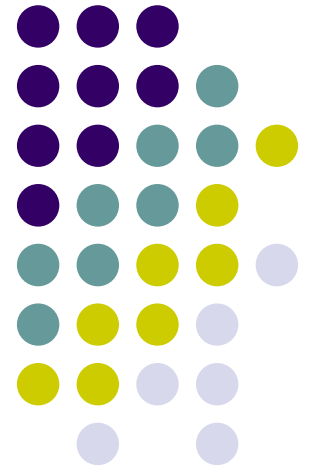


# Number Base Conversions

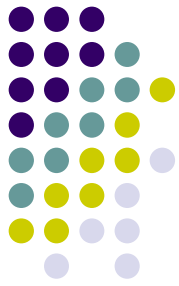
Speaker: Chungyi & Mac

Date: 2007/9/21



# Outline

- Introduction to Mailing list
- Number Base Conversions
- HW1





# Introduction to Mailing list

- 台灣很有趣，BBS的發展大過Mailing List的發展
- Mailing list 已存在很久了，在還沒有 web forum 的時代裡，開發人員都是靠 mailing list 來討論的。即使到現在，還是有人比較偏好使用 mailing list (原因大多是收 mail 比較不會漏掉)
- Mailing list 的E-mail是個自動轉信機制，寄信到論壇的E-mail便會自動轉信給所有參加此討論群的成員。
- 只要從登記為成員的信箱中寄信到論壇中，其他所有參加此討論群的成員同時都可以收到您寄出的信件，像是「廣播」方式一樣。

To see the collection of prior postings to the list, visit the [CS101 Archives](#).

## Using CS101

To post a message to all the list members, send email to [cs101@mailman.voip.edu.tw](mailto:cs101@mailman.voip.edu.tw).

You can subscribe to the list, or change your existing subscription, in the sections below.

## Subscribing to CS101

Subscribe to CS101 by filling out the following form. You will be sent email requesting confirmation, to prevent others from gratuitously subscribing you. This is a private list, which means that the list of members is not available to non-members.

Your email address:

Your name (optional):

You may enter a privacy password below. This provides only mild security, but should prevent others from messing with your subscription. **Do not use a valuable password** as it will occasionally be emailed back to you in cleartext.

If you choose not to enter a password, one will be automatically generated for you, and it will be sent to you once you've confirmed your subscription. You can always request a mail-back of your password when you edit your personal options. Once a month, your password will be emailed to you as a reminder.

Pick a password:

Reenter password to confirm:

Which language do you prefer to display your messages? English (USA)

Would you like to receive list mail batched in a daily digest?  No  Yes

## CS101 Subscribers

*(The subscribers list is only available to the list members.)*

Enter your address and password to visit the subscribers list:

Address:  Password:

To unsubscribe from CS101, get a password reminder, or change your subscription options enter your subscription email address:

If you leave the field blank, you will be prompted for your email address



# Number Base Conversions

- 基底為 $r$  的數字系統

$$a_n \cdot r^n + a_{n-1} \cdot r^{n-1} + \dots + a_2 \cdot r^2 + a_1 \cdot r^1 + a_0$$

- $r=10$ 稱爲十進位(Decimal number)

- $r=2$ 稱爲二進位(Binary number)

- Ex:

- $(921)_{10} = 9 \times 10^2 + 2 \times 10^1 + 1 \times 10^0$

- $(1110011001)_2 = 1 \times 2^9 + 1 \times 2^8 + 1 \times 2^7 + 0 \times 2^6 + 0 \times 2^5 + 1 \times 2^4 + 1 \times 2^3 + 0 \times 2^2 + 0 \times 2^1 + 1 \times 2^0$   
 $= 512 + 256 + 128 + 16 + 8 + 1$

# Number Base Conversions (Cont.)



- 如何轉換
  - 十進位921轉換成二進位

			商數	餘數	係數
921	/2	=	460	1	$a_0=1$
460	/2	=	230	0	$a_1=0$
230	/2	=	115	0	$a_2=0$
115	/2	=	57	1	$a_3=1$
57	/2	=	28	1	$a_4=1$
28	/2	=	14	0	$a_5=0$
14	/2	=	7	0	$a_6=0$
7	/2	=	3	1	$a_7=1$
3	/2	=	1	1	$a_8=1$
1	/2	=	0	1	$a_9=1$

2007/9/21 ● 解答  $(921)_{10} = (a_9 a_8 a_7 a_6 a_5 a_4 a_3 a_2 a_1 a_0)_2 = (1110011001)_2$

# Number Base Conversions (Cont.)



- 二進位轉換成16進位
  - $16 = 2^4$
  - Ex:  $(1110011001)_2$
  - $(11 \quad 1001 \quad 1001)_2$ 
    - $(11)_2 = (3)_{16}$
    - $(1001)_2 = (9)_{16}$
    - $(1001)_2 = (9)_{16}$
  - $=(399)_{16}$



# HW1

- Subscribe to the [mailing list](#) of this course.
- Send your homework to TA at cs101-ta@voip.edu.tw.
- Subject of email: [CS101 HW1] 92321036
- ASCII Table裡字母Z~a中間的6個字母及ASCII值(character and ASCII code in decimal).
- 學號後五碼轉換成2進位及16進位.