Tutorial 5
Strings and debugging

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Define a string

1. Using an array

```
char str[20];
scanf("%s", str);
```

2. Using a pointer

```
char *str;
str = malloc(20*sizeof(char));
scanf("%s", str);
```

3. const string

```
char *str = "This is a string";
printf("%s", str);
```

String functions

1	**strcpy(s1, s2);** Copies string s2 into string s1.
2	**strcat(s1, s2);** Concatenates string s2 onto the end of string s1.
3	**strlen(s1);** Returns the length of string s1.
4	**strcmp(s1, s2);** Returns 0 if s1 and s2 are the same; less than 0 if s1<s2; greater than 0 if s1>s2.
5	**strchr(s1, ch);** Returns a pointer to the first occurrence of character ch in string s1.
6	**strstr(s1, s2);** Returns a pointer to the first occurrence of string s2 in string s1.

2D string and 2D array

- Define 2D string

```
char str[5][30];
scanf("%s", str[0]);
scanf("%s", str[1]);
scanf("%c", &str[2][0]);
printf("%c", str[2][0]);
```

- Passing a string to a function

```
void func( char str* );
```

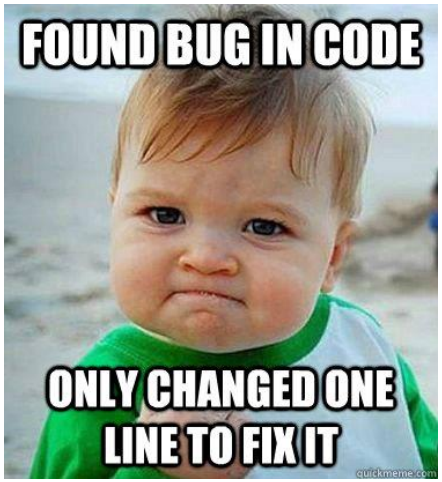
Debugging

- *Debugging is the process of finding and resolving of defects that prevent correct operation of computer software or a system. Debugging tends to be harder when various subsystems are tightly coupled, as changes in one may cause bugs to emerge in another.*

- When should we start debugging?

How to debug a program

- Know the meaning of compiler messages
- Print out states (values & addresses)
- Use test cases
- Divide and conquer



Exercise for you

A program with the name ‘incorrect2.c’ is available on the Moodle page. Try to find out bugs in the program. The program is a solution to the word guessing game (Lab 6 exercise 2).