Programming Assignment 8 - Due Wednesday 12 November

Problem: As a computer software engineer, you have been hired to design of a new generation of computer-based gaming devices for a Las Vegas enterprise. Your first assignment is to demonstrate that you have the capability to do so by designing a simple program that will play craps interactively with an user.

Background: Craps is a game played with two 6-sided cubic dice. The player tosses the dice and sums the number of face-up dots on the dice. If a player throws a 7 or 11 on the first toss of the dice, he/she wins. If the player throws a 2, 3, or 12, he/she loses. If the player throws any other number (called the point), the player throws again until either a 7 is thrown, in which case the player loses the bet and must pass the dice to another player, or until the point is thrown, in which case, the player wins and can continue to toss the dice.

Assignment: Design and code a C program, called **crapsxxx.cpp** (where **xxx** are the group initials), that will play craps interactively with an user. Your C program must have
  (1) **main** - with the algorithm section showing the logical progression of steps involved in playing craps. A logical progression might look like
     (a) toss dice
              needs: nothing
              returns: DIE1, DIE2, TOTAL
     (b) check results
              needs: TOTAL
              returns: GAME_STATE & POINT
     (c) display first toss results
              needs: DIE1, DIE2, TOTAL & GAME_STATE
              returns: nothing
     (d) if POINT $\neq$ 0
        1) toss dice (see (a))
        2) check new results
                needs: TOTAL & POINT
                returns: GAME_STATE
        3) display continuing results
                needs: DIE1, DIE2, TOTAL, POINT, and GAME_STATE
                returns: nothing
        4) if GAME_STATE is toss again, go back to step d
  (2) any functions required to implement the logic shown in **main** (which should consist of function calls and control structures only).

 In addition, your program must:
  (1) display header information and craps description to the screen before asking for any information, and
  (2) allow for the user to play as many times as desired.
  (3) You might want to embellish your program by keeping track of a players bet and total winnings (losses). What additional variables will you need? How will you initialize them? How and where will you update them?

Feel free to use (borrow) any code for other sources that you might need. For example, the program **rps.cpp** (available in handouts on the web or the the **get12** directory) plays the game rock-paper-scissors with the user. How is this program similar to playing craps? What features of this program might be useful in designing a craps game? If you borrow code, be sure to credit the source of the code in the description area of the functions that are borrowing the code.

You might want to make a decision table to fully outline the possible branches that a craps game might follow.

Turn in:
1.   An outline of your program approach.
2.   A paper copy of your C program (pay attention to style).
3.   A screen printout showing execution of program.
4.   A disc with your program (not project).

Note: This program requires the use of the random number generator **int rand(void)** found in the **stdlib.h** library. The rock-paper-scissors program demonstrates initialization and use of the random number generator.

Programming Assignment 08 - Evaluation Criteria

Names _____

Criteria	Points Available	Points Awarded
Program Style		
header in each function	10	
purpose/goal state in headers	10	
meaningful variable names	10	
variables defined w/ comment	10	
whitespace/readability	10	
algorithm comments	10	
organization	10	
Functions		
main	10	
no assignment statements in **main**	30	
Program Function		
pleasing user interface	30	
random dice toss works	20	
craps rules followed	30	
program repeat loop	10	
BONUS		
player's bet and remaining cash displayed with each win or loss	100	
	Total Pts:	/200