C#

Things in a C# Program

- using statement
  - using System;
  - using System.IO;
  - using System.Collections.Generic;
- namespace keyword
  - To control class and method names in big projects
- Class
- Main Method
  - static void Main(string[] args)
  - Must have in every C# console program

Things in () are similar terms from python

What is C#
- Object-Oriented Programming
- **C# is Case-sensitive**
- Resembles Java

Comments
- // for single line comments
  (# in python)
- Multiple line comments
  - start with *
  - end with *\

Classes and methods (Functions in python)
- start with {
- Every **statement** must end with ;
- End with }

Console Input and Output methods
- Console.Write()
  (print(input(" ")) in python)
  - To ask for user to type something
  - User can continue to type at the end of the line
- Console.WriteLine()
  (print(" ") in python)
  - For usual displaying lines in console
  - User would need to type on the next line
    (This would not look like a usual question)
- Console.ReadLine()
  - Reads the whole line of user input from directly above this command
  - Please remember to place a variable to store the data
- Console.ReadKey()
  - Reads a single character/key from the user input

Data Types
- int
  - int32
    - 32- bit **whole number**
      Used usually
  - int64
    - 64-bit whole number
      Not required unless u have a really big number
- short
  - 16-bit whole number
- byte
  - 8-bit whole number
- long
  - 64-bit whole number
- float
  - 32-bit numbers with decimals
- double
  - 64-bit numbers with decimals
- char
  - 16-bit character
- bool
  - true / false
- string
  - words / phrases / sentences

Operators

ArithmeticOprerators
- +
  - Add Numbers
  - a = "Hello"
    b = "world"
    c = a+b
    Console.WriteLine(c)
    Hello World
- -
  - subtract
- *
  - multiply
- /
  - divide
- %
  - gives remainder
- ++
  - +1
  - similar to +=
- --
  - Similar to -=

Relational Operators
- ==
  - check if both values are the same
- !=
  - check if both vales are **not** equal
- >
  - left value less than right value
- <
  - right value less than left value
- >=
  - greater or equal to
- <=
  - less than or equal to

Logical Operators
- && ("and" in python)
  - similar to and
- || ("or" in python)
  - or
- !
  - not

Control Structures
- If Else
  - if (a == b)
    {
    }
    else if (a == c)
    {
    }
    else
    {
    }
- switch case
  - int a = 1
    switch(a)
    {
    case 1:
    This is the ans
    case 2:
    case 3:
    }
- do while
- While loop
- for
- foreach
- try catch
  - similar to try except in python

variables

Rules for naming variables
- no reserved words
  - E.g. int , string , if , for , Main
- must begin with a letter
- can have letters / digits / underscore
- dont exceed 255 characters
- no blank spaces
- must be unique

datatype <space> variable name
- int x;
- int y = x*2
- string msg1 = "Prg 2"

const
- const string message = "You can't get rid of me!"
- when u put this, the value cannot be changed

Conversion
- ToString()
  - int a = 0
    a.ToString()
  - a.ToString("$#,##0.00")
- ToInt32()
  - string b = "123"
  - Convert.ToInt32(b)
- ToDouble()
  - string c = "123.456"
  - Convert.ToInt32(c)
    - Math.Round(Convert.ToInt32(c),2)
      To change it to 2 decimal places