

EECS 10: COMP METHODS IN ECE Discussion 4

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Assignment 1 Feedback

- Good work!
- Several suggestions:
 - Use modulo to get the remainder of division

```
int a = 13, b = 5;
c = a / b; // c is 2
d = a - c * b; // d is 3, but this is not
convenient.
d = a % b; // d is 3, and it is easier. %
is the modulo operator.
```
 - The typescript should show that you compile your program and run it using inputs.

Typescript Example

```

Script started on Fri 26 Jun 2015 02:57:00 PM PDT
eecs10@zuma.eecs.uci.edu:101 > gcc initials.c -o initials -Wall -ansi
eecs10@zuma.eecs.uci.edu:102 > ls
initials*  initials.c  initials.txt  timestamp.c  typescript
eecs10@zuma.eecs.uci.edu:103 > ./initials

      GGGGGGGGG
      G           G
      G           G
      G   G       G
      GGGGGG     G
              G   G

      LLLLLLLLLLL
      L
      L
      L
      L

eecs10@zuma.eecs.uci.edu:104 > exit
exit
Script done on Fri 26 Jun 2015 02:57:42 PM PDT

```

Compilation of your program

Run your program with test inputs as required in the assignment. For example, you should test your program with -0.7, 0.6, 1.2 in Problem 1, Assignment 2.

Discussion Outline

- Concept review
 - Formatted output
 - Programming principles
 - Structured programming
- Assignment discussion
 - Calculate the weekday for any date

Formatted Output

- Formatted output using printf()
 - Standard format sequence for integer values
 - `%[flags][width][length][conversion]`
 - Examples: `%-8d`
`%+8d`
`%x, %o`
 - Standard format sequence for floating point values
 - `%[flags][width][precision][length][conversion]`
 - Examples: `%12.4f`
`%12.4e`
`%12.4g`
 - Lecture 4, pp. 5~9
 - It will be used frequently in future assignments.

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Programming Principles

- Problem definition
 - Input, output data
- Algorithm
 - Procedure to solve the problem
 - Detail set of actions, the order of the actions, termination
- Pseudo code
 - Planning a program
 - Informal description of the algorithm sets
- Control flow
 - Execution order of statements in the program
- Program
 - Instructions for the computer
 - Formal description in programming languages

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Structured Programming

- Control structures
 - Sequence structure
 - Selection structure
 - Repetition structure
- Readability of the code
 - Proper indentation is highly recommended.
 - Use spaces instead of tab ;-)
- Control flow charts

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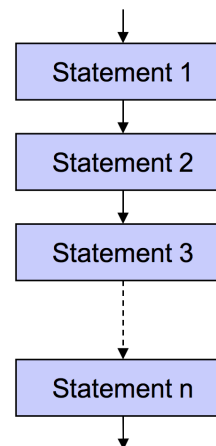
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Sequential Structure

- Statement blocks

```
{  
    /* statement 1 */  
  
    /* statement 2 */  
  
    /* statement 3 */  
  
    /* ... */  
  
    /* statement n */  
}
```



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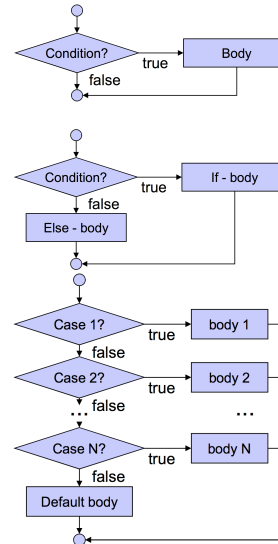
Selection Structure

- **if statement**

```
if (condition) {
    body;
}
```
- **if-else statement**

```
if (condition) {
    if-body;
}
else {
    else-body;
}
```
- **switch statement**

```
switch (condition) {
    case '1': body1; break;
    case '2': body2; break;
    ...
    case 'N': bodyN; break;
    default: default-body;
}
```



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Assignment Discussion

- **Problem 2 of Assignment 2**
 - Calculate the weekday for any date
 - Use the correct control flow
 - Zeller's congruence

$$w = (d + \lfloor \frac{(m+1) * 26}{10} \rfloor + K + \lfloor \frac{K}{4} \rfloor + \lfloor \frac{J}{4} \rfloor + 5J) \text{ mod } 7.$$

- **Hints:**

- The floor function is implicit in any integer division.
- Use a `switch` statement or seven `if` statements to print out a specific weekday

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Assignment Discussion

- Text file:
 - Briefly describe your implementation by answering the following questions
 - What is the input? What is the output?
 - What is your algorithm to solve the problem?
 - What is the control flow of your program?
- Typescript
 - Compilation of your program
 - Test your program with these inputs
 - 7/6/2015 (the deadline for this assignment)
 - 1/1/2016 (next New Year)
 - 10/4/1965 (the first day of classes at UCI)
- Name your files as **weekday.c**, **weekday.txt** and **weekday.script**