INFS 1101 – Assignment 1

# **Instructions**

Write your answers in blue/green font color in this document. Once done, save and upload to the appropriate D2L dropbox folder. Don’t forget to include your name and student number in the header above.   
  
**Note: Any plagiarism detected will render the entire assignment grade as a zero.**

## **Task 1 – History of Computing**

## Put the following key points in computer history into the correct order by numbering them 1 to 12 with 1 being the earliest event and 12 being the most recent event. You may need to do some research to help you complete this task.

|  |  |
| --- | --- |
| **Event** | **Order in History** |
| Charles Babbage drew up the plans for The Difference Engine while still a student at Cambridge University. | 3 |
| Dr. Grace Hopper developed the programming language known as COBOL. | 7 |
| Alan Turing proved that a machine capable of processing a stream of 1s and 0s would be capable of solving any problem. | 6 |
| YouTube was founded. | 11 |
| Joseph-Marie Jacquard used punched cards to control his weaving looms. | 2 |
| Ada Lovelace wasthe first computer programmer and created programs for Babbage’s machines. | 4 |
| Pascal invented a calculator to help work out taxes. | 1 |
| Howard Aiken claimed that six electronic digital computers would be sufficient to satisfy the computing needs of the entire United States. | 5 |
| Apple announced the release of the iPad. | 12 |
| Tommy Flowers invented “Colossus”, the world's first electronic, digital, programmable computer. | 8 |
| Steve Jobs also dropped out of university at the age of 21, to start his company Apple. | 10 |
| Bill Gates sold a computer that he had built and programmed to Seattle to allow them to count their city traffic. | 9 |

## **Task 2 - History of Computing**

## In the below table, write **in your own words** what these people did to help the progress of computers.

|  |  |
| --- | --- |
| **Name** | **What did they do to help the progress of computers?** |
| Alan Turing | Foundational concepts for computer science (Computability, Turing Machine). |
| Bill Gates | Started Microsoft which specialized in distribution of Operating Systems and has become a major company till present. |
| Blaise Pascal | Made the first mechanical calculator machine. |
| Charles Babbage | Designed the first working concept of a computer prototype. |
| Howard Aiken | Made the Harvard Mark I, a revolutionary electromechanical computer. |
| Jack Kilby | Invented the Integrated Circuit, which is an important component of computers. |
| Ada Lovelace | Theoretically described programming languages for the Analytical Engine; is referred to as the first programmer. |
| Larry Page | Started a company called Backrub which later became to be known as Google; cofounder of Google. |
| Sergey Brin | Cofounded Backrub or Google with his colleague Larry Page. |
| Steve Jobs | Started Apple, which produced computers with GUI elements. Apple eventually became to be a leading producer of modern computers. |
| Grace Hopper | Invented the language COBOL; coined the term ‘debugging’. |
| Tommy Flowers | Invented the first electronic/digital computer, utilizing vacuum tubes which behaved like electronic switches. This idea was eventually made into the transistor. |

## **Task 3 - Architecture of Computers**

## Write your answers (in your own words - do not copy paste from any resource) neatly underneath each question in this document and save.

1. Find the main specification of your computer components, (at least CPU, RAM, Hard-Drive).

* Intel Core i5 9300H
* 8GB DDR4 2400MHz RAM
* 512GB M.2 SSD
* GTX 1650 GPU

1. Intel i3/i5/i7 are released in generations (latest one being the 11th). Choose two successive generations of the same processor and compare the differences (for example you could compare i4 4th generation and i5 5th generation).

Comparing i5 9th gen (i5-9300H) and i5 10th gen (i5-10300H), they both have 4 cores, 8 threads and use the same iGPU (Integrated GPU).   
However, the 10th gen processor has a higher clock speed (2.5GHz base) compared to the 9th gen processor (2.4GHz base); the 10th gen processor also supports DDR4 RAM with 3200 MHz Frequency, compared to 2666 MHz support by its predecessor.

1. What are the main characteristics of the ARM big.LITTLE architecture? Give a recent example of a processor that uses this architecture.

The main selling point of ARM big.LITTLE architecture is that it utilizes 2 cores that operate as a *virtual core*. The problem with previous CPU designs was that there was no balance between performance and power consumption. This architecture utilizes the *big* core for performance-demanding tasks and *LITTLE* core for simple tasks, in which case it is more optimal to reduce power consumption. This feature is called heterogenous multi-processing.

Example of processors that uses ARM big.LITTLE architecture are the Snapdragon Series, used in mobile phones today.