

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

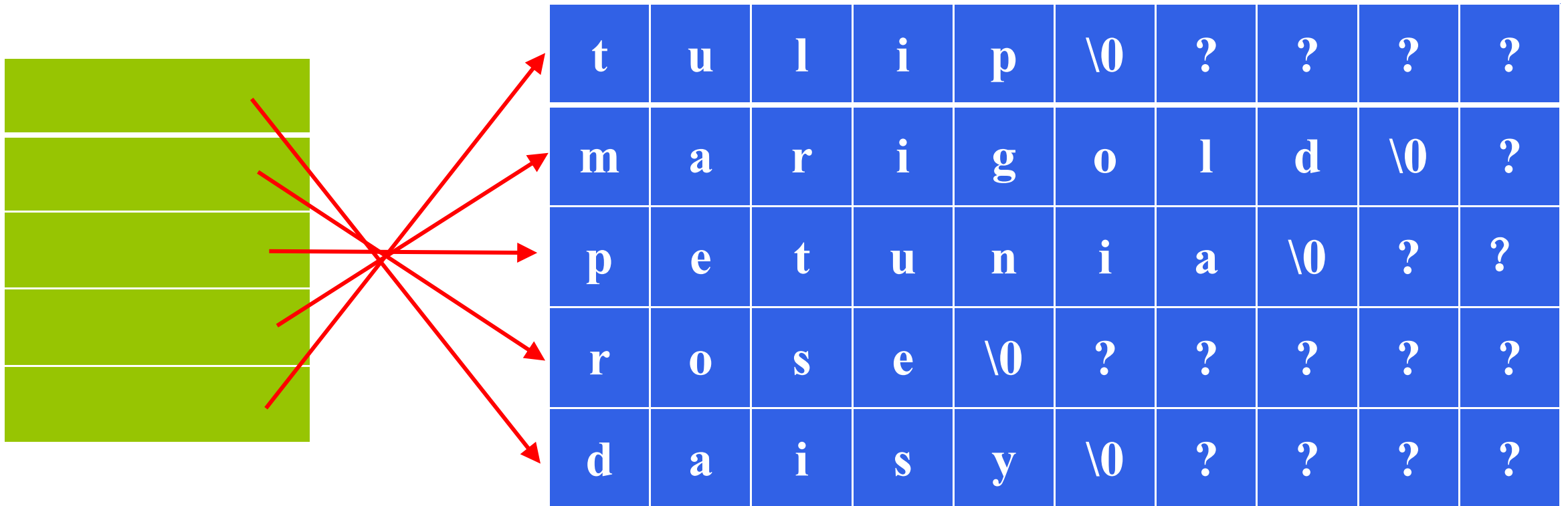
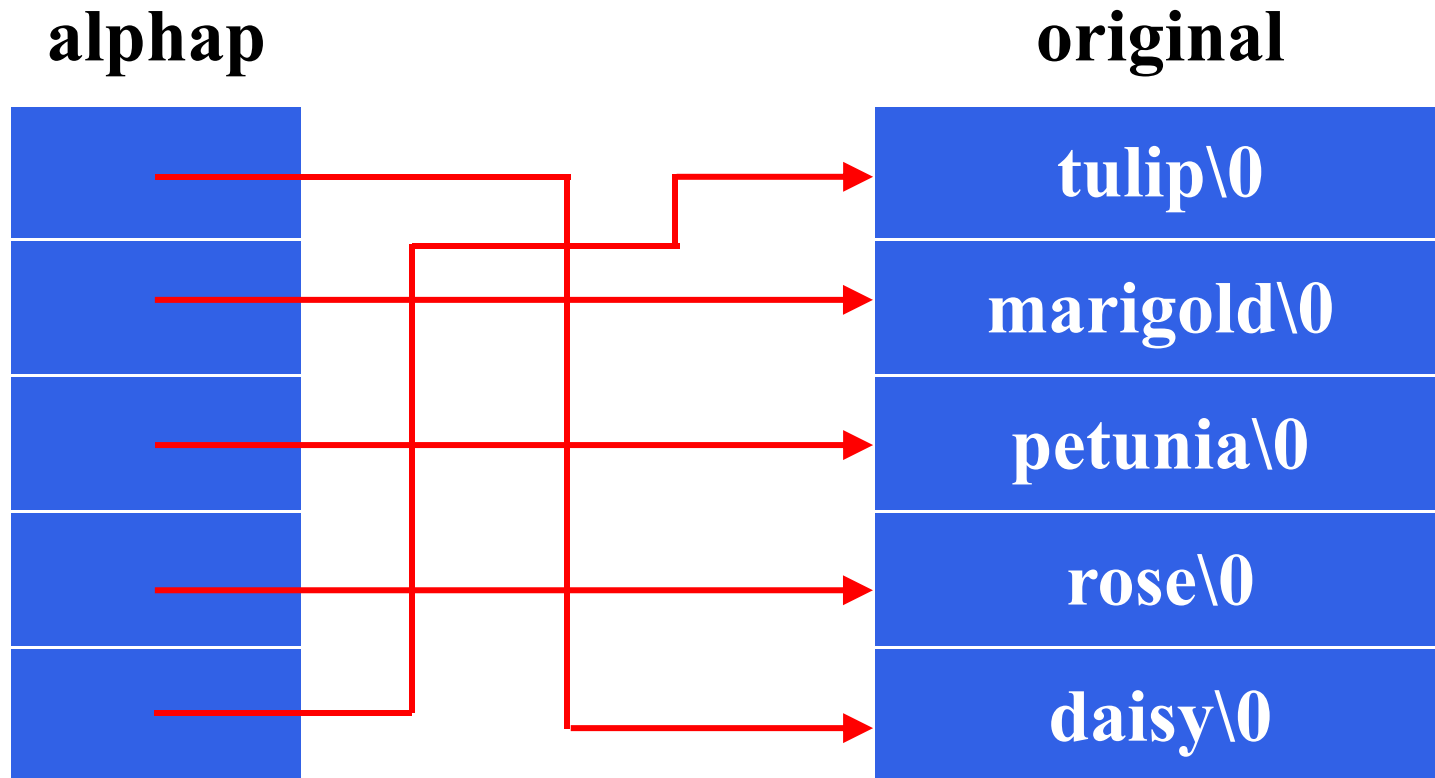


Figure An Array of Pointers



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

Table Review of Use of Scanf

Declaration	Statement	Data	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 <i>(overruns length of str)</i>

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

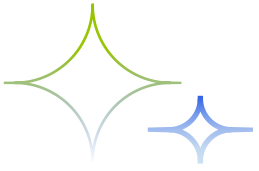
String-to-Number and Number-to-String Conversions

➤ 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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