Assignment

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1 Mathematics

In this section, various mathematical formulae and equations will be included to include all the feature mentioned in the assignment. Very low mass particles moving at speed less than that of light behaves like a particle and wave. De Broglie derived an expression relating the mass of such smaller particles and its wavelength.

Plank's quantum theory relates the energy of an electromagnetic wave to its wavelength or frequency.

$$\begin{aligned} E &= h\nu \\ &= \frac{hc}{\lambda} \end{aligned} \tag{1}$$

Einstein related the energy of particle matter to its mass and velocity, as

$$E = mc^2 \tag{2}$$

As the smaller particle exhibits dual nature, and energy being the same, de Broglie equated 1 & 2 for the particle moving with velocity 'v' as

$$\frac{hc}{\lambda} = mc^2$$

Then, $\frac{h}{\lambda} = mv$ or $\lambda = \frac{h}{mv} = \frac{h}{\text{momentum}}$: where 'h' is the Plank's constant.We know $7 + 3 = 10$.
We have derived this from [**?**].
Lets check different mathematical functions in LaTeX

1.1 Matrices

$$\begin{bmatrix} \sqrt{2} & \sqrt{3} & \sqrt{5} \\ \sqrt{7} & \sqrt{11} & \sqrt{13} \\ \sqrt{23} & \sqrt{19} & \sqrt{17} \end{bmatrix}$$

1.2 Squareroot

Although illustrated above, we use square root for the equation $ax^2+bx+c=0$, the roots are given by

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2ac}$$

This is the basic equation which study in class 10th [2]

1.3 Integration

The defiite integral of a continuous function f over the interval $[a, b]$ denoted by $\int_a^b f(x)\,dx$ is the limit of a Riemann sum as the number of subdivisions approaches infinity. This definition is cited from [3].

1.4 Summation

Riemann sum can be given by:

$$lim_{n \to \infty} \sum_{i=0}^{n} \delta x f(x_{\mathrm{i}})$$

1.5 Nested brackets

$$\left[\frac{\left(\left[\left(\left[\frac{(xy)}{z} \% w \right] + 7 \right) - 10 \right] 8 \right)}{\left(\left[\left(\left[\frac{(zy)}{x} \% u \right] + 17 \right) - 1 \right] 5 \right)} \right]$$

Figure 1: Graphic image

Characteristics	Chloroquine (n = 10)	P-value*
Age, year	41.5 (33.8-50.0)	0.09
Female, n (%)	3 (70.00)	0.41
Days from onset to treatment	2.50 (2.00-3.75) 6.50	¡0.001
Height, cm	167.50 (158.00-173.00)	0.97

Table 1: Treatment

2 Lists and figures and tables

- A novel coronavirus disease 2019 (COVID-19) emerged around December 2019 in Wuhan, China and has spread rapidly worldwide (Lu et al., 2020).
- Until March 27, 2020, the Chinese health authorities had reported 82082 confirmed COVID-19 cases in China with 3298 deaths and 381443 confirmed cases with 20787 deaths outside China

1. Coronavirus relies on cellular machinery to replicate itself, thus providing a rationale to search for effective therapies among agents that may impact pathways required for the viral life cycle.
2. he vesicular trafficking system plays a critical role in viral entry, unpacking, assembly, and packaging. Among agents that can interfere with normal vesicular trafficking are several drugs approved for human therapies.
3. well-known antimalaria drug, Chloroquine, stands out as one of the earliest reagents that can block vesicular trafficking and also interfere with the life cycle of parasites and viruses.

We can see from Figure **??** that the covid cases in India in June were already reaching high values.

It is evident from Figure 3 that we should stay informed about covid.

We see table 1 which shows recovery rates by chloroquinone
The above data is derived from research paper on covid [4]

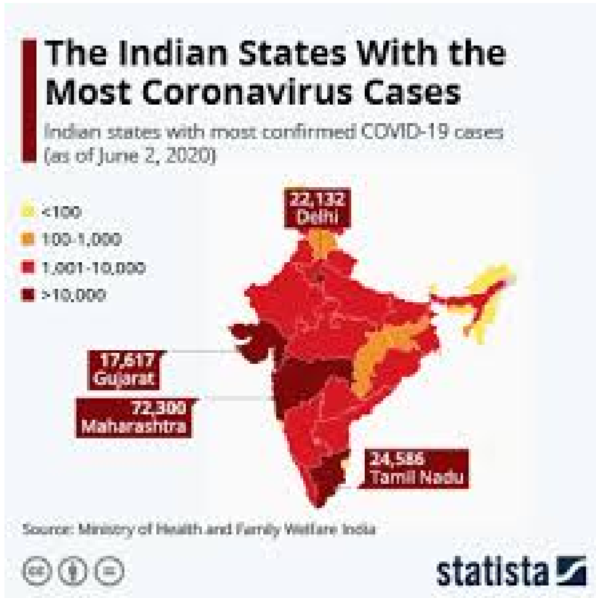

Figure 2: Cases in india

Figure 3: Stay Informed

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Names	Maths		Science	
Lorem	X	Y	Z	W
	S	R	V	U
Ipsum	3	2	0	1
	T	O	P	Q
Lorm	A	B	C	D
	2	3	1	0

Table 2: Scores

3 Fonts

Till now we have seen mathematical formulae in section 1 and covid data with figures and tables in section 3 we will use font properties.

- Bold-**This text is bold.**
- Italics-*This text is italic.*
- teletype-`This text is teletype.`
- emphasize-*This text is emphasized.*
- Roman-This text is roman font family.
- sans serif- This is sans serif font family.
- slant-*This text is slant.*
- small capital-THIS TEXT IS SMALL CAPITAL.
- uppercase-THIS TEXT IS UPPERCASE.
- lowercase-this text is lowercase.

The table 2 is a multi-column and multirow table.

4 Pseudo Code

```
function QUICKSORT(A[], p, r)
    if p < r then
        q ← PARTITION(A, p, r)
        QUICKSORT(A, p, q − 1)
        QUICKSORT(A, q + 1, r)
    end if
end function
function PARTITION()(A[], p, r)x ⟵ A[p]i ⟵ p − 1
    for j ← ptor − 1 do
        if A[j] < x then
            i++
            swap(A[i], A[j])
        end if
    end for
    swap(A([i + 1], A[r])
    return (i + 1)
end function
```

The Algorithm is derived taking hint from [?].