Y11 -> Y12 Transition

Overview

- Installing Visual Studio
- Creating your first Visual Studio programs
- Newspaper article – Origins of programming languages
- Course book & possible reading list

- C# .Net framework

Installing visual studio

- You want to ensure you install the C# part of the visual studio for definite!

Programming

```
//If statements
string name;
Console.WriteLine("What is your name?");

name = Console.ReadLine();
if (name == "Bob")
{
    Console.WriteLine("Hi bob");
}
else
{
    Console.WriteLine("I'm not talking to you");
}
```

Read through and complete the exercises on the data types worksheet

- **Under age problem**
- Difficulty: 🛠
- Write a program that asks for your age. If you are over 18 it outputs the message, “Over 18”, otherwise it outputs, “Under age”.
- **Water temperature problem**
- Difficulty: 🛠
- Write a program that reads in the temperature of water in a container in Centigrade and displays a message stating whether the water is frozen (zero or below), boiling (100 or greater) or neither.

- **Vocational grade problem**
- Difficulty: 🛠
- Write a program that allows you to enter a test mark out of 100. The program outputs “FAIL” for a score less than 40, “PASS” for a score of 40 or more, “MERIT” for a score of 60 or more and “DISTINCTION” for a score of 80 or more.

- **Extended visual dice problem**
- Difficulty: 🛠
- For a six sided dice, write a program that asks for a number and outputs that number as a graphical dice. E.g.
-
- **ooooooooooo**
- **o o**
- **o # o**
- **o # o**
- **o # o**
- **o o**
- **ooooooooooo**
-

Computing
Y11/12 Transition work

There are many different high-level languages in the world today.

Create a newspaper article on one of these languages.

Your articles should cover the following areas:

- The platform for which your language was originally designed
- The origins of the language
- The main use of the language
- Some example code created in this language (annotated to show the reader how the code operates)
- Details of any special features the language has.
- Some indication of the popularity of the language
- How portable the software that is created using this language is
- The type of user interface that is used to control programs written in this language
- Any drawback with this language.

<u>Extension:</u>

1. Compare some of the more popular high-level languages that are used in school and colleges today. Your comparison should cover the following:
   - Ease of use
   - Versatility
   - Cost
2. What prompts the development of high level programming languages? Research into the origins of languages such as Java and Delphi and find out how they developed.

Reading list

- If any of you would like to do any further reading over the holidays for your own personal enjoyment then I have included a reading list on the next two slides
- It is worth checking online, libraries and online second hand book shops (i.e https://www.abebooks.co.uk/) for cheap versions

- The course book is **AQA AS and A Level Computer Science** P M Heathcoate (2016). I highly recommend you get yourself a copy – it will be invaluable over the next 2 years - I still have mine from my A levels!
- https://www.amazon.co.uk/AQA-AS-Level-Computer-Science/dp/1910523070

Reading List

- *Computational Fairy Tales* by Jeremy Kubica. ISBN: 978-1477550298 - a romp through the principles of computational thinking, illustrating high-level computer science concepts, the motivation behind them, and their application via the medium of a fairy tale. Aimed at secondary school students. "Bonkers, but very enjoyable."
- *Computer Science: An Overview* by J. Glenn Brookshear. ISBN: 978-0321544285 - overview of what computer science is all about: each topic is presented with its historical perspective, current state, and future potential, as well as ethical issues.
- *Code: The Hidden Language of Computer Hardware and Software* by Charles Petzold. ISBN: 978-0735611313 - "What do flashlights, the British invasion, black cats, and seesaws have to do with computers? ...see how ingenuity and our very human compulsion to communicate have driven the technological innovations of the past two centuries."
- *Out of Their Minds* by D Shasha and Cathy Lazere. ISBN: 978-3540979920 - the lives and discoveries of fifteen unsung computer scientists whose programs have helped people from factory owners to cartoonists.
- *The Pattern on the Stone: The Simple Ideas That Make Computers Work* by Daniel Hillis. ISBN: 978-0465025961 - explains the basic concepts of the computer in everyday language.

Reading List

- *The Information: A History, a Theory, a Flood* by James Gleick. ISBN: 978-0007225736 - a chronicle that shows how information has become "the modern era's defining quality - the blood, the fuel, the vital principle of our world."
- *The Pleasures of Counting* by Tom Kôrner. ISBN: 978-0521568234 - puts Maths into the context of how it is used to solve real-world problems.
- *The Code Book* by Simon Singh. ISBN: 978-1857028898 - not strictly about Computer Science, but an interesting introduction to code-breaking and cryptography, fields that have a strong connection to Computer Science.
- *The New Turing Omnibus* by A Kee Dewdney. ISBN: 978-0805071665 - mini articles on Computer Science topics.
- *Algorithmic Puzzles* by Anany Levitin and Maria Levitin. ISBN: 978-0199740444 - "...The emphasis lies in training the reader to think algorithmically and develop new puzzle-solving skills: the majority of puzzles are problems where we are asked to find the shortest distance or the fewest moves to get from A to B, or construct a proof that a puzzle has no solution ..."