ZNOTES

Updated to 2017-19 Syllabus

CIE IGCSE INFO & COMM. TECH. 0417

SUMMARIZED NOTES ON THE PRACTICAL SECTION

TABLE OF CONTENTS

1. WORD PROCESSING (MS WORD)

- Serif – with flicks e.g. **Cambria**
- Sans-serif – without flicks e.g. **Calibri**
- One part of document as 1 column and the rest in two columns → a section break.
- When you want to move text to the next column → a column break.
- To force all further text onto the next page → page break
- A widow= single line that appears on the next page or column, separated from the rest of the paragraph
- An orphan = single line that appears on the previous page or column, separated from the rest of the paragraph.
- To add page numbers in the header/footer → move your cursor to the desired position of the page numbers → Insert tab → click on page number in the Header & footer section → choose an option under the Current position tab.
- Add the file size/name (including file path) → click on Quick parts in Insert tab → click on Field → select File Size or File name. For file path → check the box to include file path. For file size →choose whether Kilobytes or Megabytes.
- Include date → click on Date & Time in Insert tab → choose an appropriate format as specified. (If the date/month format is flipped →change your region/ language settings on your computer to United Kingdom.)
- Update fields if required (select auto update while inserting fields.)

2. HOUSE STYLES

- Remember to follow all the instructions given, to avoid losing easy marks
- Type in the name of the style exactly as it is in the paper
- Click on the drop-down arrow in the Styles section → select create a new style
- Always base your styles on the Normal font
- Setting the line spacing →click on format →then paragraph → select required options
- From the same tab, you can change the spacing before and after the paragraph

- Setting all capital letters →click on format → font → tick the option All Caps
- To set certain bullet to a list style → click on format → click on Numbering → Bullets tab → choose required option
- To indent text for a style → click on format →Paragraph and input required indents under the Indentation section. Choose hanging indents to indent the whole paragraph, and first line indents to indent only the first line of a paragraph.
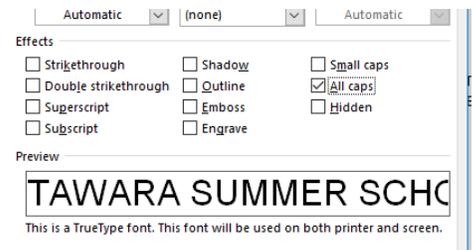
3. MAIL MERGE

- Create a master document, which is mostly given as a source file
- In the master document, click on the Mailings tab
- In the start mail merge section, click on select recipients → select use an existing list → choose source file
- Select records to be used, filter if necessary
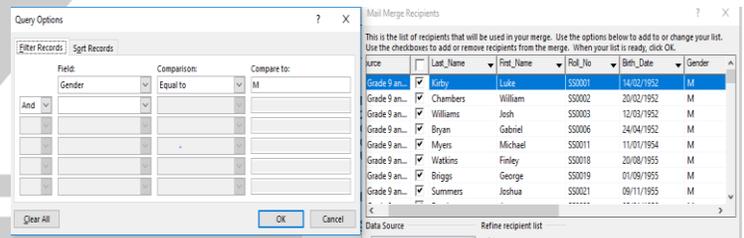
- Insert merge fields where indicated with chevrons, i.e.<Field>
- Place automated current date and/or time, as well as

{ DATE \@ "dd/MM/yyyy" * MERGEFORMAT }

{ MERGEFIELD Title } { MERGEFIELD First_Name } { MERGEFIELD Last_Name }
{ MERGEFIELD Street }
{ MERGEFIELD Area }
{ MERGEFIELD Post_Code }
{ MERGEFIELD Country }

your name, centre number and candidate number where specified. Ensure date is in the correct format specified.
- Spell check and proof read the document.
- Save the master document, and click finish and merge. Preview results and ensure that they look as required.

- While printing:
  - check all merge fields are placed
  - field codes are visible if necessary. (Go to Advanced settings so they are displayed when printing. Proof of date inserted may be asked, right click and toggle field codes or just use the shortcut Alt+F9.)

4. DATA MANIPULATION (MS ACCESS)

- While importing files, make sure you select text file and not excel file, as .csv files are plain text.
- When they ask for a set number of decimal places in a field, choose Fixed in Format.
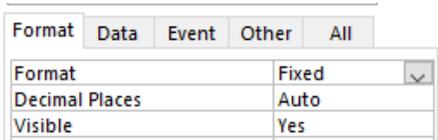
- Ensure that the dates displayed in the table are in the correct format under Table Design view.
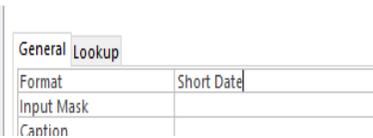
- To form a relationship between two tables, go to the Relationships section of the Database Tools tab and choose the required tables.
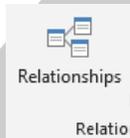
- The calculations will **ONLY** work if placed in the report footer. If Σ Total is used this then it apperars automatically in the report footer.

Count number of fields in a report	=COUNT([Primary_field]) Always use primary field as it is the only unique field
Sum of fields in a report	=SUM([Field_name])
Average of fields in a report	=AVG([Field_name])
Minimum of fields in a report	=MIN([Field_name])
Maximum of fields in a report	=MAX([Field_name])
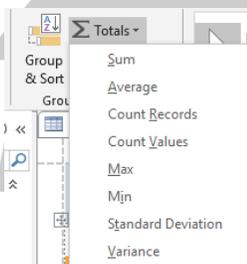
Types of criteria input in Query	
"qwerty"	Find a specific word
A*	Text starts with...
*S	Text ends with...
AP	Text must contain...
"?????"	Word is exactly...letters long
*	Text is not blank
Null	Text is blank
50	Find a specific value
<50	Find data that is less than a value
<=50	Find data that is less or equal to a value
>50	Find data that is higher than a value
>=50	Find data that is greater than or equal to a value
Not 50	Find numbers that are not equal to a value
Between 10 and 20	Find values in a range (from...to...)
Yes	Find values that are Yes/True
No	Find values that are No/False
#01/01/2009#	Find a specific date
>01/03/2009	Find dates after a given date
<01/03/2009	Find a date before a given date
Between 01/03/2009 and 31/03/2009	Find dates in a given range

5. DATA ANALYSIS (MS EXCEL)

- Naming a range of cells → select the cells → right click and select 'Name a Range'. → type the name in the option box. Ensure the range is correctly selected.
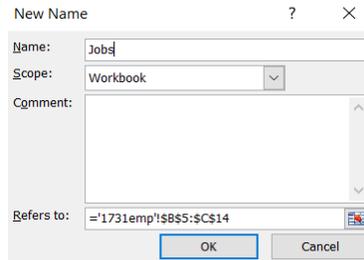
- While printing spreadsheet:
  - check the fields required to show
  - if they want it showing formulae. (To show formulas instead of values, select Show Formulas under the Formula Auditing section of the Formulas tab.)
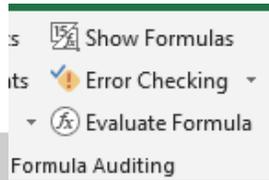
- To set a cell as currency→ click on the popup box in the Number section of the Home tab → select Currency and pick the required symbol and number of decimal places as specified on the paper.
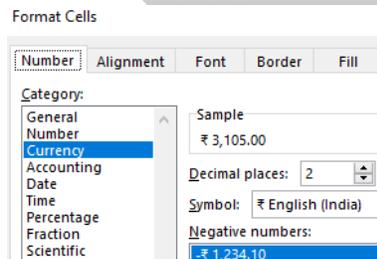
- To colour a range of cells that contain certain values → under Styles section in the Home tab → click on the drop-down menu under **Conditional Formatting**. Choose New Rule → **Format only cells that contain**. → add the rule according to the instructions on the paper from the Format tab (ego: less than 100, format: green). You can add more than one rule to a range of cells, by repeating the same steps for the new rule.
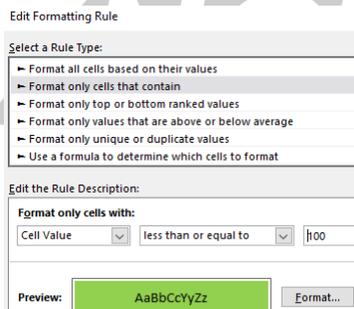
- When you are using another file as a source file (ego for a LOOKUP function), make sure it is open until the end, else the spreadsheet will no longer be able to access that data.

- To make cell reference absolute, press F4 while highlighting it

- For Spreadsheet formulae please refer to TABLE 1.

6. WEBSITE AUTHORING (HTML)

6.1 HTML

- Anchors: help navigate throughout a webpage
  - Highlight the destination of the anchor, and set a bookmark
  - You can use <div> tags in your code around this text

<div id="top"> Destination text </div>

  - Highlight the word or image that will be the hyperlink, and click insert hyperlink and type the address of the website or the bookmark or the email address provided in the respective places.
  - If the link needs to open in a new window → select New Window from target frame. This will give you a target setting of "_blank"
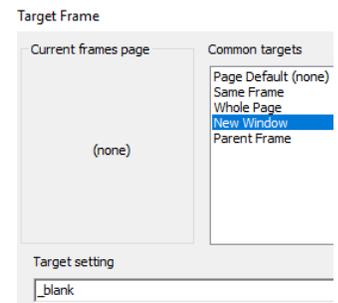
- If there are specified dimensions for a table, use the table properties to set these values.

- Check the code to ensure that the table is not set to 100% width, if there are other values given.

- To hide bullets from your webpage, add hidden after your tag selector.

```
<li hidden>This bullet should be hidden.</li>
```

Font type	h2 {font-family: "Times New Roman"}
Text size	h2 {font-size: 16pt}
Aligning text	h2 {text-align: center}
'Bold' text	h2 {text-weight: bold}
'Underline' text	h2 {text-decoration: underline}
Second choice of font	h2 {font-family: "Times New Roman, Verdana"}
Adding generic fonts (either serif or sans-serif)	h2 {font-family: "Times New Roman, serif"} h2 {font-family: "Calibri, sans-serif"}
Changing colour	h2 {color: #000000}

Using classes to set styles. Can be used for many selectors	.right {text-align: right}
Comment in HTML - text that is not read by the computer, <u>only for users</u>	<!-- Enter comment here-->
Comment in CSS - text that is not read by the computer, <u>only for users</u>	/* Enter comment here */

- Colour codes have three parts:

(RED, GREEN, BLUE)

Amount of Light (colour)	Hex code
Fully on	FF
¾ on	C0
½ on	80
¼ on	40
Off	00

- **Examples:**
  - Pure red is (FF0000)
  - Pure green is (00FF00)
  - Pure blue is (0000FF)
  - Pure yellow is (FFFF00)
  - Pure black is (000000)
  - Pure white is (FFFFFF)
- REFER TO TABLE 1 for HTML tags

7. WEBSITE AUTHORING (CSS)

7.1 What is CSS?
- Cascading style sheet
- Used to style webpages
- 2 types
  - Embedded/inline
  - External

7.2 Embedded
- Used to apply style properties within html sheet

Inline CSS

- Format:
  - …style = "attribute: specification">
  - For e.g. <table border="1" **style= "width:200px"**>
- To add several attributes, add semicolon to separate and then use same format
  - For e.g. < table style= "width:29%**;** margin-left: auto**;**">
- For inline CSS adding -style= "…."- is mandatory.

7.3 External
- External CSS sheets are separate sheets that style the webpage.
- To use the are required to be attached to the main html file using the tag:
  - <link rel="stylesheet" type="text/css" href="sourcefile.css">
  - Tag is placed in head tag of html file. Several html sheets can be attached.
  - Preference given to sheet placed last in head tag
- Format for external CSS
  - h1 { property: value ;}
  - for e.g. h1 {color:#000000;}

Element source taken from html script linked

7.4 CSS Tags
7.4.1 Colours
- Colours can be in hexadecimal
  - hashtag before the hexadecimal is mandatory
  - e.g. #000000
  - F full capacity
  - 0 is least capacity
- Some colours can be written in words. Such as black or white.

7.4.2 Fonts
- Fonts are given priority from first to last in order
- To add multiple fonts, add commas.
  - Eg. h1 { font-family: Arial, Calibri, sans-serif;}

7.4.3 Tables
- Tables have many attributes to help style them
  - Cell padding : creates space between text and cell border
  - Cell spacing: creates space between individual cells
  - Borders
  - Background color: background tags in the tables only apply to the tables.
- Individual td or th headings can also be specified in css

TABLE TAGS	FORMAT
CELL PADDING	• Table { padding :40px;}
CELL SPACING	• Table { spacing : 30px;}
BORDERS	• Table { border-width:3px;} • Table { border-color: #000098;} • Table { border-style: solid;} • Table { background-color: #009499;}
TD/TH TAGS	• td { font-size: 3;} • td { font-family: Calibri;} • td { color: #000000;}
DIMESNIONS	• table { width:50px;} • table { height:60px;}

7.4.4 Other tags
• h1 { text-decoration: bold, underline ,italics;}
• body { background-image: url ("xyz.jpg");}
• body { background-repeat: no-repeat;}
• body {background-position: top/left/right/bottom;}
• h1 {text-align: left/right/top/bottom;}

7. PRESENTATION AUTHORING (MS POWERPOINT)
• To open a given outline, click "New slide" arrow and click "slide from outline.."
• Printing presenter notes, click print "Notes pages"
• Printing audience notes, click print "Handouts"
• When printing evidence of slide transitions, go to slide sorter and then PrntScr
• For all bullets to enter the screen at once → click on the Custom Animation under the Animations tab → Then select all the bullet points and Add Effect in the side pane and choose the required style.
• For the bullets to enter the screen one by one → Select the first bullet point and animate as required from Add Effects. Repeat for the remaining points.
• When printing evidence of animations, open the Custom animations pane and then **PrntScr**
• To show evidence of transitions, take a screenshot of the slides pane, having a star beside the slides that have transitions.

• To loop a slide show so it plays continuously until the Esc key is pressed. Under the Slide show tab, click on Set Up Slide Show under Set Up. It is in the Show options section of the option box that appears.

8. EDITING IMAGES
• To save a picture with 8 bit - colour depth save it as a gif
  o Open it in paint and save as
• To compress the size of a picture open it in picture manager
  o Edit picture
  o Compress pictures
  o Choose most suitable option
• To change colour options of a picture use picture manager
  o Edit picture
  o Colour

9. ANSWERS TO THEORY QUESTIONS
• 11.1 Explain why generic file formats are needed:
  o They can be opened by any software to access the data on them.
• 11.2 Explain the need to reduce file sizes for storage or transmission:
  o Smaller files upload and download faster than larger ones and thus are better for transferring data on the internet and between computers and other devices like printers.
• 13 Explain why headers and footers are needed:
  o Headers and footers ensure each page has all the required information like the page numbers, company logo and name etc. It makes the document more reliable, professional, and consistent, as the information appears on every page. This saves time and reduces errors as they are only typed once.

- 14 Explain what is meant by corporate branding/house style:
  - It refers to a specific style of fonts and formats used in the making of ICT solutions by organisations.
- 14 Explain why consistent styles are required:
  - Consistent styles enable users to associate a particular organisation with a style. They look professional.
- 15.1 Explain why the automated suggestions given by spell check software do not always give the correct response:
  - Some words, e.g. proper nouns are not found in the dictionary. This makes spell checkers less efficient. Names and places are not identified by spell checkers
- 15.1 Explain why validation checks must be appropriate to the data that is being checked:
  - An inappropriate check can lead to error messages and altered data, as it may accept or reject wrong data.
- 15.2 Describe the importance of accuracy and the potential consequences of data entry errors:
  - Accurate data ensures the results obtained by the processing of data is relevant, which is essential to the usability of the model
- 15.2 Define the term verification:
  - A way of preventing errors when data is copied from one medium to another
- 15.2 Describe visual verification:
  - Visual comparison of data entered with a data source
  - Checking for errors by comparing entered data on the screen with the data in the original document (not the same as proof reading)
- 15.2 Describe double data entry:
  - Entering data twice and comparing them either after data has been entered, or during the entry process.
- 15.2 Explain the need for validation as well as verification:
  - Validation only ensures that data entered is in the accepted format. Verification is needed to ensure that the data entered is correct. Data entered may be in the right format but of the wrong value. Or it may be copied correctly but does not match the criteria.

- 17.1 Explain why it is necessary to use page, section and column breaks, to adjust pagination and to avoid widows and orphans?
  - Page breaks and column breaks help remove widows and orphans, by forcing text onto the next page/ column so it is all together.
  - Does not disrupt reader by breaking the flow.
- 17.3 Explain why mail merged documents are created
  - Mail merged documents save time typing out individual letters, as they can be personalized by the computer. Errors while typing are also reduced, since the master document is only typed once. They can also be sent by email using the address in the source file.
- 18.1 Define the terms flat-file database and relational database.
  - Flat-files databases are tables that have data sorted in rows and columns.
  - Relational databases are several tables linked together, preventing unnecessary repetition of data.
- 18.1 Explain that other field types such as placeholders for media, including images, sound bites and video clips are used in commercial databases
  - They are not studied in depth in this syllabus. They are used in web applications where a back end database holds the media to be displayed in another application such as a webpage.
- 18.1 Discuss the advantages and disadvantages of using relational tables rather than a flat file database

Relational Database	Flat file Database
Better security	Poor at complex queries
Cater for future requirements	Poor at limiting access
Data is only stored once	Harder to update, so inherently inefficient
Requires more planning	Potential duplication
-	Easy to design
-	Non unique records
-	Harder to change dataformat.

18.1 Define and understand the terms primary key and foreign key and their role in a relational database.
- o Primary key: The key field of a table which is unique and identifies each record
- o Foreign key: The field linked to the primary field of the table linked to through a relationship
- 20.1 Define the terms: cells, rows, columns, sheets, tabs, pages, charts
  - o Cell: A space for data to be entered a table; a box formed by the intersection of columns and rows.
  - o Rows: Horizontal boxes that divide the table
  - o Columns: Vertical boxes that divide the table
  - o Sheets: A table of data
  - o Pages: Divides a piece of data into sections
  - o Tabs: A module of a database program that holds the tables on the computer
  - o Charts: A graphical representation of (usually tabulated) data
- 20.1 Explain the importance of accurate data entry in spreadsheets
  - o Ensures the results obtained by the processing of data is relevant, which is essential.
- 20.1 Define the terms: formula, function, absolute reference, relative reference, ranges, named cell, named range, nested formulae/functions.
  - o Formula: are mathematical operators defined by the user to perform a function
  - o Function: predefined logical and mathematical operations a use can use in a spreadsheet
  - o Absolute reference: is made when the cell referenced stays constant but the cell referred to in is changing.
  - o Relative reference: is made when the cell reference is supposed to change when the cell it is referred to in is changing. It aids more efficient designing of models.
  - o Ranges: A group of cells in a table
  - o Named cell: A cell in a table that is given a name (like 'profit margin') and can be referred to using that name in functions
  - o Nested formulae/functions: A formula/function used inside a formula/function as an argument
- 20.1 Explain the difference between a formula and a function
  - o Formulas are typed in by the user. They include simple mathematical operators like +, -, *, or /, or can be as complex as the user wants. A function is predesigned code that calculates specific values, e.g. MAX,

VLOOKUP. While functions can be used inside formulas, formulas cannot be used inside functions.
- 20.1 Explain the function of absolute and relative referencing.
  - o Absolute referencing is used when the cell referred needs to stay the same, even when the formula/ function is copied.
  - o When a formula/ function is copied, and relative referencing is used, the cell referred to changes with the cell that the function is in.
- 20.2 Define the terms: testing, test data, expected outcome, actual outcome, normal data, abnormal data, extreme data, what if
  - o Testing: Checking that the designed model shows or previews the expected outcome when data is entered
  - o Test data: The input data used for testing a model
  - o Expected outcome: the output a model is supposed to give with the test data
  - o Actual outcome: the output the model gives when tested in real time
  - o Normal data: data within the given range ego: 50, range: 0-100
  - o Abnormal data: data outside the given range ego: 120, range: 0-100
  - o Extreme data: data that is the limit of the range ego: 0 or 100, range: 0-100
  - o What if: changing values in cells to see how outcome of formulas change
- 20.2 Explain the need to test a model before it is used
  - o Reduces the number of possible errors when using real data
- 21.1 Identify and describe the three web development layers
  - o **Content layer**: Holds the content of the webpage structure.
  - o **Behaviour layer**: scripting language of a web page or an individual element
  - o **Presentation layer**: responsible for the formatting of a webpage(s) or elements (using a stylesheet).
- 21.1 Understand the function of:
  - o **Content layer:** enter the content of a web page structure
  - o **Behaviour layer:** enter scripting language to a web page or an individual element
  - o **Presentation layer:** format whole web page(s) or individual elements

- 21.2 Explain why tables are used to structure elements within a web page
  - Tables make the basic structure of a webpage and organise page layout.
- 21.2 Define and understand the terms relative file path and absolute file path
  - Relative file path: A path referring to a file in the same directory relative to the page the reference is made in.
  - Absolute file path: The full path of a file, which is not relative to anything.
- 21.2 Explain why absolute file paths must not be used for hyperlinks to locally saved web pages/ objects
  - Absolute paths always include the domain name of the website
  - These should not be used to refer to locally saved webpages as the computer the webpage is stored on (the server) is not the same as where the webpage was developed, and an absolute file path would point to the wrong address.
- 21.3 Explain what is meant by the term cascading stylesheets
  - CSS (cascading stylesheet) is a text-based language which is attached to webpages to set their format. CSS files have a ".css" extension
- 21.3 Explain the hierarchy of multiple attached stylesheets and in-line styles within a web page
  - Internal CSS have more preference over Inline CSS. Inline CSS overrides externally attached stylesheets.
  - If several external stylesheets are attached to one web page, the stylesheet attached last (at the bottom of that part of the code) is given preference (over the other ones). Priority increases as you go down a list.
- 21.3 Explain why relative file paths must be used for attached stylesheets
  - They should be attached using relative file paths as they are stored along with the webpage since they are stored in the same folder.
- 21.4 Explain how to upload and publish the content of a website using ftp
  - Used to upload website files to the web hosting space. To upload these files successfully, the user needs:
    - FTP client software
    - All files in one folder
    - Host Name/URL/IP address for ftp
    - Host port to be used for upload
    - Username and password

- 21.4 Create a test plan to test a website including: web page elements are visible, navigation within/from a web page
  - Open webpage in different browsers to check that all elements appear the way they should.
  - Click all hyperlinks to ensure that they direct users to the correct pages, using functional testing. Check that both internal and external links are functional. Check that fonts and background colours are appropriate to the purpose of the website and its users (audience)
  - Perform user testing on a group from the target audience, gain feedback from their usage, and use it to improve the website before publishing it
- 21.4 Justify the choice of test plan
  - The test plan used to test a webpage must be justified based on the elements being tested. e.g. If hyperlinks are being tested, it checks if all the hyperlinks are redirecting the user to the correct webpage/ section of webpage.

• **TABLE 1-** Spreadsheet Formulae

DESCRIPTION	FORMULA
Add, Subtract, Multiply and Divide	=A1+B1
SUM - Adding a range of numbers	=SUM(A1:A4)
AVERAGE – Find the average	=AVERAGE(A1:A4)
MIN – Find the low value	=MIN(A1:A4)
MAX – Find the highest value	=MAX(A1:A4)
COUNT – Finding how many numbers are in a range	=COUNT(A1:A4)
COUNTA – Counting the number of items in a range	=COUNTA(A1:A4)
INT – Converts to the lowest whole number	=INT(A1)
ROUND – Rounding numbers	=ROUND(A1,2) The 2 is the number of decimal places
ROUNDUP - Rounding numbers up	=ROUNDUP(A1,2) The 2 is the number of decimal places
ROUNDDOWN - Rounding numbers down	=ROUNDDOWN(A1,2) The 2 is the number of decimal places
VLOOKUP - Looking up what particular values mean from a table arranged vertically	=VLOOKUP(A1,$B$1:$C$8,2) A1 is the cell to check $B$1:$C$8 is the array to look in 2 is column 2 from $B$1:$C$8 meaning return the value in column 2 in that section.
HLOOKUP - Looking up what particular values mean from a table arranged horizontally	=HLOOKUP(A1,$B$1:$G$2,2) A1 is the cell to check $B$1:$G$2 is the array to look in 2 is row 2 from $B$1:$G$2 meaning return the value in row 2 in that section.
SUMIF – adding up specific values in a range	=SUMIF($B$1:$C$8,A1, $D$1:$D$8) Checks if any cells in $B$1:$C$8 = A1 and if they do then it adds them together
COUNTIF - Counts the number of cells in a range that satisfy the given criteria	=COUNTIF(A2:A4,">4") Checks that cells have a value greater than 4 =COUNTIF(A2:A4, A1) Checks that the cells are equal to the value in cell A1
IF – Deciding what will go into a cell	=IF($B$1:$B$8=A1,"A") IF the value in A1 appears in the range of cells then write A
Nested IF	=IF($B$1:$B$8=A1,"A", IF($B$1:$B$8=A2,"B", IF($B$1:$B$8=A3,"C",D))) IF the value in the range equals A1 then write A, if it equals A2 write B, A3 write C and none of them D
Average IF – it searches for criteria and makes an average of the range according to the criteria	=AVERAGEIF($D$4:$D$64,G3,$E$4:$E$64) $D$4:$D$64 is the range, G3 is the criteria, $E$4:$E$64 is the average range
SQRT – Square root of a number	=SQRT(B3) B3 is the number

- **TABLE 2-** HTML tags

HTML tag	`<html></html>`
Opening/closing head tag	`<head></head>`
Page title	`<title>HTML REFERENCE</title>`
Attaching a CSS file	`<link rel="stylesheet" type="text/css" href="mystyle.css">`
Defining anchor tag	`<a name="top"></a>`
Setting default target window	`<base target="_self">`
Opening of the body/content	`<body></body>`

Table tag
Border width as 1
 	
alignment centre
	`<table border="1" align="center">`
	
	`</table>`

Table row (only height)	`<tr height="128"></tr>`
Heading of the table	`<th>Heading of the table</th>`
Table data (width and/or height)	`<td width="128">type here</td>`
Merges 2 cells of the same columns	`<td colspan="2">`
Merges 2 cells of the same row	`<td rowspan="2">`

Adding sound clips
(rarely asked)
	`<audio controls>`
	`  <source src="xyz.mp3" type="audio/mpeg">`
	`</audio>`

Bold texts	`<b>Bold>/b>`
Italics texts	`<i>Italics</i>`
Underlined texts	`<u>Underline</u>`
Ordered list (numbered)	`<ol>` `</ol>`
Unordered list (bullet points)	`<ul>` `</ul>`
Data entered in the and list	`<li></li>`
Image with an alternative name and with its size	`<img src="image.jpg" alt="Description of image" width="128" height="128">`
Redirecting anchor tag	`<a href="#top">Go to top</a>`

Hyperlink
Target opens in a new tab.(replace text with image tag when needed)
	`<a href="https://znotes.org/" target="_blank">Visit Znotes</a>`
	or
	`<a href="https://znotes.org/" target="_blank"><img src="Znotes.jpg" alt="logo of Znotes"></a>`

Mail to a specified email address with a subject	`<a href="mailto:xyz@example.com?Subject=Welcome%20Friends">Contact us</a>`

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