Call by Value 按值調用　　http://www.ablmcc.edu.hk/~scy/home/javascript/function.htm

```
void swap0 (int x, int y){
        int t;
        t = x;
        x = y;
        y = t;
}
```
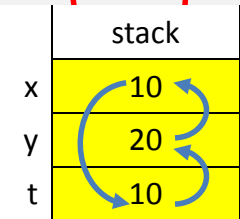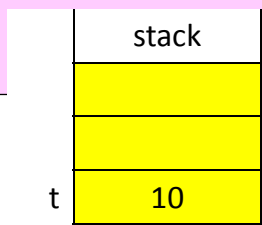
x=10, y=20

Call by Reference 按址調用

```
void swap (int *x, int *y){
        int t;
        t   =  *x;
        *x  =  *y;
        *y  =  t;
}
```

x=address
*x=value

stack

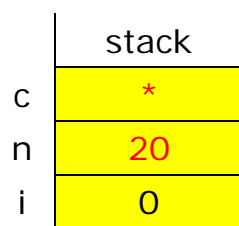| x	10
y	20
t	10

stack

t	10

```
main(){
        int a=10, b=20;
        swap0 (a,b);
        printf("a=%i, b=%i\n", a,b);


        swap (&a, &b);
        printf("a=%i, b=%i\n", a,b);
}
```

a=10, b=20

a=20, b=10

x	a	20	10
y	b	10	20

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Call by Value 按值調用

```
void drawLine (char c, int n){
        int i;
        for (i=0; i<n; i++)
                printf("%c", c);
        printf("\n");
}
```

stack

c	*
n	20
i	0

```
main(){
        drawLine ('*',20);
        …
        drawLine ('-',10);
}
```

****

----

stack

c	-
n	10
i	0

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Call by Reference 按址調用

address of name

```
void allUpper (char s[]){
    int i;
    for (i=0; i<strlen(s); i++)
        s[i] = toupper(s[i]);
}
```

stack

i	0

CHAN TAI MAN, JOSEPH

```
main(){
    char name[50]="chan tai man, joseph";
    allUpper(name);
}
```

changes to s ≡ changes to name

scanf("%s", & name);

address

s and name share the same address

s	name		
		c	C
		h	H
		a	A
		n	N

3
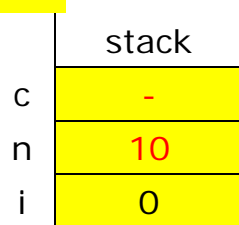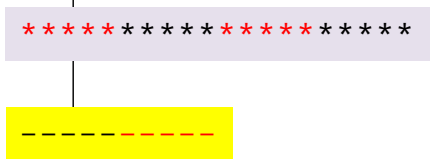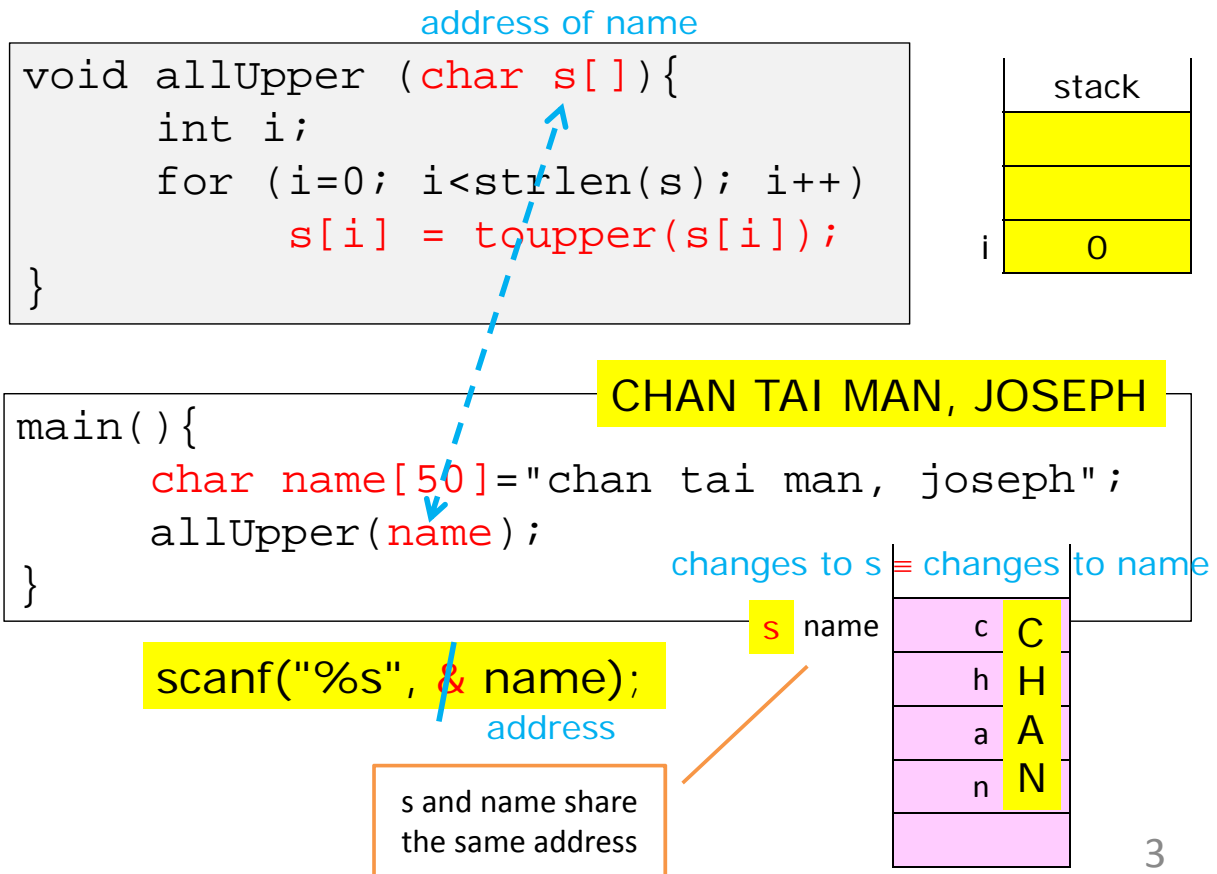
	地址Address	值Value
int x=10;	&x	x
int *y;	y	*y
char s[10];	&s[0], &s[9]	s[0], s[9]
char *s;	s, s+1	*s, *(s+1)

```
int x=10;        printf(" x=%i\n", x);
int *y;          printf("*y=%i\n", *y);  // error
```

```
y = &x;
printf("*y=%i\n", *y);
```

```
y = malloc(sizeof(int));
*y = 100;
printf("*y=%i\n", *y);
```

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```
int sumN (int n){
      if(n<=0) return 0;
      return n+sumN(n-1);
}
```

```
main(){
      int a=10, b=20, c=30;
      c = sumN (a);
      printf("c=%i\n", c);
}
```

stack	
n	7
n	8
n	9
n	10

a	10
b	20

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