Intro

* Review assignments and due dates
* Lab 4: Tutorials 4-1 through 4-6, selected problems  
  All UIs for the tutorials are done for you.
* Midterm a week from tomorrow  
  Practice quizzes are open now, will close at midnight a week from today

Control Structures, algorithms and pseudocode (Brief)

* Sequence, Selection (decision), Repetition
* All computer programs are made using these three structures
* Pseudocode: GET, DISPLAY

Selection (Decision making), Gaddis Ch. 4

* Single alternative if statements
  + Ex: Car seat or booster seat. (Write in WordPad, not white board, so it can be modified)
    - Up to age 8 use car seat or booster seat.
    - Exercise: Checkpoint (pg. 206) : 4.7, if(sales >= 10000) commissionRate = 0.2;
* 4.5, relational operators: <, >, <=, >=, ==, !=
* Multiple IF ELSE,
  + Ex: Child restraint and seating
    - Up to 20 pounds use rear-facing car seat,
    - Up to 40 pounds use front-facing car seat,
    - Up to age 8 use booster seat.
    - Up to age 12 stay in back seat (not Oregon law- just recommended)
* Nested decision structures (also show as if-else-if)
  + Ex: Car seat:
    - Up to 20 pounds use rear-facing car seat,
    - Up to 40 pounds use front-facing car seat,
    - Up to age 8 use booster seat.
    - Up to age 12 stay in back seat (not Oregon law- just recommended)
  + Ex: What to do for a respiratory ailment
    - Is it bacterial? Prescribe antibiotic
    - Is it an allergy? Prescribe antihistamine
    - Is it viral? Home remedies
  + Checkpoint 4.11 (pg. 222): Convert to if-else-if
* Logical Operators: &&, ||, !
  + Truth tables:
  + Ex: Car seat:
    - Up to 1 year and 20 pounds use rear-facing car seat,
    - Up to 40 pounds use front-facing car seat,
    - Up to age 8 or 4’ 9” use booster seat.
    - Up to age 12 stay in back seat (not Oregon law- just recommended)
  + Short-circuit evaluation
  + NOT operator
  + Precedence: NOT takes precedence over the other two
  + Example: Range Checker, uses AND, rewrite to use OR
  + Checkpoints on pg. 227
    - 4.12, compound Boolean expression
    - 4.13, do the exercise
    - 4.14, do the exercise
    - 4.15, short-circuit operation (skip)
    - 4.16, if(speed >= 0 && speed <= 200) MessageBox.Show(“valid”);
    - 4.17, if(speed < 0 || speed > 200) MessageBox.Show(“invalid”);
* Discuss the Lab:
  + Random object, Gaddis 5.8, pg. 323 (needed for the lab)
  + Need to create on objet (Do it outside of any event handlers)
  + Next method gives you the next number( range: 1st number, last number + 1)
  + FYI: Enums are covered in chapter 8
* bool variables and flags: a flag indicates that some condition (status) exists
* Comparing strings
  + Secret Word demo program
  + String.Compare
    - Returns a positive value if the first arg is greater than the second
    - Checkpoint on pg. 232
    - 4.20: “z is not less than a.”
    - 4.21: New York, Boston
* TryParse: returns a Boolean value
  + Talk about methods: return values, arguments and the out keyword
  + Add Two Numbers example
  + Tutorial 4-4, Calculating Fuel Economy
  + Checkpoint on pg. 239
    - 4.22, What values are returned by TryParse for success/failure?
    - 4.23, If the TryParse method is successful, where is the converted value stored?
    - 4.24, If the conversion fails, what is stored in the second argument?
    - 4.25, what does the out keyword mean?
* Input validation: add validation to the Fuel Economy tutorial
* Radio Button: Radio Button Example
  + GroupBox: controls which can be selected at the same time
  + Tutorial 4-5, Color Theme
  + Checkpoint on pg. 248, 4.26 – 4.28
* Check Boxes: Check Box example, can you make it display both selections in one message box?
* Switch statement
  + Checkpoint 4.29 on pg. 251, convert if-else-if code to a switch
* ListBox
  + Tutorial 4-6, Time Zone
  + Checkpoint 4.30 on pg. 256
* Lab 4
  + Problem 4: Color Mixer, Radio buttons
  + Problem 7: Software Sales, switch
  + Rock, Paper, Scissors; if-else-if