IT TERM GLOSSARY

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32-bit – a processor with registers this big will process 64-bit numbers in two stages, twice as slow as a 64-bit register processor, and can handle less addresses to send to, send less data over the data bus..... 3

Access Modifier – public (+) private (-) protected (#)..... 3

Backup – A copy made of data, in case the original data is lost. Usually stored externally from the original data (if back up of file made on the same machine of the file, and that machine is destroyed, the original and they backup will be lost. 3

Cache memory – A type of memory situated between the CPU and motherboard (i.e. RAM) used to store data likely to 4

Data dependency – Used in normalization, when one field is dependent on another field. Partial (depends on a field that is part of the primary key) and transitive (depends on a field that is not part of the primary key) dependencies. 5

EEPROM – Electronically Erasable Programmable ROM. Firmware that can be flashed (changed). 6

Fat Client – Used in distributed processing, each workstation uses its own resources to process (resources = processor, RAM). You do not need a fast network. 6

Global Unique Identifiers – Embedded in most computer hardware and some computer software. Because it was embedded, it improved security, as it removed the anonymity protection of malicious users (cannot be removed from the hardware). It can be used by – Marketers to track user's online habits (like cookies) – Major software companies, as they can retain GUID information about Internet users. 7

Hardware Interrupt – An interrupt (signal sent by device to CPU to get attention/information), ... 7

Information Hiding – The inner workings of a class being hidden from the class user. Allows for updating of the class, and prevents user's handling complex code. You will need to use private fields and methods in the class, and provide constructors, accessors, mutators and toString methods. 7

Jpeg – A type of image file, uses lossy compression. 8

Keylogger – A form of malware, that tracks your keystrokes and can get information from this. 8

LBS (Location Based Services) – Software applications that need to know the location of a mobile device, to provide useful information relating to the user's location. This information can be found using a push-based (initiated by arrival at a certain location) or pull-based (initiated by user) query. A LBS needs the following info: - Service provider's software application. – Mobile network to transmit data. – Content provider to provide end user with specific information. – A positioning component (GPS) and the end user's mobile device. – Permission from the user! 8

MAC Address – The unique address of a node in a network. Networking devices use this in their intelligent decisions. 8

Netiquette – Online etiquette, online manners, email/respecting bandwidth etc. 9

Object – An INSTANTIATION of a class (see definition of class as well). 9

Parameters – Found in method calls and method headers. Method resolution matches method calls to method headers, match in type, number, and order. Formal parameters = method headers, actual parameters/arguments = method call, implicit parameter = object the method is called on. 9

RAD – Rapid Application Development. A software development methodology that uses minimal planning in favor of rapid prototyping. 4 phases: Requirements Planning phase, User Design phrase, Construction phrase, Cutover phase. Advantages: Reduced development time, reusability of components, encourages customer feedback. Disadvantages: Planning can be poor if not done properly, prototypes may be used in final solution to speed up process, really good programmers are needed. 10

SAAS – Software as a Service. In this cloud computing service model, the provider supplies the software product and the hardware infrastructure → The service provider supplies the application and the data. E.g. Web-based email or database processing. 11

TCP/IP – Transfer Control Protocol/Internet Protocol. This is the communication protocol for the Internet. TCP/IP defines how data should be formatted, addressed, transmitted, routed and received. TCP = connection-oriented protocol, more reliable, slower. UDP = connectionless protocol, less reliable, faster. 12

UML – Unified Modelling Language. A visual display of the design of a software system/solution. Includes class diagrams, inheritance and instantiation (for now). 12

Virtual machine – A software implementation of a machine, that executes programs like a physical machine. Used in Server Virtualisation, in the overall process of Virtualisation (the process of creating logical computing resources from available physical resources). 13

WAP – Wireless Access Point. A fixed-position wireless transceiver (transmitter/receiver) that broadcasts a signal within an area, called a microcell. These WAP's provide wireless access to a wired Ethernet network. Uses in Wireless Mesh Networks (WMNs), connecting to each other and to user's using the WMN. 13

Zombies – A PC that makes up part of a Botnet/Zombie Army. It is a computer that has the virus that the Botnet has, an 'infected' computer. 14

1	**32-bit** – a processor with registers this big will process 64-bit numbers in two stages, twice as slow as a 64-bit register processor, and can handle less addresses to send to, send less data over the data bus
2	**3G** – The 3rd generation of cellphone data access technology. Enables internet access
3	**4G (LTE)** – The 4th generation of cellphone data access technology. Enables ultra-broadband Internet access.
4	**64-bit** – A processor with registers this big will process 64-bit numbers in one stage, an address bus this big can send to more locations and more data can be sent over a data bus with this size
5	**Access Modifier** – public (+) private (-) protected (#)
6	**Accessor** – Typed Accessor Getter (TAG)
7	**Activation codes** – Used in software licensing. Know open source, proprietary, freeware vs shareware etc.
8	**Adobe Flash** – Know about RIA's and plugins.
9	**Adobe Reader** – As this is machine independent, this guarantees the sender will see it, read only, it is free to download the reader.
10	**ADSL** – Asynchronous Internet access, faster downloading than uploading.
11	**Adware** – Malware in terms of adverts, comes through the browser/phone apps, e.g pop ups, it is unsolicited (never asked for it).
12	**Android** – An open source operating system. An example of FOSS (Free and Open Source Software).
13	**Anomalies** – Insert, delete, and update anomalies in normalization in databases. Know definitions of them from book.
14	**Anti-virus software** – Defends your PC against malware (used with a firewall, firewall is NOT anti-virus software, firewall prevents other people getting in).
15	**API** – Application Programming Interface, gives details about classes and methods in those classes.
16	**Applications** – Sits above the OS in the onion model of System Software.
17	**Archive** – This utility involves compression and generally moving the data to another location once compressed.
18	**Artificial Intelligence** – Software designed to emulate human thought, related to the Turing test (which tests to see if an entity is intelligent).
19	**Assembler** – The software/program that turns code into a low level language like machine code (assembly language). Interpreters turns high level language into low level language line by line, so code will always run, up until the error, unlike compliers, which won't run if there is a syntax error.
20	**Asymmetric Encryption** – The key to encrypt plaintext into cipher text is not the same as the key to decrypt that cipher text back into plaintext.
21	**Attenuation** – A problem associated with copper cables, signal degrades over distance, a repeater fixes this problem by boosting signal. Linked to crosstalk, EMI, eavesdropping.
22	**Attribute** – A variable/field/property in a class.
23	**Audio and Video on Demand (AVOD)** – TV on demand, can either be streaming or download and match, e.g. DSTV Catchup/Box-office
24	**AUP** – Acceptable User Policy, example on page 131 in Gr 11 book. Defines the rules in which a user of a certain computer service must use that service.
25	**Backup** – A copy made of data, in case the original data is lost. Usually stored externally from the original data (if back up of file made on the same machine of the file, and that machine is destroyed, the original and they backup will be lost.
26	**Bandwidth** – The maximum carrying capacity of a channel (wired or wireless), measured in a rate of data per second.
27	**Biometrics** – Using unique biological characteristics to identify a human.

28	**BIOS** – Firmware (=software that does not change on a chip). Stored on ROM memory, runs the POST software, gets the data to run the POST software from the CMOS memory (e.g. user/personal settings)
29	**BitTorrent** – Seed (you are not downloading from one place), bottleneck at server can occur so someone (the seed) downloads the complete file, and then people download from the seed instead of the server.
30	**Blog** – Online journal/diary (comes from weblog).
31	**Bluetooth** – Low range (small area), low frequency wireless technology for connecting in a PAN (Personal Area Network).
32	**Botnets** – Also known as a zombie army, it uses a big network of computers to siphon a lot of information from people, or uses all the computers to forward instructions (including spam or viruses) to other PC's on the Internet, without the owner knowing it. Also used in DDOS attacks.
33	**Buffer** – A temporary storage area in memory to speed up slow IO devices, used in plug and play and IRQ numbers. Is also called an IO range.
34	**Bus** – A digital pathway to carry data, found on motherboard, connects components together.
35	**Cache memory** – A type of memory situated between the CPU and motherboard (i.e. RAM) used to store data likely to be used next by CPU, to speed up processing by increasing speed of slower RAM giving data to CPU. Can be L1 (built into internal circuitry of CPU), L2 (on CPU, but not in internal circuitry) or L3 (on motherboard, closer to CPU than RAM) cache. Cache can be shared my multiple CPU's (L1 and L2 for separate cores, shared L3 for all).
36	**Caching** – Storing data that is likely to be used next by a component/program. CPU cache = stories blocks of program instructions and data that have been pre-fetched from RAM, in the hope that these instructions or data will be needed next by the CPU. Disc cache = improves the time taken for the CPU/RAM to read from the hard disk. Browser cache = for one user in their browser, stores recently downloaded web pages temporarily, so it is faster to download it again. Web cache = on the server of an organization (multiple users), shared storage of previously/frequently downloaded Web pages, files etc. If users try to access that page/file, they will receive it from the organization's server, not the remote server.
37	**Cap** – The maximum data that you can download in a certain time, given to you by your ISP, uncapped = limitless data can be downloaded in that certain time.
38	**Centralised processing** – A single server with a powerful processor and large amount of RAM that performs all the processing for the workstations (clients) on the network. These workstations are known as dumb clients. They have low resources, slow or limited processing power, limited RAM. All processing requests are sent to the server from the clients. Server processes and sends a reply back to the client. A very fast network is necessary, high speed + lots of bandwidth.
39	**Check digit** – A known calculation of the other digits, into one digit, used to detect human errors made on human entry. Checksum = an added total used to verify a block of data/list of numbers e.g. sum of set bits (1's) in the data. Parity = one bit added to every data unit transmitted. Even parity → if 1's are even, parity bit = 0, if 1's are odd, parity bit = 1. Verifies data transmission.
40	**Chipset** - A set of components on a motherboard.
41	**Class** – A blueprint for an object, defines how the object created from it will work. Combines fields and methods into one unit, known as encapsulation.
42	**Client-server** – A central server which authenticates all the users on the network and provides all the services e.g. Print servers, email servers, domains servers (authentication of users and will allocate resources to the users).

43	**Cloud Computing** – A general term for the providing of hosted services over the Internet. The user does not own the software/infrastructure/platform. A cloud service is – sold on demand, typically by the minute or by the hour – is flexible (a use can have as much or as little of the service as they want at any time) – is fully managed by the provider with the user needing nothing other than a personal computer and Internet access. It can be private (supplies hosted services to a limited number of people) or public (sells services to anyone on the Internet).
44	**CMOS** – The memory that stores the data settings/configuration data for a computer. The RTC stores the data and time settings. The BIOS programs read this data (CMOS) and data and time (RTC) settings.
45	**Compiler** – Converts code into an executable form, and then runs that executable form. This runs faster than the code, and doesn't have to be complied every time, making it faster in the long term. A syntax error → the code will not compile and will not run. Machine Code Generation = executable file is machine dependent e.g Delphi (.exe) only works on Windows. Intermediate Representations = executable file is machine independent e.g. Java (.class) works on any machine with Java installed.
46	**Composite keys** – The combination of several fields to create a primary key.
47	**Compression** – Lossy (lose detail of original image) and lossless (files, no data lost).
48	**Constructor** – A method that assigns values to field of a class and creates an object of that class.
49	**Control unit** – The CU, part of the CPU (Central Processing Unit). Stores the instructions that the CPU must carry out with the data in the registers and the calculation tools in the Arithmetic Login Unit (ALU).
50	**Convergence** – When many machines are merged/combined into one e.g. cell phones, as they have many different functions previously split up into separate machines.
51	**Cookie** – A text file stored by your browser to report/keep track of your browsing history/interactions.
52	**Copyright** – Restricting copying of information.
53	**Cybercrimes** – Online crimes, they are on the rise.
54	**Data dependency** – Used in normalization, when one field is dependent on another field. Partial (depends on a field that is part of the primary key) and transitive (depends on a field that is not part of the primary key) dependencies.
55	**Data Integrity** – The opposite of data corruption, data stored is as it should be, is not corrupt. Data integrity aims to prevent unintentional changes to information.
56	**Data mining** – Related to big data, getting meaning out of large data by examining patterns in the big data.
57	**Data redundancy** – Seen in normalization, a product of 1NF (getting rid of repeating groups).
58	**Data structure** – Primary data structures = arrays, objects, arrays of objects, parallel arrays. Secondary data structures = text files and databases.
59	**Data validation** – Checking of data before processing to ensure that it is acceptable/valid for processing, or not.
60	**Data verification** – Checking data was inputted, transmitted or copied correctly e.g. passwords typed twice.
61	**Data warehousing** – The storing of big data, requires a lot of storage space.
62	**Database management system (DBMS)** – A set of programs used to create the database, control the database and (in particular) provide access to the database, and also manage the data in the database.
63	**DDR Memory** – Double Data rate. Data is transferred twice per clock tick.
64	**Denial of service attack** – Encrypting someone's files or taking down websites with millions of request, stopping people from getting to services they need.
65	**Derived data** – Used in SQL, when one field is derived/calculated from another field.

66	**Device Driver** – The interface that allows communication between devices and the computer.
67	**DHCP** - Dynamic Host Configuration Protocol (DHCP) is a client/server protocol that automatically provides an Internet Protocol (IP) host with its IP address and other related configuration information.
68	**Digital certificate** – A digital file used to cryptographically bind an entity's Public Key to specific attributes relating to its identity. This binds a Public Key to information about its owner. It also has personal/corporate information to identify the Certificate holder + expiry date of Certificate.
69	**Digital Divide** – Those who have access to technology/Internet and those that don't.
70	**Digital signature** – Vouches for the origin and integrity of a message, document or another data file. Sensitive data → hashed (publicly known mathematical hashing function coverts the data into a long number = the hash) → encrypted with the SENDER's private key → becomes the encrypted hash, and this encrypted hash = the digital signature. DESTINATION → sent the message + digital signature (encrypted hash) + SENDER's private key (signing key) → DESTINATION user decrypts the encrypted hash using the signing key, if the message sent = the digital signature (encrypted hash) → verification of D.S succeeds. If not, verification of D.S fails.
71	**Distributed database** – Replicating the same database in various places, used to increase SPEED and reliability, as one database processing all queries and updates can be a bottleneck.
72	**Distributed processing** – You don't rely heavily on server, network doesn't have to be fast, computers have specs necessary to do majority of processing.
73	**DNS (Domain Name Service/ Server)** – Links your IP address to the name of the website e.g. google.co.za is domain name, it has an IP address that is given to it by the DNS.
74	**DRAM** – Dynamic RAM (Random Access Memory). Has to be refreshed many times per second due to it containing capacitors which lose their charge. Volatile memory.
75	**Duplicate data** – Correct data that is repeated in a database, it is supposed to be there.
76	**EEPROM** – Electronically Erasable Programmable ROM. Firmware that can be flashed (changed).
77	**Embedded Operating System** – OS embedded in a device on a chip e.g. washing machine.
78	**EMI** – Electro-Magnetic Interference. Found in copper cables. From machines (e.g. transformers).
79	**Emulation** – Making one thing behave as something else through software.
80	**Encapsulation** – Combining the fields and methods into one unit, in classes.
81	**Encryption** - The process of encoding messages or information in such a way that only authorized parties (with the appropriate keywords/keys/passwords) can read it. Encryption does not of itself prevent interception, but denies the message content to the interceptor. Ciphertext = encrypted message (encrypted plaintext), has to be decrypted before it can be read.
82	**Ergonomics** – The science of the design of devices (equipment, furniture and environment) to ensure the safe use by humans, based on human specifications/capabilities.
83	**Ethernet** – The general term for the network system (with topology, media access method, cables and speed).
84	**Extranet** – Internet is WWW, Internets are in a company but not available outside, Extranet is available in company AND beyond.
85	**Fat Client** – Used in distributed processing, each workstation uses its own resources to process (resources = processor, RAM). You do not need a fast network.
86	**Firewall** – A set of related programs that protects the resources of a private network from users on other networks (protects networks from intentional hostile intrusion). Works with the router programs, examines each network packet for malicious content. Sits between networks (junction point/gateway), must have two interfaces, one for each network.
87	**Firmware** – Permanent software programmed into a read-only memory. The only way to change certain types of firmware is to electronically flash it. Also typically known as an embedded instruction set to control the operation of logical hardware found in monitoring and/or control systems. E.g. Programs on ROM, like BIOS.

88	**Flaming** – When you are inappropriate on emails, being derogatory, deliberately going after someone maliciously out of anger.
89	**Flash memory** – Stored electronically. Uses transistor that stays switched on/off, even when power is off → non-volatile memory.
90	**Foreign keys** – A primary key of another table in this table.
91	**Front Side Bus** – System Bus/Internal Bus, moving Northbridge into CPU eliminates the FSB.
92	**FTP (File Transfer Protocol)** – Used to transfer files over the Internet. Updated = WebDav.
93	**Global Unique Identifiers** – Embedded in most computer hardware and some computer software. Because it was embedded, it improved security, as it removed the anonymity protection of malicious users (cannot be removed from the hardware). It can be used by – Marketers to track user's online habits (like cookies) – Major software companies, as they can retain GUID information about Internet users.
94	**GPS (Global Positioning System)** – A location based service, uses satellite triangulation to give time and position/location information.
95	**GPU** – The processor on a graphics card, does rendering (processing on a graphics card).
96	**GSM** – Global Standard for Mobile Communications. The first international standard for cellular communications for many countries.
97	**Hardware Interrupt** – An interrupt (signal sent by device to CPU to get attention/information), sent by hardware devices. When a device needs something, it sends a hardware interrupt → an IVT (Interrupt Vector Table) stores the devices' IRQ (Interrupt Request Number) and the address of the interrupt handler program for that IRG, so the IVT matches the interrupt to an IRQ → the CPU transfers control of the interrupt to the interrupt handler program for that IRQ.
98	**HDMI** – A port for transferring video and audio in high definition.
99	**Hoaxes** – Fake scams/schemes/stories, which often take advantage of people using human emotions and gullibility.
100	**Hot-pluggable/Hot- swappable** – Plug and play enabled AND you don't have to switch the PC off/restart the PC afterwards.
101	**Hotspot** – Provided by a wireless access point (WAP) to provide Internet access in a public area.
102	**HSDPA** – High-Speed Downlink Packet Access. Used for downloading data on mobile phones.
103	**HTML** – Hypertext Markup Language, the language used by browser in webpage interpretation.
104	**HTTP** – Hypertext Transfer Protocol. Used for transferring web pages + content over the Internet.
105	**HTTPS** – HyperText Transfer Protocol over Secure Socket Layer (SSL certificate, CA). Safer/more secure version of HTTP.
106	**Hyperthreading** – Duplicate sets of registers (execution sets) on a CPU, creates more logical processors on one physical processor. Data doesn't have to be switched in and out of registers, CPU just shifts its focus to different logical processors.
107	**Hypervisor** – A program that allows multiple OS's to share a single hardware host. Used in Server Virtualisation. A PC on which a hypervisor is running one or more virtual machines = a host machine. A Windows term for a VMM.
108	**Information Hiding** – The inner workings of a class being hidden from the class user. Allows for updating of the class, and prevents user's handling complex code. You will need to use private fields and methods in the class, and provide constructors, accessors, mutators and toString methods.
109	**Inheritance** – An inherited class is extended from a superclass, and this inherited class (subclass) inherits the methods and fields of the superclass, meaning it can use these methods and fields, AND we can add on more fields and methods into the subclass.

110	**Interpreters** – Interpreters read each line of code, convert that line of code into machine code, runs that line of code, goes to next line, and so on. The code will run, even with syntax errors, up until the syntax error. However, this can be a slower process, as code must be re-interpreted every time the code is run, which takes long.
111	**Interrupt** – A signal sent to the CPU from hardware or software, indicating the need for the CPU's attention.
112	**Intranet** – Shared content on a network which is only accessible by members within a single organization, who have access rights to the network.
113	**IP address** – The address of a node (not necessarily unique) on a TCP/IP network e.g. the Internet.
114	**IrDA** –Infrared Data Association. Infrared light = slow, line of sight.
115	**ISP** – Internet Service Provider. Provides technology for regulated access to the Internet.
116	**Jpeg** – A type of image file, uses lossy compression.
117	**Keylogger** – A form of malware, that tracks your keystrokes and can get information from this.
118	**LBS (Location Based Services)** – Software applications that need to know the location of a mobile device, to provide useful information relating to the user's location. This information can be found using a push-based (initiated by arrival at a certain location) or pull-based (initiated by user) query. A LBS needs the following info: - Service provider's software application. – Mobile network to transmit data. – Content provider to provide end user with specific information. – A positioning component (GPS) and the end user's mobile device. – Permission from the user!
119	**Linux** – An open source computer OS. Free and fast.
120	**MAC Address** – The unique address of a node in a network. Networking devices use this in their intelligent decisions.
121	**Machine Cycle** – The function of the CPU. Fetch, decode, execute, store. FETCH a program instruction from memory (RAM or cache) happens every cycle DECODE (understand) the instruction (using CPU's instruction set) happens every cycle EXECUTE the instruction, using data, if necessary not every cycle STORE the result obtained in memory or send it to output device not every cycle
122	**Malware** – Malicious software. The superfamily of viruses, worms, spyware, Trojan horses etc.
123	**Methods/behaviours** – The actions that can be applied to the fields of a class. E.g. in the Dog class, the method bark plays the sound file of the bark.
124	**Microblog** – An online journal, 140 characters e.g. Twitter
125	**Microwave transmission** – Transmission of data using microwaves. Can be between satellites, can be fast, antennae, both ground based (flat land) or one on satellite one on earth, line of sight, may have to be encrypted.
126	**Modular design** – When a computer is designed so that the components of the computer are not fixed, they can be switched out, replaced, as long as they are compatible. Advantages = upgrading simplified, customization extensive, repairing efficient and not expensive.
127	**MPEG** – Moving Picture Experts Group. A family of digital video compression standards and file formats developed by the group. The standard for coding of video files and their associated audio files. Lossy video compression and lossy audio data compression.
128	**Multi Core** – A computer with more more than one CPU. **A core = a CPU.**
129	**Multi-processing** – More than one physical processor/core/CPU in a PC. True multi-tasking.
130	**Multi-tasking** – If there is only one processor: the CPU switches between programs quickly, giving each one very short bursts of processing time (can use process scheduling). What is in the registers is saved, switched out, some processing done, and then switched back in. The CPU appears to be doing multiple processes simultaneously, but it is actually not. If there are multiple cores = simultaneous processing occurs. The OS must be able to handle this.

131	**Multi-threading** – One application with multiple threads e.g. downloading music and playing video game while listening to YouTube video, if OS is well designed, can give each thread own core, increase speed.
132	**Mutator** – Void Mutator Setter (VMS).
133	**Netiquette** – Online etiquette, online manners, email/respecting bandwidth etc.
134	**Normalisation** – 1NF = no repeating groups and chooses a primary key, 2NF = 1NF and no partial dependencies, 3NF = 2NF and no transitive dependencies.
135	**Northbridge** – Part of the Northbridge Southbridge chipset. Memory Controller Hub. Has all the components with faster processing needs connected to it. Hardcore processing and memory. e.g. CPU, RAM, Graphics and Southbridge.
136	**Object** – An INSTANTIATION of a class (see definition of class as well).
137	**OOP design** – The practice of solving programming problems by breaking up a big problem into objects, utilizing class's and even information hiding.
138	**Overclocking** – Increase speed of the system bus and this will increase ALL speeds of everything. Bad = run components over specifications, can overheat, water + air + heat sync computers. Each component can change its own clock multiplication factor; the components can handle doing this (to their design). Overlocking essentially = The practice of making computer components operate beyond their stock performance levels by manipulating the frequencies at which the component is set to run.
139	**Overloading** – Methods with the same class and same method name, but different parameters e.g. System.out.println(various parameters)
140	**Overriding (Not for 2014)** – Methods with the same name and same parameters, but in inherited classes. Used in dynamic binding and polymorphism.
141	**Parameters** – Found in method calls and method headers. Method resolution matches method calls to method headers, match in type, number, and order. Formal parameters = method headers, actual parameters/arguments = method call, implicit parameter = object the method is called on.
142	**Peer-to-peer network** – No central server. Each workstation on the network is considered equal. The services will be spread between the workstations e.g. one workstation connected to printer, one workstation does authentication.
143	**Peripheral** – Any device connected to the computer that is NOT on the motherboard e.g. hard drive. COMPONENT = on motherboard.
144	**Pharming** – When your BROWSER is hacked and this redirects you to other websites, normally a spoofed website, **your browser is jacked.**
145	**Phishing** – EMAILS sent to you with a fake story, with a link to a spoofed webpage. Used to gain sensitive/private information without the user realizing they are giving it away.
146	**Plug and Play** – Installing devices onto a computer. The PC switches on → picks up the new device attached to it → sees if it is installed. If it is not → gives that device an IRQ and a separate I/O range / buffer in memory (DMA, Direct Memory Access) → installs device driver → restart PC.
147	**Plug-ins** – Add additional features to your browser. You have to install it, but it is not necessarily a standalone application.
148	**Podcast** – Voice or video, a file that is a recording of an event that happened live.
149	**Polymorphism** – When an object has the ability to behave like different objects due to its constructor, uses inheritance hierarchy.
150	**POP3 (Post Office Protocol 3)** – Downloads emails. IMAP is the upgraded version, as POP3 deletes emails off server once downloaded to mailbox, IMAP doesn't. POP3 and IMAP for receiving emails, STP for sending emails.
151	**Portal** – A website which contains hyperlinks to similar/useful websites.
152	**POST** – Power On Self-Test. Found on the ROM chip, BIOS runs it, gets info from CMOS.
153	**Primary key** – The field/shortest combination of fields that uniquely identify a record.

154	**Process** – Anything that can be run by the processor. A processor is either suspended (waiting to be processed does not have data it needs), ready (waiting to be processed, has the data it needs) or running (being processed by the CPU, with the CPU using the data it has).
155	**Protocol** – A set of rules which enable the connection, the communication and the data transfer between two nodes on a network.
156	**Proxy server** – A server in an organization that caches webpages. Prevents unnecessary bandwidth being used by all computers in a network, as the web page will be downloaded from the local server instead of the outside server. It can have rules to restrict access and caching.
157	**RAD** – Rapid Application Development. A software development methodology that uses minimal planning in favor of rapid prototyping. 4 phases: Requirements Planning phase, User Design phrase, Construction phrase, Cutover phase. Advantages: Reduced development time, reusability of components, encourages customer feedback. Disadvantages: Planning can be poor if not done properly, prototypes may be used in final solution to speed up process, really good programmers are needed.
158	**RAID** – Redundant Array of Inexpensive Disks. NOT BACKUP! Level 1 = mirroring, data stored on the two disks simultaneously. Level 5 = disk striping with parity (recover data), minimum of 3 disks.
159	**Range check** – Part of data validation (checking of data before processing to ensure that it is acceptable), ensures that the value lies between certain values (e.g. 5 < x <= 9).
160	**Registers** – Very small storage locations on the CPU. Can be split up on a core to make multiple logical processors (on one physical processor).
161	**Remote Access** – Allows access your home PC from anywhere, take control of another machine. Remote login uses desktop sharing software to give you a "remote control" for accessing your computer and its software and hard drive files from any LAN/Internet-connected device anywhere in the world. Host and remote users need: - Software downloaded on both PC's – Internet/LAN connection – Secure desktop sharing network (usually data is encrypted).
162	**Repeater** – Connects network segments over long distances because the signal strength weakens (attenuates) over distance and must be boosted. Strengthens all signals and sends them on, without looking at the destination, therefore, it is NOT INTELLIGENT.
163	**RFID** – Radio Frequency Identification, uses radio (wireless) signals to transfer data from the tag it is attached to. Used in long-range (battery + EMR) or short-range (magnetic fields, no battery) technology.
164	**RIA (Rich Internet Applications)** – A web application designed to offer the user the features and functions normally provided with desktop applications. Normally runs inside web browser, does not always (mostly never) requires software installation on the PC to work. For security, most RIA's run their program in a sandbox (isolated area of the client's computer desktop), this limits visibility and access to the file, making it safer. This makes the user's computer more secure while using online applications.
165	**ROM** – Read Only Memory. A memory chip that permanently stores instructions and data, can't be changed, accessed when the PC is turned on. Contains firmware, e.g. BIOS programs. Uses a transistor that stays switched on/off, even when the power is off.
166	**Rootkit** – A collection of malicious administrative software, activates when a computer boots up, before the OS has taken full control of the system. A form of malware.
167	**Router** – A sophisticated device usually used to connect different networks that use the SAME protocols (e.g. TCP/IP). Boosts signals and uses node's IP address to determine the best path possible for the data packets to travel (via a dynamic routing table). Therefore, it is INTELLIGENT.

168	**RSI** – Repetitive Strain Injury. Injury to the musculoskeletal and nervous systems that may be caused by repetitive tasks, forceful exertions, vibrations, mechanical compression, or sustained or awkward positions. Basically, injuries obtained by repetitive movements (e.g. typing).
169	**SAAS** – Software as a Service. In this cloud computing service model, the provider supplies the software product and the hardware infrastructure → The service provider supplies the application and the data. E.g. Web-based email or database processing.
170	**Semantic Search Engine** – Understanding the searcher's intent and context to generate more relevant/accurate results.
171	**SEO (Search Engine Optimisation)** – Maximizing the number of visitors to a certain page by making it appear high on the list or results retuned by a search engine.
172	**Server Virtualisation** – A PC on which a hypervisor (Virtual Machine Manager, VMM, a program that allows multiple OS's to share a single hardware host) is running one or more virtual machines = the host machine. Every virtual machine on the host machine = a guest machine. Advantages = multiple OS enviroments can co-exist on the same PC, in strong isolation from each other. Disadvantages = less efficient than a real machine, VM's may exhibit weird performance.
173	**Siphoning** – (in S.E.O) a technique used to "steal" traffic that would normally be directed to another website in search engine results. Can also be bandwidth siphoning, which is putting something on out web page that requires to be downloaded from another website every time your page is sued, using up the other websites bandwidth.
174	**SMTP (Simple Mail Transfer Protocol)** – Delivers emails between servers. Used for SENDING emails over the Internet.
175	**Social Engineering** – Psychological manipulation of people, to get private info, money or other things that aren't theirs. E.g. Shoulder Surfing, Dumpster Diving, Role Playing, Phishing, Trojan Horses, Surfing Organization Websites and Online Forums, Reverse Social Engineering (convincing the victim they have a problem, and saying they will help fix it), and Social Media. Protect yourself from this by [personally knowing people you work with online, and not giving away any private/sensitive info online.
176	**Software Interrupt** – A signal sent to the CPU from software, indicating the need for the CPU's attention. Generated from programs (usually errors).
177	**Southbridge** - Part of the Northbridge Southbridge chipset. Input/Output Controller Hub / Platform Controller Hub (new). Has all the components with slower processing needs connected to it. I/O control and on-board devices. e.g. USB, on-board stuff, CMOS, BIOS, RTC, parallel + serial ATA ports, etc.
178	**Spiral model** – Very close to the incremental model. Spiral model would mean you code a component and come back to update/revisit that component in the future.
179	**Spoofing** – Pretending to be an official entity online, to obtain sensitive/private information from the unknowing user. Web spoofing = creating a web page with a similar website name to the official website, with a page that looks the same, to try and trick people to think that it is the official website and give away sensitive information. Email spoofing = the address and header of the email attempts to mimic the address and header of an official entity.
180	**Spyware** – Malware installed onto a computer, which illegally tracks actions of the user on the computer e.g. Key loggers (tracking the keys you push), programs that take control of your webcam and record footage of you by using the webcam.
181	**SRAM** – Static RAM. Uses a transistor that stays switched on/off, even when the power is off. Faster than DRAM, and has no capacitors. Cache memory/flash memory uses SRAM.??

182	**SSL** – Secure Sockets Layer. A commonly used protocol for managing security when transmitting data on the Internet (upgraded to TSL now). 1 – Customer makes connection to website on an SSL port (usually 443). 2 – The website sends their public key to the customer, customer checks that it is not expired, for that website only and that that public key is installed in their browser certificate store. 3 – If the above conditions are met, the customer trusts the website, and send their public key to the website. 4 – The website creates a unique has, encrypts it with the customer's public key and its private key, and sends it to the customer. 5 – The customer's browser decrypts the hash. This process shows that the website sent the hash, and only the customer is able to read it. 6 – The customer and the website can now securely exchange information.
183	**Streaming** – Downloading portions of an audio/file being listened to/watched over time, and allowing to the watcher to see the portions as they come in, instead of downloading the entire file, and then listening to/watching the file. Streaming, however, does not save the completed file to
184	**Switch** – Used in star topologies. Boosts signals coming into them, and by looking at the destination address of each frame (an Ethernet packet, has a header and a payload), it can send the frame/signal to only the node for which the signal/data is intended. Therefore, it is INTELLIGENT.
185	**Synchronise** – When data is updated across different devices, so that the data remains current/constant across all devices. Cloud computing can assist in this (the general trend).
186	**System Clock** – Stores current data and time settings for your PC, and can be used to time certain processes and give measurements of processing speed (using time data from it).
187	**System Utility** – Assist in the managing of fixing problems on a computer. E.g. Anti-virus/Internet Security Programs, Troubleshooting programs, Installation/Uninstallation programs, File compression programs, Backup programs, Archiving programs, Defragmentation programs.
188	**TCP/IP** – Transfer Control Protocol/Internet Protocol. This is the communication protocol for the Internet. TCP/IP defines how data should be formatted, addressed, transmitted, routed and received. TCP = connection-oriented protocol, more reliable, slower. UDP = connectionless protocol, less reliable, faster.
189	**Thin Client** – Also known as dumb terminal. Used in centralized processing. Each computer on the network has minimal resources, processing takes place on the centralized server + needs a fast network.
190	**Thunderbolt** – Designed by Apple. A unifying interface for mobile, laptop and desktop devices, preventing the need for loads of wires. Use it to charge latest iPhones.
191	**Twitter** – A globally popular social networking site, which gives user's 140 characters to type messages which are public to the world (they can choose to be private). A form of microblogging, as there is a limit on the amount of characters that can be used. Hashtags can be used to categorize/group tweets, and make searching for related tweets easier.
192	**Typed method** – Methods that return a value of a specific data type/object (they have return statements) e.g. String, int, double, Boolean etc.
193	**UML** – Unified Modelling Language. A visual display of the design of a software system/solution. Includes class diagrams, inheritance and instantiation (for now).
194	**Unicode** – An upgraded version of ASCII (8-bit encoding system), also known as UTF-8. Unicode is a 16 bit (2^16) encoding system. A collection of characters (digit, letter, punctuation mark etc).
195	**UPS** – Uninterrupted Power Supply. Supplies the PC it is connected to just enough power to start a generator to get electivity back, or to properly shut down the computer. Prevents damage that may be caused to the computer by a sudden loss of power.

196	**URL** – Uniform Resource Locator. The unique address on the Internet for each web page. E.g. http://www.stbenedicts.co.za/College/Academics/tabid/88/Index.html http:// - Hypertext Transfer Protocol, used to transmit the data to access the resource. www. – World Wide Web. stbenedicts.co.za – The domain name. College/Academics/tabid/88/Index.html – The path to the resource on the server on which this web site is hosted.
197	**Virtual machine** – A software implementation of a machine, that executes programs like a physical machine. Used in Server Virtualisation, in the overall process of Virtualisation (the process of creating logical computing resources from available physical resources).
198	**Virtual memory** – When a PC uses secondary storage temporarily as part of RAM, to extend RAM. Pages (groups of data) are made and are switched between the RAM and secondary storage, so that the CPU can access the data in the secondary storage by first putting it in RAM.
199	**Virtual Private Network (VPN)** – Gives remote access to a LAN, to remotely access the files. THIS DOES NOT GIVE YOU ACCESS TO A CERTAIN PC, it gives you access only to files saved/backed up on the network you are connected to. Gives you access to a LAN without being wired in to the LAN.
200	**Virus** – Executable programs that alter the data on a computer, can corrupt the data and/or the computer. Viruses attach themselves to files/programs, and self-replicate. One of the most common and well-recognized forms of malware.
201	**Vlog (Video Blog)** – A blog (opinion of someone shared publicly online) in the form of an online video e.g. Famous Youtubers that have weekly episodes. Vlogs are usually streamed online.
202	**Vodcast (Video Podcast)** – A regular podcast is just audio and is usually downloaded or streamed, a video podcast has audio and video (sound and moving pictures).
203	**Voice over Internet Protocol (VoIP)** – The communications protocols, technologies, methodologies and transmission methods involved in the delivery of voice communications and multimedia over Internet Protocol (IP) networks, such as the Internet. VoIP is one type of technology used by IP technology for online phone calls.
204	**Void method** – Methods that do not return any data of any type (no return statements), they just do something in the program without giving any value back.
205	**WAP** – Wireless Access Point. A fixed-position wireless transceiver (transmitter/receiver) that broadcasts a signal within an area, called a microcell. These WAP's provide wireless access to a wired Ethernet network. Uses in Wireless Mesh Networks (WMNs), connecting to each other and to user's using the WMN. OR **WAP** – Wireless Application Protocol. A Mobile Wireless Protocol that enables Internet access from cellular devices (cellphones).
206	**Waterfall model** – Development of project divided into phases, step-by-step methodology: *Requirements Analysis* – Problem is specified, along with desired service objectives (goals). *Specifications* – What the system created should do, NOT how it should do it. *System and Software Design* – How the system will do what it is created to do. *Implementation and Testing* – Designs translated into software by the team of programmers, usually splitting into sections for the programmers. Each programmer tests their own code. *Integration and System Testing* – Software product delivered to client for acceptance testing, where the client checks the final product to see if it is what they wanted in the first place. *Maintenance* – Software is updated for changing user needs, adapted for changes in the external environment, unseen bugs corrected, efficiency enhanced. *Documentation* – System Development = Specs + Design, Technical = info for programmers, User Document = explains to the user how to use the program.
207	**Web 1.0** – The read web, only provides information, with no interaction. Users can only view web pages, and only web developers can create/edit interact with web pages. *About the world.*

208	**Web 2.0** – The read-write web, there is contribution of content from and interaction with users on these web pages. Users can make changes to web pages, link other users to web pages (social media) and connect from mobile devices. Users can share content fast and efficiently, even if they are not a web developer. *About like-minded people.*
209	**Web 3.0** – The read-write-execute web, uses semantics (computers finding meaning in interactions). Data on the web is analyzed, links are found in the data, and this can help provide personalized searching. Offers a more personalized user experience, results/what you see are based on your profile/what you do often online. However, this individualized/customized content introduces complex security, trust and privacy issues for these users. *About the individual.*
210	**Wiki** – An online website or database developed collaboratively by a community of users, allowing any user to add and edit content. An online encyclopedia, on a range of different content/subject matters, depending on the scope of that Wiki.
211	**Wi-Max** – Worldwide Interoperability for Microwave Access. A Wireless Technology, which has a massively long distance coverage, and is very fast (30-40 Mbps to Gbps). The most powerful wireless technology of the ones we learn.
212	**Zombies** – A PC that makes up part of a Botnet/Zombie Army. It is a computer that has the virus that the Botnet has, an 'infected' computer.