Representation of numbers: Decimal system

- Decimal number system is a base-10 system.
- The digits are 0,1,2,3,4,5,6,7,8,9
- For example, 957 is
  $957 = 9*10^2 + 5*10^1 + 7$

Representation of numbers: Binary system

- Binary number system is a base-2 system.
- The digits are 0, 1
- A digit is called ‘bit’
- Example, 1110 is a binary number.
- Its value is

  $1*2^3 + 1*2^2 + 1*2^1 + 0$

  = 13 in decimal
- Collection of 8 bits is called a ‘byte’

  Example: 11010100

Representation of numbers: Hexadecimal system

- Hexadecimal number system is a base-16 system.
- The digits are 0,1,2,3,4,5,6,7,8,9,A,B,C,D,E,F
- Example, A3B is a Hex number.
- Its value is

  $A*16^2 + 3*16^1 + B$

  $= 10*16^2 + 3*16^1 + 11$

  = 2114 in decimal

- A byte consists of two Hex digits
- Example: Let the byte be 11010100

  D 4

- Hex equivalent is D4