
Console.WriteLine(x); // print directly, no need to specify `%d` or `\n`
```

1.2.2 Format Strings

Strings in C# can be defined using `string name = "World"`. If we want to format strings when printing we do `printf("Hello, %d!\n",name)`, but in C# this can be done in a much simpler fashion using

```
Console.WriteLine($"Hello, {name}!")
```

or alternatively using

```
Console.WriteLine("Hello " + name + "!")
```

Note:-

2 strings can be *concatenated* together in C#(added together) like so

```
string firstName = "Hamboola";

string lastName = "Habooling";

string fullName = firstName + lastName; /* fullName => "Hamboola Hambooling" */
```