CS150 Assignment 5

Craps!

Date assigned: Friday, October 30, 2015
Date due: Monday, November 9, 2015, 1:00pm
Points: 35 pts

For this assignment, you will write a program that plays *craps*. If you aren't familiar with the game, here are the basics. Craps is played by rolling a pair of dice and using the sum of the pair as the roll's value. If one die shows 4 and the other shows 5, you have rolled a 9. On the first roll, if the value is 7 or 11, you've rolled a *natural* and win. If you roll a 2, 3, or 12 on the first roll, you *crap out* or lose. If you roll anything else, you establish a *point*. The object is to keep rolling until you roll the *point* again. However, if you roll a 7 before your *point*, you lose. If you reach the *point* without first rolling a 7, you win. The program will end once you win or lose.

Since you need to randomly roll the dice, you will need a pseudo random number generator. The random number generator is seeded using the current time. You must include the following line of code **once** at the beginning of your program:

```
srand(static_cast<unsigned> (time(static_cast<time_t *>(NULL))));
```

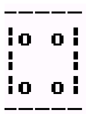
Also add `#include <ctime>` to your preprocessor directives.

Once you have seeded your random number generator, you can generate an integer between 1 and 6 by using the following:

```
int random = rand() % 6 + 1;
```

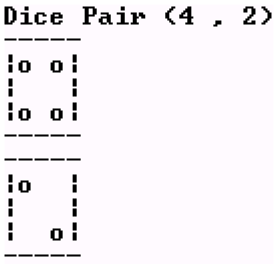
Minimally, you must use these four functions in your program:

1. `void drawHeading ();` - displays the heading
2. `void drawDieFace (int face);` - draws the die face that is passed into the parameter as follows:



```
-----
|o o|
|   |
|o o|
-----
```

3. `int rollDie ();` - rolls one random die and returns the roll value. Returns an integer between 1 and 6.
4. `void drawDiceFace (int face1, int face2);` - calls drawDieFace twice showing a special output as seen on the screen as follows:



```
Dice Pair (4 , 2)
-----
|o o|
|   |
|o o|
-----
-----
|o  |
|   |
|  o|
-----
```

You may add other functions if you like.

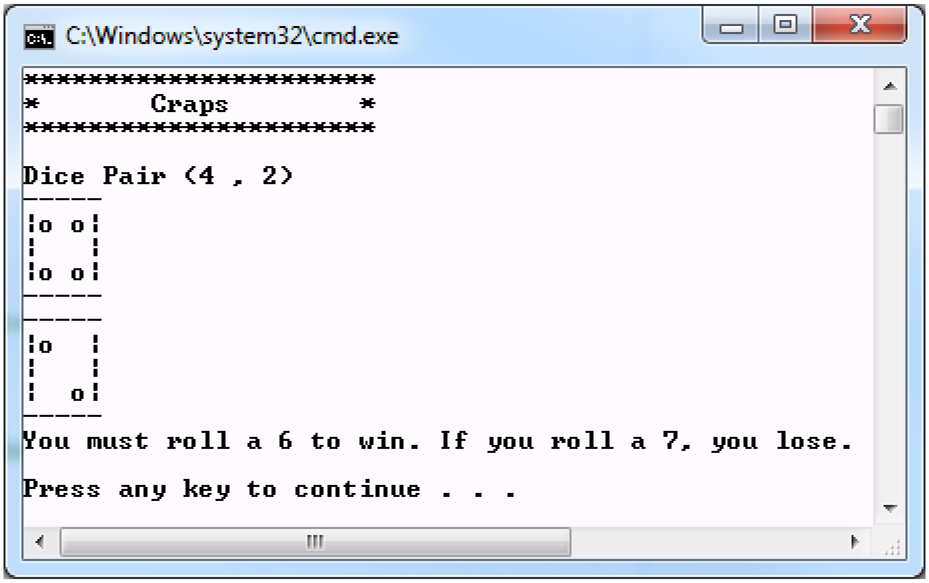
After displaying every roll, your program must pause, then clear the screen after the user enters a key. You do this by including:

```
system(“pause”);
system(“cls”);
```

Sample Runs:

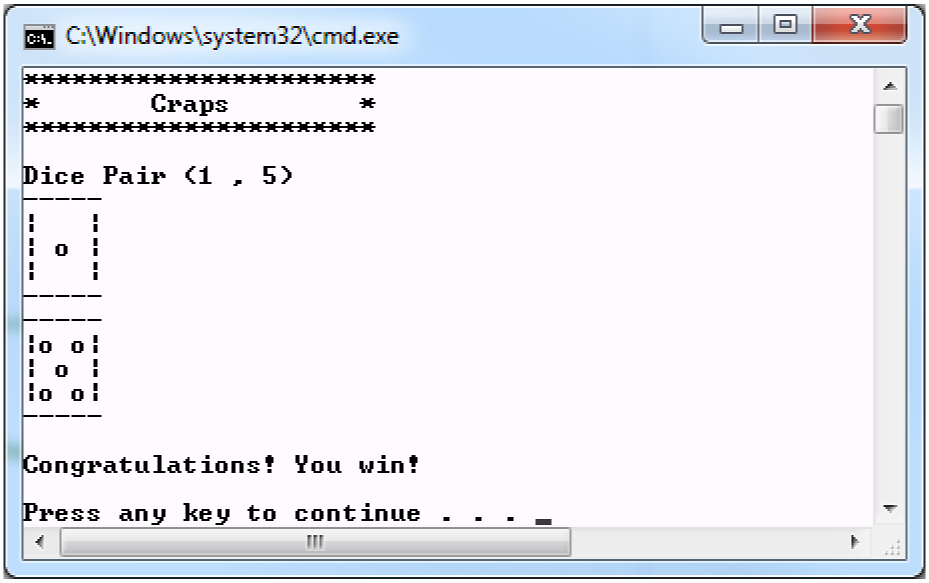
Run 1:

Screen 1



```
************************
*        Craps         *
************************

Dice Pair (4 , 2)
-----
|o o|
|   |
|o o|
-----
-----
|o  |
|   |
|  o|
-----
You must roll a 6 to win. If you roll a 7, you lose.

Press any key to continue . . .
```

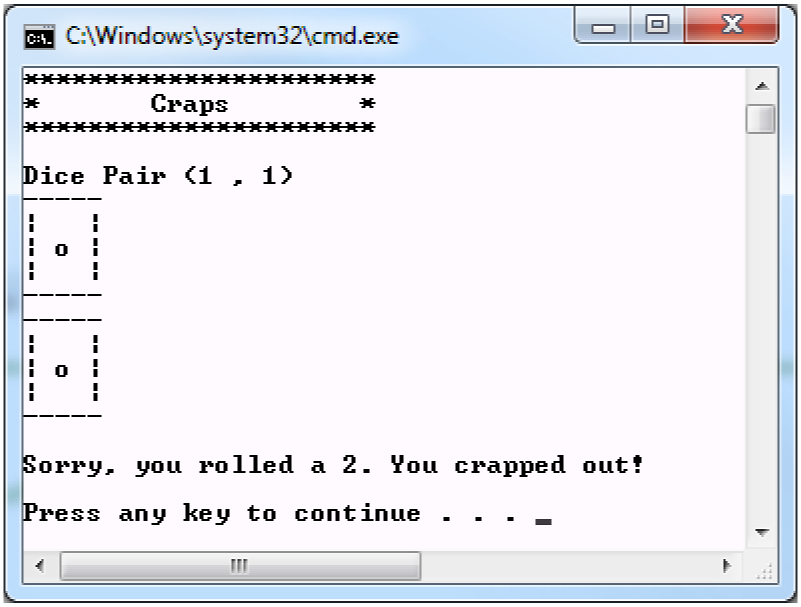
Screen 2



```
************************
*        Craps         *
************************

Dice Pair (1 , 5)
-----
|   |
| o |
|   |
-----
-----
|o o|
| o |
|o o|
-----

Congratulations! You win!

Press any key to continue . . . _
```

Run 2:

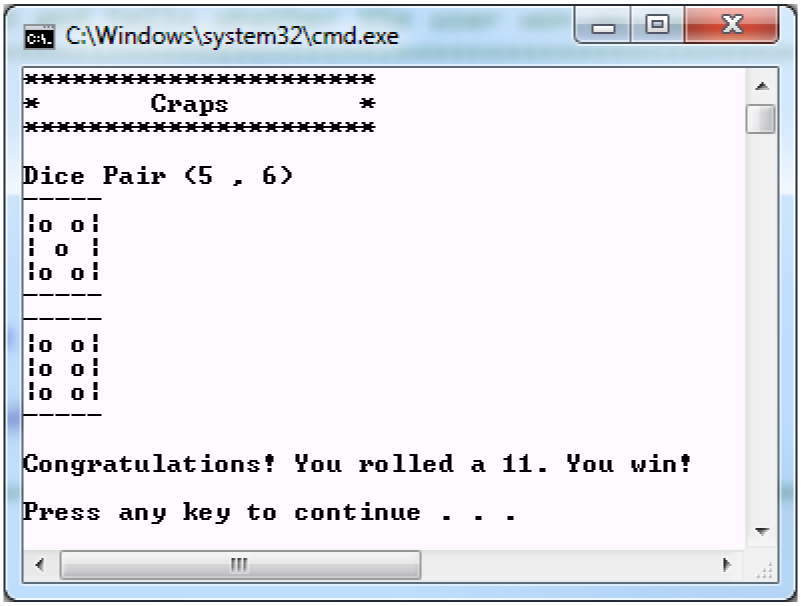
Screen 1



```
**********************
*       Craps        *
**********************

Dice Pair (1 , 1)
-----
|   |
| o |
|   |
-----
-----
|   |
| o |
|   |
-----

Sorry, you rolled a 2. You crapped out!

Press any key to continue . . . _
```

Run 3:

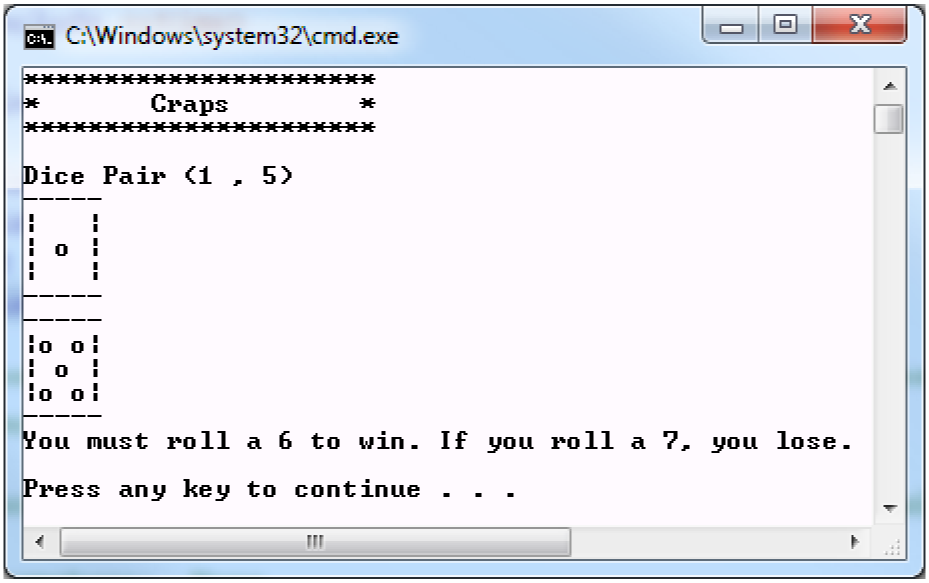
Screen 1



```
**********************
*       Craps        *
**********************

Dice Pair (5 , 6)
-----
|o o|
| o |
|o o|
-----
-----
|o o|
|o o|
|o o|
-----

Congratulations! You rolled a 11. You win!

Press any key to continue . . .
```

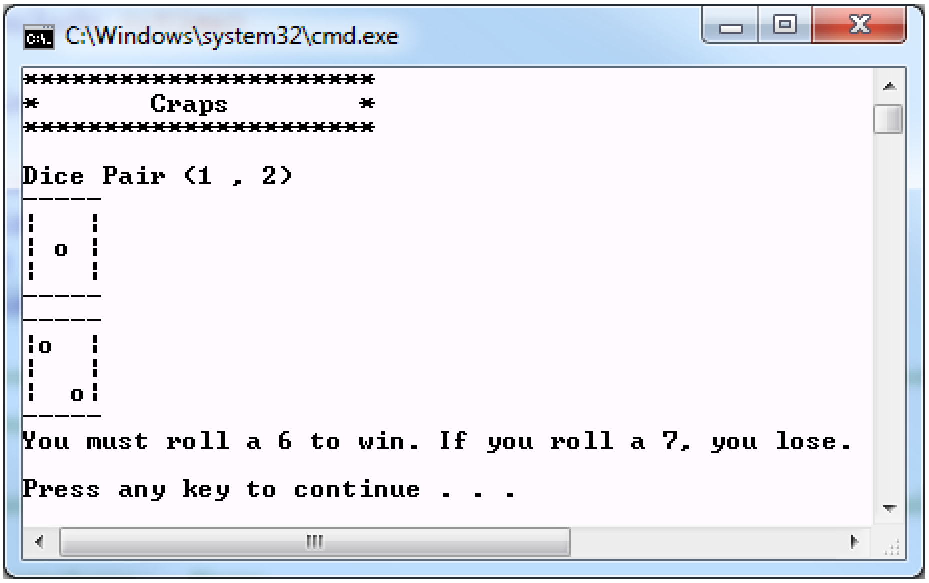
Run 4:

Screen 1



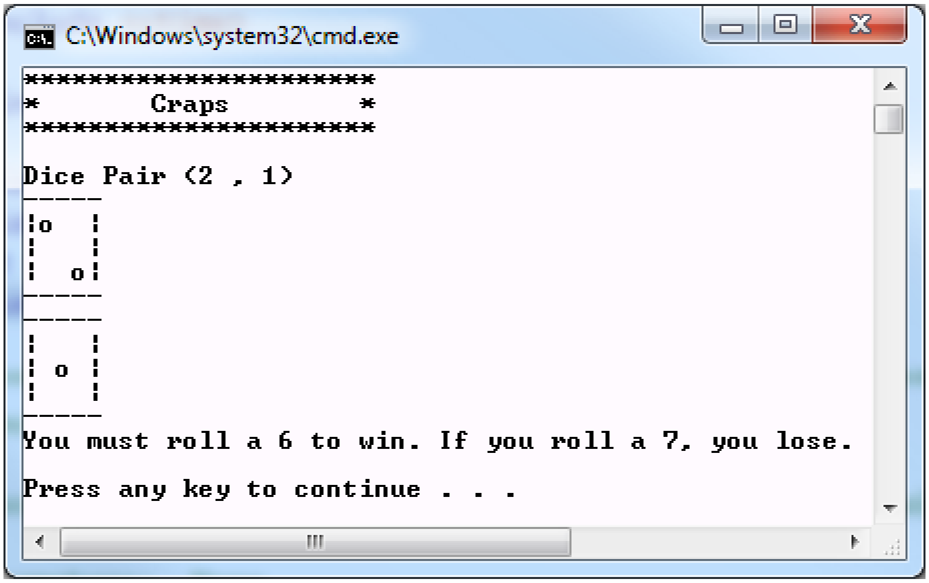
```
**********************
*       Craps        *
**********************

Dice Pair (1 , 5)
-----
|   |
| o |
|   |
-----
-----
|o o|
| o |
|o o|
-----
You must roll a 6 to win. If you roll a 7, you lose.

Press any key to continue . . .
```

Screen 2



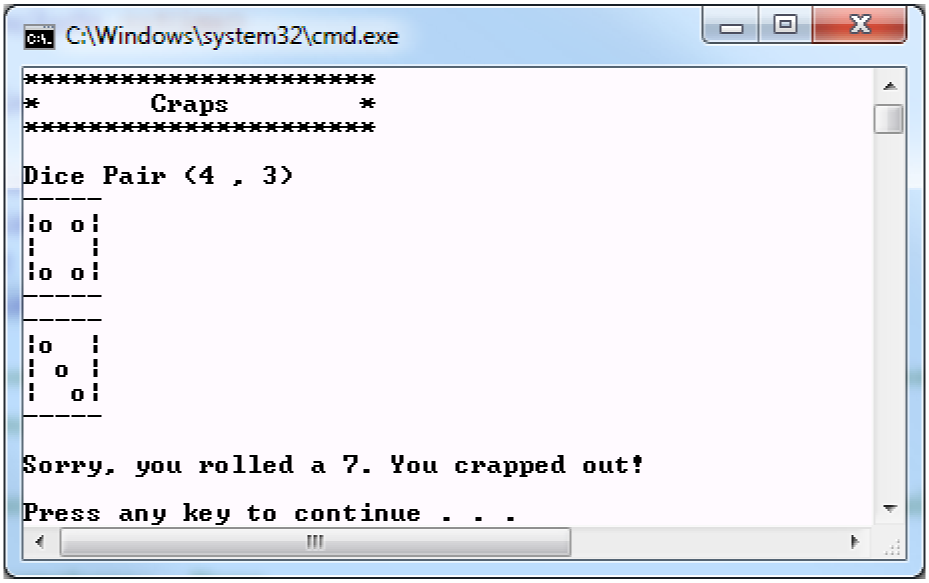
```
**********************
*       Craps        *
**********************

Dice Pair (1 , 2)
-----
|   |
| o |
|   |
-----
-----
|o  |
|   |
|  o|
-----
You must roll a 6 to win. If you roll a 7, you lose.

Press any key to continue . . .
```

Screen 3



```
**********************
*       Craps        *
**********************

Dice Pair (2 , 1)
-----
|o  |
|   |
|  o|
-----
-----
|   |
| o |
|   |
-----
You must roll a 6 to win. If you roll a 7, you lose.

Press any key to continue . . .
```

Screen 4



```
**********************
*       Craps        *
**********************

Dice Pair (4 , 3)
-----
|o o|
|   |
|o o|
-----
-----
|o  |
| o |
|  o|
-----

Sorry, you rolled a 7. You crapped out!

Press any key to continue . . .
```

To complete this assignment you must submit the following:

1. **An electronic copy of your program on Grace**
    a. Add a new project named 06_Craps to your previously created assignment solution called PUNetIDAssignments. It is *vital* that you name your project correctly!
    b. Type your program (fully documented/commented) into the project. You must follow the coding standards!
    c. Pay attention to the example output! Your program's output must look **exactly** like the example output! The spacing and newlines in your output must match exactly.
    d. Make sure that your program compiles and runs correctly. If you get any errors, double check that you typed everything correctly.
    e. Make sure that your program does not produce any warnings.
    f. Once you are sure that the program works correctly it is time to submit your program. You do this by logging on to Grace and placing your complete solution folder in the **CS150-01 Drop** folder. This solution folder must contain six projects.
    g. The program must be in the drop folder by 1:00pm on the day that it is due. Anything submitted after that will be considered late.

2. **A hard copy of your program**
    a. The hard copy must be placed on the instructor's desk by 1:00pm on the day that it is due.
    b. The hard copy must be printed in color, double-sided, and stapled if necessary.
    c. Your tab size must be set to 2 and you must not go past column 80 in your output.

Good luck! And remember, if you have any problems, come and see straight away. ☺