Unit 6: Networks

1. Internet communication theory

Learning objectives

1.2.3 Internet principles of operation

- show understanding of the role of the browser
- show understanding of the role of an Internet Service Provider (ISP)
- show understanding of what is meant by hypertext transfer protocol (http and https) and HTML
- distinguish between HTML structure and presentation
- show understanding of the concepts of MAC address, Internet Protocol (IP) address, Uniform Resource Locator (URL) and cookies

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Exercises

Further practice & resources

2. Data transmission methods

Learning objectives

1.2.1 Data transmission

- show understanding of what is meant by transmission of data
- distinguish between serial and parallel data transmission
- distinguish between simplex, duplex and half-duplex data transmission
- show understanding of the reasons for choosing serial or parallel data transmission
- ~~show understanding of the need to check for errors~~
- ~~explain how parity bits are used for error detection~~
- show understanding of the use of serial and parallel data transmission, in Universal Serial Bus (USB) and Integrated Circuit (IC)

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3. Error detection & connection methods

Learning objectives

- 1.2.1 - show understanding of the need to check for errors
- 1.2.1 - explain how parity bits are used for error detection
- 1.1.3 - identify and describe methods of error detection and correction, such as parity checks, check digits, checksums and Automatic Repeat reQuests (ARQ)

Introduction

Read: Sections 2.3 of iGCSE Computer Science by Watson & Williams

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Parity checks - http://ictsmart.tripod.com/ict4/online/artvvpa.htm

A parity bit, or check bit, is a bit added to a string of binary code. Parity bits are used as the simplest form of error detecting code. Parity bits are generally applied to the smallest units of a communication protocol, typically 8-bit octets (bytes), although they can also be applied separately to an entire message string of bits.

The parity bit ensures that the total number of 1-bits in the string is even or odd.[1] Accordingly, there are two variants of parity bits: even parity bit and odd parity bit.
https://en.wikipedia.org/wiki/Parity_bit

4, 5, 6. Programming exercise

Learning objectives

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7. Quiz