

## 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 :

$$0 + 0 = 0, \text{ carry} = 0$$

$$1 + 0 = 1, \text{ carry} = 0$$

$$0 + 1 = 1, \text{ carry} = 0$$

$$1 + 1 = 0, \text{ carry} = 1$$

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

$$\begin{array}{r} 10 \\ + \underline{11} \\ 101 \end{array}$$

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 (~).  
[\[Refer Link\]](#)

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