

Programming with C I

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Arrays of Pointers

- When sorting a list of strings, there is a lot of copying of characters from one memory cell to another.
 - 3 operations for every exchange
- C represents every array by its starting address.
- Consider an array of pointers, each element the address of a character string.

Arrays of Pointers

flowers

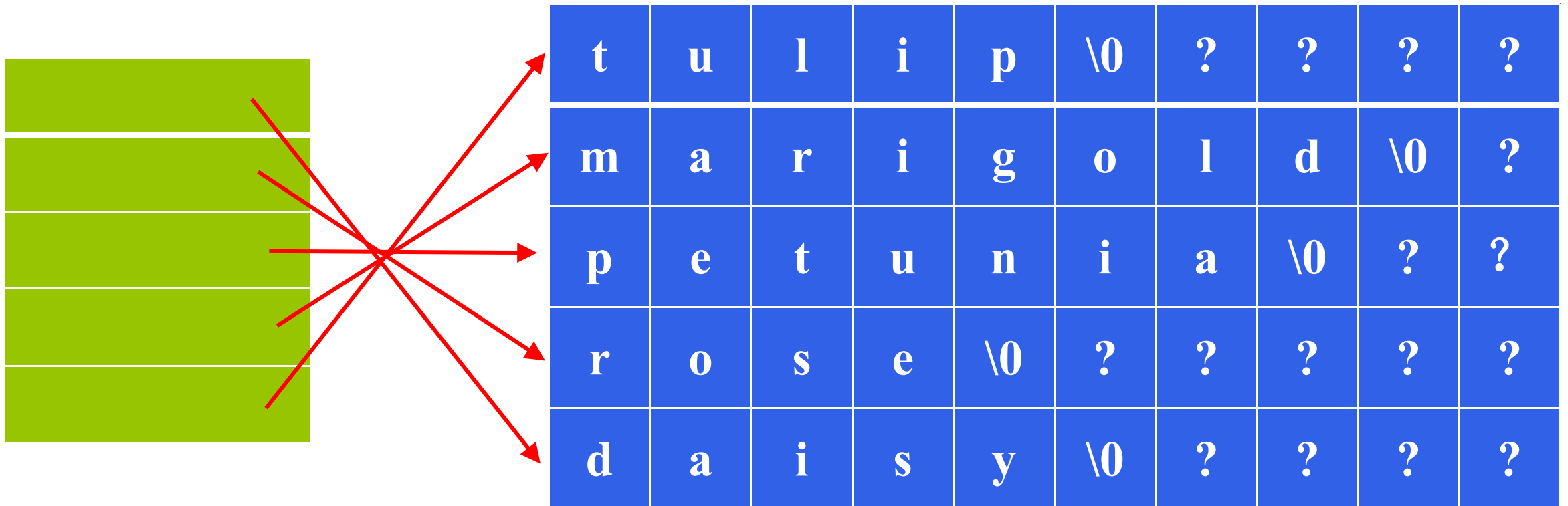
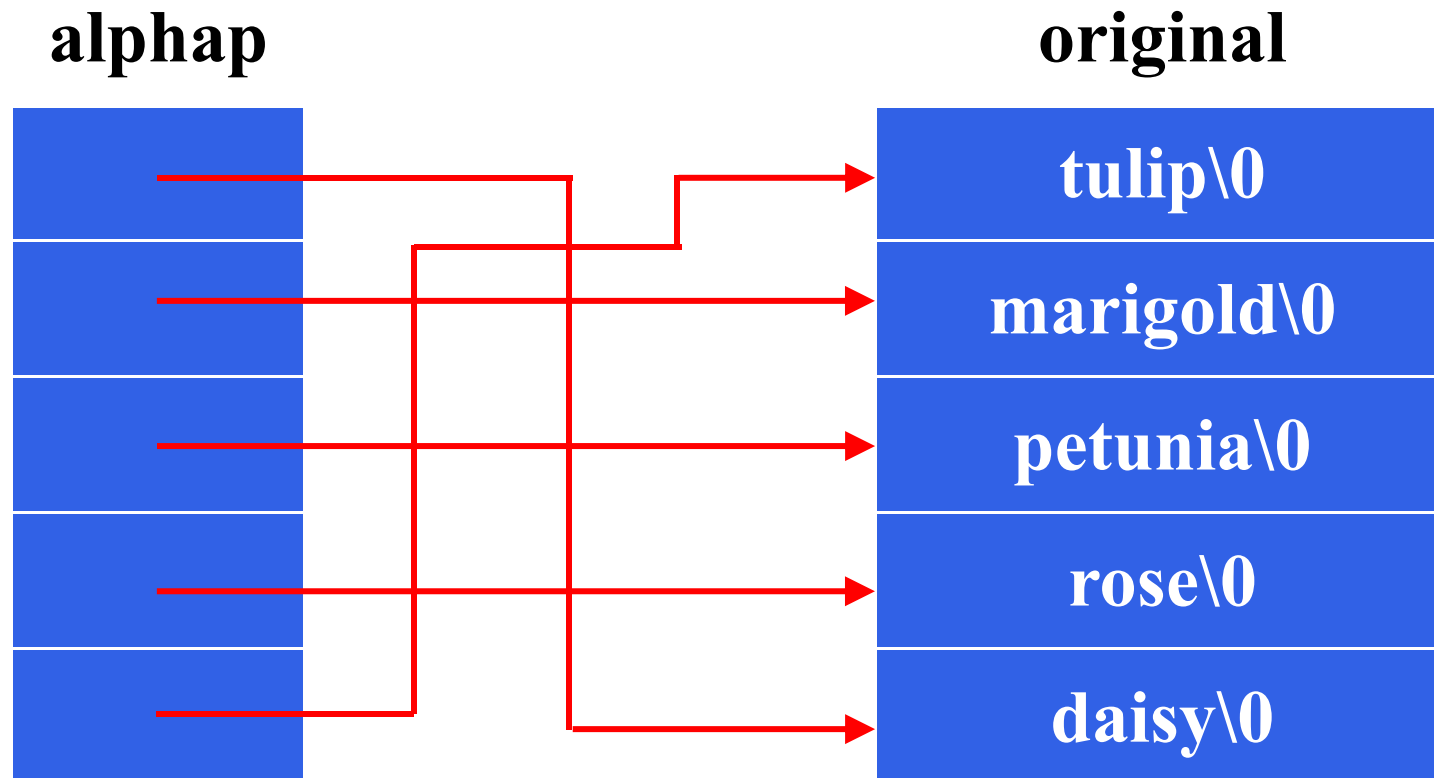


Figure An Array of Pointers



String-to-Number and Number-to-String Conversions

Table Review of Use of Scanf

Declaration	Statement	Date (□ means blank)	Value Stored
char t	scanf("%c", &t);	□ g □ \n □ A	\n A
int n	scanf("%d", &n);	□ 32 □ □ □ -8.6 □ +19 □	32 -8 19
double x	scanf("%lf", &x);	□ □ □ 4.32 □ □ -8 □ □ 1.76e-3 □	4.32 -8.0 .00176
char str[10]	scanf("%s", str);	□ □ hello\n overlengthy □	hello\n overlengthy\0 (overruns length of str)

String-to-Number and Number-to-String Conversions

Table Placeholders Used with printf

Value	Placeholder	Output (□ means blank)
'a'	%c	a
	%3c	□ □ a
	%-3c	a □ □
-10	%d	-10
	%2d	-10
	%4d	□ -10
	%-5d	-10 □
49.76	%.3f	49.760
	%.1f	49.8
	%10.2f	□ □ □ □ □ 49.76
	%10.3e	□ 4.976e+01
"fantastic"	%s	fantastic
	%6s	fantastic
	%12s	□ □ □ fantastic
	%-12s	fantastic □ □ □
	%3.3s	fan

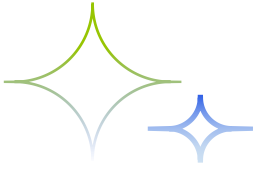
String-to-Number and Number-to-String Conversions

➤ number to string: `sprintf`

- `char s[20];`
- `int mon = 8, day = 23, year = 1914;`
- `sprintf(s, "%d/%d/%d", mon, day, year);`

➤ string to number: `sscanf`

- `int num;`
- `double val;`
- `char word[10];`
- `sscanf("85 96.2 hello", "%d%lf%s", &num, &val, word);`



THE END

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