Interface Programming

CIS3149

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Table of Contents

[2 Introduction 3](#_Toc192511690)

[3 Task One 3](#_Toc192511691)

[3.1 Introduction 3](#_Toc192511692)

[3.2 Background Research 3](#_Toc192511693)

[3.3 Evaluation 3](#_Toc192511694)

[4 Task Two 3](#_Toc192511695)

[4.1 Introduction 3](#_Toc192511696)

[4.2 Background Research 3](#_Toc192511697)

[4.3 Evaluation 3](#_Toc192511698)

[5 Task Three 3](#_Toc192511699)

[5.1 Introduction 3](#_Toc192511700)

[5.2 Background Research 3](#_Toc192511701)

[5.3 Evaluation 3](#_Toc192511702)

[6 Task Four 4](#_Toc192511703)

[6.1 Introduction 4](#_Toc192511704)

[6.2 Background Research 4](#_Toc192511705)

[6.3 Evaluation 4](#_Toc192511706)

[7 Task Five 4](#_Toc192511707)

[7.1 Introduction 4](#_Toc192511708)

[7.2 Background Research 4](#_Toc192511709)

[7.3 Evaluation 4](#_Toc192511710)

[8 Conclusion 4](#_Toc192511711)

# Introduction

# Task One - *CHRONOLOGY OF HUMAN COMPUTER INTERACTION (HCI)*

## Introduction

The intention of this task is to outline how human computer interaction (HCI) have evolved throughout their lifespan. HCI is exactly what the name suggests, it is the method in which the user interacts with the computer. The methods of application within the HCI field have expanded tremendously over time as Shneiderman is put forth in Rodgers’ (2012). Carrol (2009) stating that HCI grew in popularity on conjunction with the emergence of personal computing towards the latter stages of the 1970’s.

## Timeline

HCI has improved massively since the inception of computers from the earlier form of calculator to computer-to-computer interaction as demonstrated in the more modern programming usable interface (PUI).

The first believed computer was the calculating clock built by Wilhelm Schickard in 1623 [REFERENCE <https://www.britannica.com/technology/Calculating-Clock>]. This calculator worked using 9 wooden slats comprising of numbers as well as 6 cylinders spanning the front of the machine with Napier’s logs laid over top [REFERENCE <http://ds-wordpress.haverford.edu/bitbybit/bit-by-bit-contents/chapter-one/1-6-shickards-calculating-clock/>]. Napier’s log is an early mathematical logarithm that focused on the idea of geometric progression [REFERENCE <https://www.open.edu/openlearn/science-maths-technology/mathematics-statistics/john-napier/content-section-5>], which upon application to this early form of calculator would provide reason for the given output.

In 1920, Thomas de Colmar progressed the calculator by inventing and producing the Arithmometer, which would become the first calculator to be mass produced, with production being maintained for 90 years [REFERENCE <https://www.britannica.com/technology/Arithmometer>].

The Jacquard loom punch card machine was a revolutionary step in computing as this machine allowed detailed patterns to be etched into fabrics and mass produced for the first time in history. The use of binary for this machine opened many doors for similar methods to be used and expanded upon going forward, which would become apparent when IBM released the IBM computer card in 1928. This improved punch card system would include 45 columns and 12 punch positions which would allow for much larger stores of data as well as the use in more complex tasks due to the ability to write lines of code [REFERENCE <https://www.ibm.com/history/punched-card>].

In 1945, Mauchly and Eckert created the ENIAC (Electronic Numerical Integrator and Computer). This revolutionary machine was the first general-purpose electronic computer [REFERENCE <https://www.seas.upenn.edu/about/history-heritage/eniac/>], taking up a 1,500 square foot room and consisted of over 70,000 resistors, 17,000 vacuum tubes, and 10,000 capacitors. The primary focus of this machine was to calculate artillery range tables however, the flexibility of the machine meant it was capable of being reprogramed for many other uses [REFERENCE <https://www.hp.com/ca-en/shop/offer.aspx?p=computer-history-all-about-the-eniac>].

Another machine that was developed during the second World War was the Enigma Machine. This infamous deciphering machine was integral to the war efforts against the Axis of Power as through the use of this machine, the British were able to decipher German communications in order to counteract any plans they were making on the war front. The Enigma machines settings gave 15 quadrillion possible solutions however by the end of the war “the British were reading 10 percent of all German Enigma communications” [REFERENCE <https://www.cia.gov/legacy/museum/artifact/enigma-machine/>].

In 1945, 30 years before the invention of the personal computer and 50 years before the advent of the world wide web [REFERENCE <https://lemelson.mit.edu/resources/vannevar-bush>], Vannevar Bush put forth the idea of a device in which “an individual stores all his books, records and communications which is mechanized so that it may be consulted with exceeding speed and flexibility” [REFERENCE <https://www.theatlantic.com/magazine/archive/1945/07/as-we-may-think/303881/>]. This machine which he coined the “Memex” would be a revolutionary method of supplementing one’s memory as they suddenly became able to store and retrieve data in a way that was never previously possible. Whilst the implementation of this method in the present is vastly different that the technology available at the time, the principle of the idea is vital to how the world operates on a day-to-day basis.

Time sharing was an idea put forth to allow multiple users to access a computer system without interrupting each other. This idea was put forth by John Backus in 1955, who theorised that the large computers could be used as several small ones [REFERENCE <https://www.ibm.com/history/time-sharing>]. This theory would be put into practice in the early 1960’s as IBM incorporated keyboards and individual terminals to allow many people to work without interruption [REFERENCE <http://jmc.stanford.edu/computing-science/timesharing.html>].

The first interactive computer graphics program “Sketchpad”, was designed but Ivan Sutherland in the early 1960’s. This program allowed users to “visualise and control program functions” which would become a foundation of computer graphics and operating system interfaces [REFERENCE <https://www.britannica.com/technology/Sketchpad>].

## Evaluation

# Task Two

## Introduction

## Background Research

## Evaluation

# Task Three

## Introduction

## Background Research

## Evaluation

# Task Four

## Introduction

## Background Research

## Evaluation

# Task Five

## Introduction

## Background Research

## Evaluation

# Conclusion

# References

<https://www.interaction-design.org/literature/topics/human-computer-interaction?srsltid=AfmBOopeE9jtiMMEQQHCqdMDCzpEqwcrD6Ldtvmn0oyPlMCzY4qNh6Pm> {NOT IMPLEMENTED, FIND A QUOTE TO USE FOR HCI DEFINITION}.

<https://ieeexplore.ieee.org/xpl/ebooks/bookPdfWithBanner.jsp?fileName=6812917.pdf&bkn=6812916&pdfType=book>

CARROLL, J., 2009. Human Computer Interaction (HCI) [online]. Available from: <https://snoopedu.com/app/uploads/2022/03/Reading1_HCI.pdf> [Accessed 10/03/2025].