

Binary Number System (Assignment Questions)

*Try to use the proper as well as the shortcut method of powers of 2, as taught in the lecture.

Question 1 : Convert the following binary numbers into decimal forms :

- 111111
- 10110
- 10011
- 110010

Question 2 : Convert the following decimal numbers into binary forms :

- 25
- 49
- 31
- 88

Question 3 : Following are the rules of adding 2 binary digits :

$0 + 0 = 0$, carry = 0

$1 + 0 = 1$, carry = 0

$0 + 1 = 1$, carry = 0

$1 + 1 = 0$, carry = 1

So, in math if $2 + 3 = 5$, in binary it looks like

```
  1 0
+  1 1
-----
 1 0 1
```

Using this method, try to add these 2 numbers (63 & 22) in their binary form and verify that the binary output is equal to the decimal value 85.

Bonus : Try to read up about 3 Bitwise Operators in C++: OR (|), AND (&) and NOT (~).
[\[Refer Link\]](#)