

ECEN 449 – Microprocessor System Design



Some tips to good programming

Objectives of this Lecture Unit

- Some tips to good programming

Variable names

- Use descriptive variable names
 - `int i ;` versus `int student_exam1_score;`
 - Even though longer names may take more space, much better later for understanding the code
- Write Comments
 - Much easier for later review
 - Others may have to pick up your code
- Use braces to delineate loops --easier to visualize
- `for (i=0; i<100; i++) a[i] = i;`
- `for (i=0; i<100; i++)`
 - {
 - `a[i] = i;`
 - }

Input to a function/program

- Always check the input to a function whether returned from another function or user input
- If input is expected to be an integer between 1 and 10
 - `input_to_my_function = fn();`
 - `if ((input_to_my_function >10) || (input_to_my_function <1))`
 `printf (“Invalid input received\n”);`
 - else
 - {
 - `/* do my work here */`
 - }

Input to functions

- More important when dealing with devices
- Many possible error conditions
- Need to deal with all cases
- Not sufficient to just deal with expected or correct input
- `if (return_code == error_code)`
 - {
 - `/* do error handling */`
 - }
- Much of the code may deal with errors –ok.

Arithmetic operators

- `salary_per_month = total_salary/working_months;`
- What is the problem?
- `working_months = working_days/30;`
- `radius = sqrt(area/pi); --??`
- `scanf(“%d\n”, &year);`
 - `my_function(year)`
 - {
 - `/* what should we be careful about? */`
 - }

Style

- Good style keeps problems away
- Have a header file for each function prototype
- *****
- my_function: produces enlightenment
- input: hours (in integers ranging from 1 to 2)
- output: smart students (in integers with IQ from 120 to 140)
- error: negative IQs
- Dependencies: depends on functions ECEN350 ENGR112
- *****

Passing values/pointers

- Pass information as much as possible with values
- Less problematic
- When using pointers, always cast a pointer to what you expect it to be
 - `int_pointer = (int *) intp;`