Assignment 1

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CS201	Data Structures and Algorithms
CS203	Discrete Structures
CS213	Software Systems Lab
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EE201	Data Analysis
HS201	Economics

Table 1: III Sem Courses

Figure 1: Frog

1 Mathematics

Albert Einstein's famous mass-energy equation is $E = mc^2$
To know more about this equation refer[1].
Photoelectric Energy Formula $\Rightarrow$

$$E = hv - \phi$$

Refer [5] for more on this formula.
Basic numbered equation $\Rightarrow 1 + 1 = 2$
Energy of light is

$$E = mc^2 \tag{1}$$
$$= \frac{(mc)^2}{m} \tag{2}$$
$$= \frac{p^2}{m} \tag{3}$$

Took reference from [4].

Identity matrix $\Rightarrow I = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

Square root $\Rightarrow \sqrt{1+x^2+x^4}$

Average of n number is an array(a) $\Rightarrow \frac{\sum_{i=1}^{n} a_i}{n}$

Integrals $\Rightarrow \int_V xy^2z^3d(V) = \iiint_V xd(x)y^2d(y)z^3d(z)$

Nested brackets $\Rightarrow a+b+\left(c+d+\left(e+\left(f+\left(g\right)\right)\right)\right)$

Fraction $\Rightarrow \frac{\frac{1}{a}+\frac{1}{b}+\frac{1}{c}}{a+b+c}$

2 Cross-Referencing

In Table 1, we have showed the courses.
In Figure 1, we display a frog.
In Section 1, we display all the Maths Equations and Expressions.
In Equation 1,we have showed the Energy of light.
In Section 5,we have displayed different kinds of Lists.

3 Font Styles

This is a bold font
This is an italic font
This is an underlined font
This text is emphasized
`This text is teletype`
This is small capitals
THIS IS UPPERCASE
this is lowercase
This is roman font
Refer [3] for more fonts.

4 Color

This is a text in red color
This text has a cyan color text background
This page color is yellow

5 Lists

1. Types of Lists
2. 1st level item
   (a) This is enumerated
   (b) 2nd level item
   - This is itemized
   - 3rd level item

     option1 This is description

     option2 4th level item

6 Quick Sort Algorithm

quickSort($arr[], low, high$)
if $low < high$ **then**
  $pi =$ partition($arr, low, high$)
  quickSort($arr, low, pi - 1$)
  quickSort($arr, pi + 1, high$)
end if
partition ($arr[], low, high$)
$pivot = arr[high]$
$i = (low - 1)$
$j \leftarrow low$
while $j \leq high - 1$ **do**
  if $arr[j] < pivot$ **then**
    $i++$
    swap ($arr[i], arr[j]$)
  end if
  $j++$
end while
swap ($arr[i + 1], arr[high]$)

return $(i + 1)$
Refer [2] to know more about quick sort.

References

[1] David Bodanis. E= mc2. *A Biography of the World's Most Famous Equation*, 2000.

[2] Daniel Cederman and Philippas Tsigas. Gpu-quicksort: A practical quicksort algorithm for graphics processors. *ACM J. Exp. Algorithmics*, 14, January 2010.

[3] Alan Hoenig et al. *TeX unbound: LaTeX & TeX strategies for fonts, graphics, & more.* Oxford University Press, USA, 1998.

[4] IE Irodov. Problems of quantum physics. *Vysshaya Shkola, Moscow*, 1991.

[5] Roman Smoluchowski. Anisotropy of the electronic work function of metals. *Physical Review*, 60(9):661, 1941.